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Appendix G

Traffic Counts

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Draft Transportation Impact Analysis

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Executive Summary

This study evaluates the potential transportation impacts of the Beechwood Specific Plan located in the southeastern area of the City of Paso Robles. Two project alternatives were analyzed with differing residential land use densities. The first (674-Unit Project) would consist of 674 residential dwelling units and the second (911-Unit Project) would consist of 911 dwelling units. Both project alternatives would have 4.6 acres of commercial retail land use corresponding to 47,000 square feet of commercial building area. The 911-Unit Project would consist of two phases, with Phase 1 developing 554-Units.

The 674-Unit Project would generate 8,539 net new trips per weekday, including 598 AM peak hour trips and 758 PM peak hour trips. The 911-Unit Project would generate 10,484 net new trips per weekday, including 753 AM peak hour trips and 959 PM peak hour trips. The City's Transportation Impact Analysis Guidelines and Caltrans criteria are applied to identify the transportation deficiencies below.

KEY FINDINGS

The following sections summarize the recommendations and mitigation measures. Analysis supporting these recommendations are provided in the body of this report.

Intersection Operations

Tables 13, 20, and **26**, duplicated below, summarize the intersection mitigation measures.

Table 13: Existing Conditions Mitigations

Intersection	Impact	Mitigation	No Project	Total Units 554	674	911	Cir. Elem. and TIF[1]	Responsible Agency
3. SR 46 E/Union Rd[2]	LOS	Prohibit NB lefts	X	X	X	X	Yes	Caltrans
6. Golden Hill Rd/Union Rd	LOS, Queue	Install single lane roundabout	X	X	X	X	Yes	City
7. 13th St/Riverside Ave	Queue	Optimize corridor operations, WBR and NBR overlap	X	X	X	X	No	City
8. 13th St/Paso Robles St	Queue	Optimize corridor operations	X	X	X	X	No	City
12. Creston Rd/Stoney Creek Rd	LOS	Install traffic signal	-	-	X	X	Yes	City
13. Creston Rd/Meadowlark Rd	LOS	Install traffic signal	-	-	-	X	Yes	City
17. Niblick Rd/South River Rd	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City
20. South River Rd/Charolais Rd	LOS	Install single lane roundabout	-	X	X	X	Yes	City

X - Mitigation required.
1. Intersection improvements are included in the Paso Robles Circulation Element and Traffic Impact Fee (TIF).
2. The Paso Robles Circulation Element includes improvements on State Route 46 East and in the vicinity between Buena Vista Drive and Dry Creek Road. Recommend project make a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents. Ultimate improvements will be determined in the project documents.

There are existing LOS deficiencies at SR 46 E/Union Road and Golden Hill Road/Union Road which will be exacerbated by added project traffic. There are existing queue deficiencies at three signalized intersections: 13th Street/Riverside Avenue, 13th Street/Paso Robles Street, and Niblick Road/South River Road. Project development would require up to three additional intersection mitigations, including installation of a traffic signal at Creston Road/Stoney Creek Road and Creston

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Road/Meadowlark Road, as well as installation of a single lane roundabout at South River Road/Charolais Road.

Under Existing conditions, the addition of any project would worsen operations on SR 46 E at Union Road due to existing deficiencies on the corridor. Study locations on the SR 46 E corridor would operate acceptably under Existing conditions with or without the addition of traffic from either project if northbound lefts are prohibited at the intersection of SR 46 E/Union Road.

Near Term intersection mitigations are summarized in **Table 20,** duplicated below. Near Term conditions include approved, pending, and pipeline projects, including the Olsen-Chandler Specific Plan.

Table 20: Near Term Mitigations

Intersection	Impact	Mitigation	No Project	Total Units 554	674	911	Cir. Elem. and TIF[1]	Responsible Agency
3. SR 46 E/Union Rd[2]	LOS	Prohibit NB lefts, RTP improvements	X	X	X	X	Yes	Caltrans
4. SR 46 E/Airport Rd[2]	LOS	RTP improvements	X	X	X	X	Yes	Caltrans
7. 13th St/Riverside Ave	Queue	Optimize corridor operations, WBR and NBR overlap	X	X	X	X	No	City
8. 13th St/Paso Robles St	Queue	Optimize corridor operations	X	X	X	X	No	City
11. Creston Rd/Niblick Rd	Queue	Add additional SBL, SBR, EBT, and WBR	X	X	X	X	Yes	City
12. Creston Rd/Stoney Creek Rd	LOS	Install traffic signal	-	X	X	X	Yes	City
13. Creston Rd/Meadowlark Rd	LOS	Install traffic signal	-	X	X	X	Yes	City
14. Creston Rd/Charolais Rd	LOS	Install all-way stop	-	-	-	X	No	City
16. 1st St-Niblick Rd/Spring St	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City
17. Niblick Rd/South River Rd	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City
20. South River Rd/Charolais Rd	LOS	Install single lane roundabout	X	X	X	X	Yes	City

X - Mitigation required.
1. Intersection improvements are included in the Paso Robles Circulation Element and Traffic Impact Fee (TIF).
2. The Paso Robles Circulation Element includes improvements on State Route 46 East and in the vicinity between Buena Vista Drive and Dry Creek Road. Recommend project make a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents. Ultimate improvements will be determined in the project documents.

Under Near Term conditions, the addition of any project traffic would worsen deficient operations on SR 46 E at Union Road and Airport Road. The single lane roundabout at South River Road/Charolais Road recommended as an Existing Plus Project mitigation measure is needed under Near Term No Project conditions. There are Near Term queue deficiencies at five signalized intersections, including: 13th Street/Riverside Avenue, 13th Street/Paso Robles Street, Creston Road/Niblick Road, 1st Street-Niblick Road/Spring Street and Niblick Road/South River Road. Project development would require up to three additional intersection mitigations including installation of a traffic signal at Creston Road/Stoney Creek Road and Creston Road/Meadowlark Road, as well as installation of all way stop control at Creston Road/Charolais Road.

Under Near Term conditions, no improvements were assumed on the SR 46 E corridor. For the SR 46 E corridor to operate acceptably under Near Term conditions with or without the project, the Union

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Road/Paso Robles Boulevard Extension to Airport Road and the Union Road eastbound on and off-ramps are needed. Any improvements along SR 46 E are subject to Caltrans review and approval.

It is recommended that the project makes a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents.

Cumulative intersection mitigations are summarized in **Table 26,** duplicated below. Cumulative conditions reflect buildout of local and regional land uses.

Table 26: Cumulative Mitigations

Intersection	Impact	Mitigation	No Project	Total Units 554	674	911	Cir. Elem. and TIF[1]	Responsible Agency
2. SR 46 E/Golden Hill Rd[2]	LOS	Optimize traffic signal, SBR overlap	X	X	X	X	Yes	Caltrans
6. Golden Hill Rd/Union Rd	LOS, Queue	Install multi-lane roundabout	X	X	X	X	Yes	City
7. 13th St/Riverside Ave	Queue	Optimize corridor operations, WBR and NBR overlap	X	X	X	X	No	City
8. 13th St/Paso Robles St	Queue	Optimize corridor operations	X	X	X	X	No	City
9. River Rd/Creston Rd	Queue	Optimize corridor operations	X	X	X	X	No	City
12. Creston Rd/Stoney Creek Rd	LOS	Install traffic signal	X	X	X	X	Yes	City
13. Creston Rd/Meadowlark Rd	LOS	Install traffic signal	-	X	X	X	Yes	City
14. Creston Rd/Charolais Rd	LOS	Install all-way stop	-	-	-	X	No	City
15. Riverside Ave/Pine St/ US 101 SB Ramp	LOS	Install all-way stop	X	X	X	X	No	Caltrans
16. 1st St-Niblick Rd/Spring St	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City
17. Niblick Rd/South River Rd	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City

X - Mitigation required.
1. Intersection improvements are included in the Paso Robles Circulation Element and Traffic Impact Fee (TIF).
2. The Paso Robles Circulation Element includes improvements on State Route 46 East and in the vicinity between Buena Vista Drive and Dry Creek Road. Recommend project make a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents. Ultimate improvements will be determined in the project documents.

Under Cumulative conditions, the following SR 46 E improvements were assumed to be in place in addition to the Airport Road Extension from Creston Road to Union Road:

- SR 46 E/Buena Vista Drive (#1): Second eastbound left turn lane installed
- SR 46 E/Union Road (#3): Intersection closed, eastbound on and off ramps constructed (Alternative 1 of on-going PA/ED)
- SR 46 E/Airport Road (#4): Turns restricted to right-in-right-out
- Paso Robles Boulevard overcrossing of SR 46 E and northeasterly extension to Airport Road

Under Cumulative conditions, the addition of any project traffic would worsen deficient operations at SR 46 E at Golden Hill Road. A multi-lane roundabout at Golden Hill Road/Union Road, a traffic signal at Creston Road/Stoney Creek Road, and all-way stop control at Riverside Avenue/Pine Street/US 101 SB Ramp are all needed under Cumulative conditions. There are Cumulative queue deficiencies at five signalized intersections including: 13th Street/Riverside Avenue, 13th Street/Paso

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Robles Street, River Road/Creston Road, 1st Street-Niblick Road/Spring Street and Niblick Road/South River Road. Project development would require up to two additional intersection mitigations, including installation of a traffic signal at Creston Road/Meadowlark Road, as well as installation of all way stop control at Creston Road/Charolais Road.

Project traffic could be mitigated by traffic signal improvements at SR 46 E/Golden Hill Road. For the intersection to operate acceptably under Cumulative conditions with or without the project, additional corridor improvements are needed.

It is recommended that the project makes a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents.

Roadway Operations

The following roadway segments were identified as having a roadway capacity utilization over 90%:

- *Existing Conditions:* No segments identified with the addition of traffic from either project.
- *Near Term Conditions:* The Niblick Road segment east of Spring Street would operate at 92% capacity under Near Term conditions. With the addition of traffic from either project, the capacity utilization would increase but remain below 100%.
- *Cumulative Conditions:* The Niblick Road segment east of Spring Street would operate at 93% capacity under Cumulative conditions. With the addition of traffic from either project, the capacity utilization would increase but remain below 100%. The Creston Road segment east of Ferro Lane would operate at 89% capacity under Cumulative conditions. With the addition of traffic from either project, the capacity utilization would increase above 90% but remain below 100%.

The projected capacity utilization of 99% on Niblick Road does not justify the widening of this roadway. Widening the bridge to a six-lane arterial would result in a capacity utilization below 70%, which would reduce vehicle delays, but would also support higher vehicle speeds and would conflict with the City's multimodal goals and desire to maintain its small-town character.

The projected capacity utilization of 92% on Creston Road also does not justify widening. In 2018, the City Council approved a preferred alternative for the Creston Road Corridor between South River Road and Niblick Road. The preferred alternative includes a three-lane cross section with two travel lanes and center turn lane from South River Road to Rolling Hills Road where the road transitions to a five-lane cross section with four travel lanes and a center turn lane. Also included are Class II bike lanes throughout the corridor and intersection enhancements.

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Freeway Operations

The following freeway segments operate at LOS D or worse with or without the addition of traffic from either project as shown in **Table 30**, duplicated below.

Table 30: Summary of Freeway Operations

Direction	Location	Segment Type	Peak Hour	Existing	Ex. + Proj.	Near Term	NT + Proj.	Cumu-lative	Cum. + Proj.
US 101 NB	SR 46W Off Ramp	Diverge	AM	-	-	-	-	-	D
			PM	-	-	D	D	D	D
	SR 46W On Ramp	Merge	AM	-	-	-	-	D	D
			PM	D	D	D	D	E	F
	North of SR 46W	Mainline	AM	-	-	-	-	D	D
			PM	D	D	D	E	E	E (674) F (911)
	Spring St. Off Ramp	Diverge	AM	-	-	D	D	D	D
			PM	D	D	E	E	F	F
US 101 SB	Spring St. On Ramp	Merge	AM	-	-	-	-	D	D
			PM	-	-	-	-	D	D
	North of SR 46W	Mainline	AM	D	D	D	E	E	E
			PM	D	D	D	D	E	E
	SR 46W Off Ramp	Diverge	AM	D	D	E	E	E	E
			PM	D	D	E	E	E	E
	SR 46W On Ramp	Merge	AM	-	-	D	D	D	D
			PM	-	-	D	D	D	D

Note: Segment operating acceptably are not shown in table.

Development of mitigation measures and recommendations will require Caltrans coordination. Although widening the mainline to a six-lane facility between Spring Street and Main Street would improve operations to LOS C or better for most segments, widening is difficult and is not included in the US 101 Transportation Concept Report or Regional Transportation Plan for this segment. Ramp improvements or metering may be an alternative in addition to Transportation Demand Management (TDM) and Transportation System Management (TSM) strategies.

The SLOCOG Regional Transportation Plan (RTP) identifies a future SR 46 Urban Multi-Modal Corridor Study for this area.

San Luis Obispo County Facilities

The 674-Unit and 911-Unit project would generate 8 and 10 PM peak hour trips into the Templeton Road Improvement Fee Area, respectively.

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Circulation Recommendations

Table 17, duplicated below, summarizes the on-site, school, and neighborhood circulation recommendations.

Table 17: Summary of Circulation Recommendations

Topic	Recommendations	Responsibility
Project Site Circulation Plan (Figure 2a)	Meadowlark Road: Consider installing additional parallel parking on south side east of Beechwood Drive for school and park. Currently allowed adjacent to the roadway.	Project
	Beechwood Drive: Remove proposed parking on east side south of Ridge Road.	Project
	Ridge Road: Recommend 12' travel lane widths (15' proposed).	Project
	Airport Road/Meadowlark Road: Existing two-way stop control should remain unless roundabout is installed or all-way stop control warrants are met.	Project
	Airport Road Extension: Construct at the time of adjacent development. Airport Road north of Ridge Road should be constructed during Phase 1 (Subareas A through H). The Airport Road extension to Creston Road should be constructed prior to development of Phase 2 (Subareas I and J).	Project
Virginia Peterson School Circulation	Update existing school speed limit and crossing signage per CAMUTCD.	City
	Use ladder crosswalk striping at uncontrolled crosswalks.	City
	Meadowlark Road: Remove north side parking adjacent to school and south side parking west of school to install bike lanes. Keep current drop-off and pick-up area.	City
	Beechwood Drive: Install southbound Class II bike lane from Meadowlark Road to Creston Road.	Project/City
	Beechwood Drive: Install 25 MPH school signage and other school signage consistent with CAMUTCD.	Project/City
Traffic Calming	Meadowlark Road: If lower posted speed is desired, design roadway improvements to reduce prevailing speed. Consider roundabout(s) and/or mini-roundabout(s) on corridor.	Project
Creston Road Bicycle and Pedestrian Assessment	Niblick Road/Sherwood Road to Charolais Road: Restripe to include Class II bike lanes (remove parking where necessary) and include buffer where width allows.	City
	Complete sidewalk gap on east side between Stoney Creek Road and Meadowlark Road.	Project/City
	Complete sidewalk gaps on west side between Santa Ynez Avenue and Flag Way.	City
	Remove unsignalized crossing at Myrtlewood Drive when traffic signal is installed at Stoney Creek Road.	City

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Appendix A: Traffic Counts

Appendix B: Intersection LOS/Queue Calculation Sheets

Appendix C: Freeway LOS Calculation Sheets

Appendix D: Warrant Analysis Sheets

Appendix E: Agency Comment/Response

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Introduction

This study evaluates the potential transportation impacts of the proposed Beechwood Specific Plan located in the southeastern area of the City of Paso Robles. Two project alternatives were analyzed with differing residential land use densities. The first (674-Unit Project) would consist of 674 residential dwelling units and the second (911-Unit Project) would consist of 911 dwelling units. Both project alternatives would have 4.6 acres of commercial retail land use corresponding to 47,000 square feet of commercial building area. The 911-Unit Project would consist of two phases, with Phase 1 developing 554-Units.

The project's location and study intersections are shown on **Figure 1. Figures 2a and 2b** show the project site circulation and phasing plans, respectively. Phase 1 would develop Subareas A through H.

The study locations, key analysis assumptions, and analysis scenarios were developed in consultation with City, County, and Caltrans staff. The initial scope of work, existing conditions and assumptions, and administrative draft TIS were submitted to agency staff for review and comment. Refer to Appendix E for a summary of agency comments received and resultant responses and changes.

The following intersections are evaluated during the weekday morning (7-9 AM) and evening (4-6 PM) time periods:

1. State Route 46 E/Buena Vista Drive
2. State Route 46 E/Golden Hill Road
3. State Route 46 E/Union Road
4. State Route 46 E/Airport Road
5. State Route 46 E/Mill Road
6. Golden Hill Road/Union Road
7. 13th Street/Riverside Avenue
8. 13th Street/Paso Robles Street
9. River Road/Creston Road
10. Creston Road/Golden Hill Road
11. Creston Road/Niblick Road
12. Creston Road/Stoney Creek Road
13. Creston Road/Meadowlark Road
14. Creston Road/Charolais Road
15. Riverside Avenue/Pine Street/US 101 SB Ramp
16. 1st Street-Niblick Road/Spring Street
17. Niblick Road/South River Road
18. South River Road/Riverbank Lane
19. South River Road/Bridgegate Lane
20. South River Road/Charolais Road
21. Charolais Road/Holstein Drive
22. Charolais Road/Otero Lane
23. Charolais Road/St. Andrews Circle
24. Charolais Road/Rambouillet Road
25. Meadowlark Road/Oriole Way

The following roadway segments were evaluated using average daily traffic (ADT) volumes:

1. Creston Road – River Road to Golden Hill Road
2. Creston Road – Golden Hill Road to Niblick Road
3. Creston Road – Niblick Road to Cedarwood Drive
4. Creston Road – Cedarwood Drive to Charolais Road
5. Golden Hill Road – Creston Road to Union Road
6. Golden Hill Road – Union Road to SR 46 E
7. Niblick Road – South River Road to Spring Street
8. Niblick Road – Creston Road to South River Road
9. Charolais Road – South River Road to Creston Road
10. South River Road – Spanish Camp Road South to Neal Spring Road
11. South River Road – Charolais Road to Niblick Road
12. Barley Grain Road – Creston Road to Spanish Camp Road

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The following freeway facilities were evaluated during the weekday morning (7-9 AM) and evening (4-6 PM) time periods:

1. US 101 northbound off ramp at State Route 46 W
2. US 101 northbound on ramp at State Route 46 W
3. US 101 northbound mainline north of State Route 46 W
4. US 101 northbound off ramp at Spring Street
5. US 101 northbound off ramp at Paso Robles Street
6. US 101 northbound on ramp at Paso Robles Street
7. US 101 northbound mainline south of State Route 46 E
8. US 101 northbound off ramp at State Route 46 E
9. US 101 northbound on ramp at State Route 46 E
10. US 101 northbound mainline north of State Route 46 E
11. US 101 southbound mainline north of State Route 46 E
12. US 101 southbound off ramp at State Route 46 E
13. US 101 southbound on ramp at State Route 46 E
14. US 101 southbound off ramp at Riverside Avenue-17th Street
15. US 101 southbound mainline south of State Route 46 E
16. US 101 southbound on ramp at Riverside Avenue-17th Street
17. US 101 southbound off ramp at Riverside Avenue/Pine Street
18. US 101 southbound on ramp at Spring Street
19. US 101 southbound mainline north of State Route 46 W
20. US 101 southbound off ramp at State Route 46 W
21. US 101 southbound on ramp at State Route 46 W

The study locations were evaluated under these scenarios:

1. **Existing Conditions** reflect recent traffic counts and the existing transportation network.
2. **Existing Plus Project** adds project generated traffic to existing volumes.
3. **Near Term Conditions** add approved and pending projects in the study area to Existing Conditions volumes.
4. **Near Term Plus Project** adds project traffic to Near Term volumes.
5. **Cumulative Conditions** represent future traffic conditions reflective of the buildout of land uses and the roadway network in the area, not including the proposed Project.
6. **Cumulative Plus Project** represents future traffic conditions reflective of the buildout of land uses and the roadway network in the area, including the proposed Project.

A description of the analysis approach follows **Figures 1, 2a,** and **2b**.

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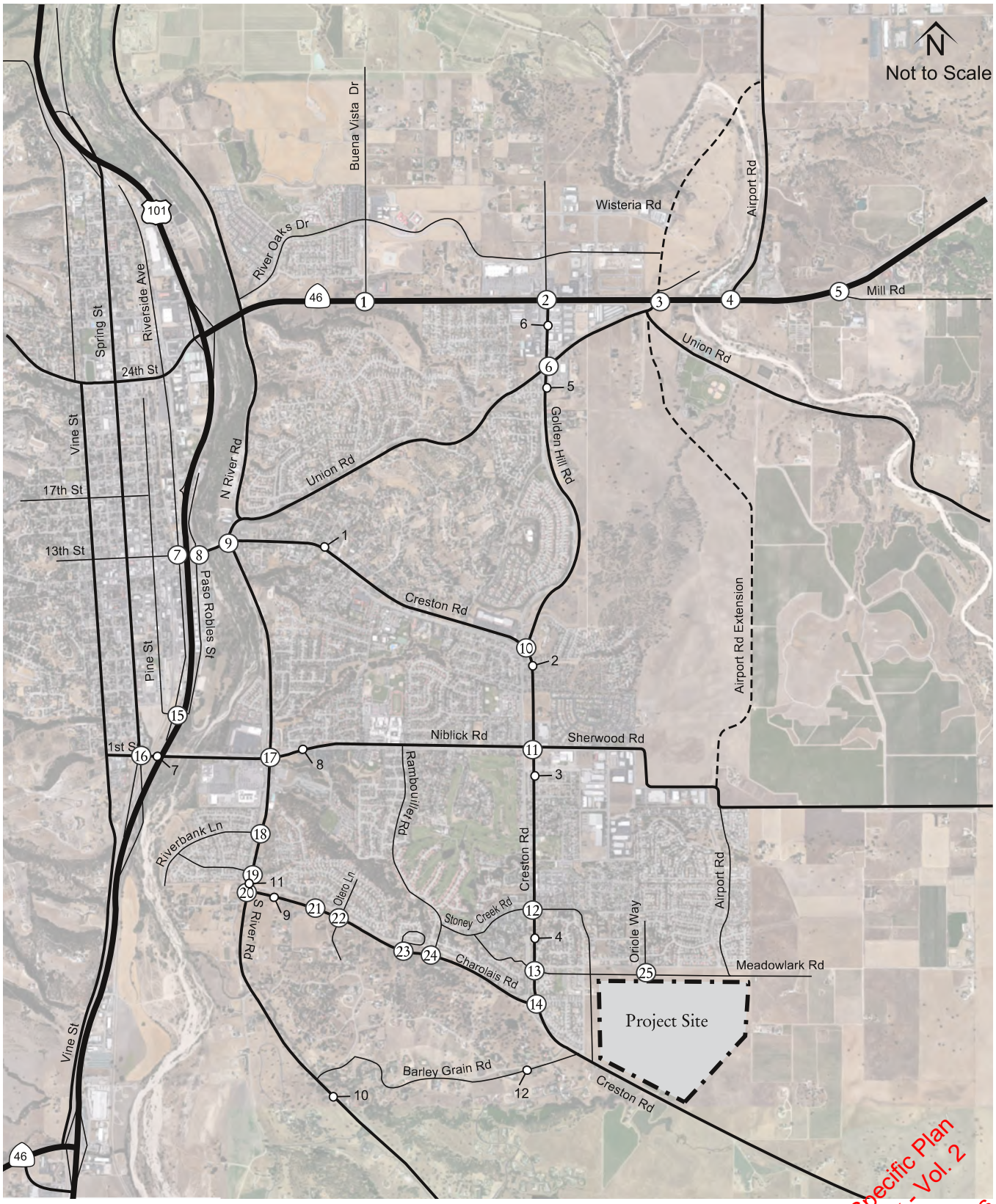
Figure 1: Project and Study Locations



Legend:

- (x) - Study Intersection
- - - - Cumulative Improvements
- o— - Study Segment

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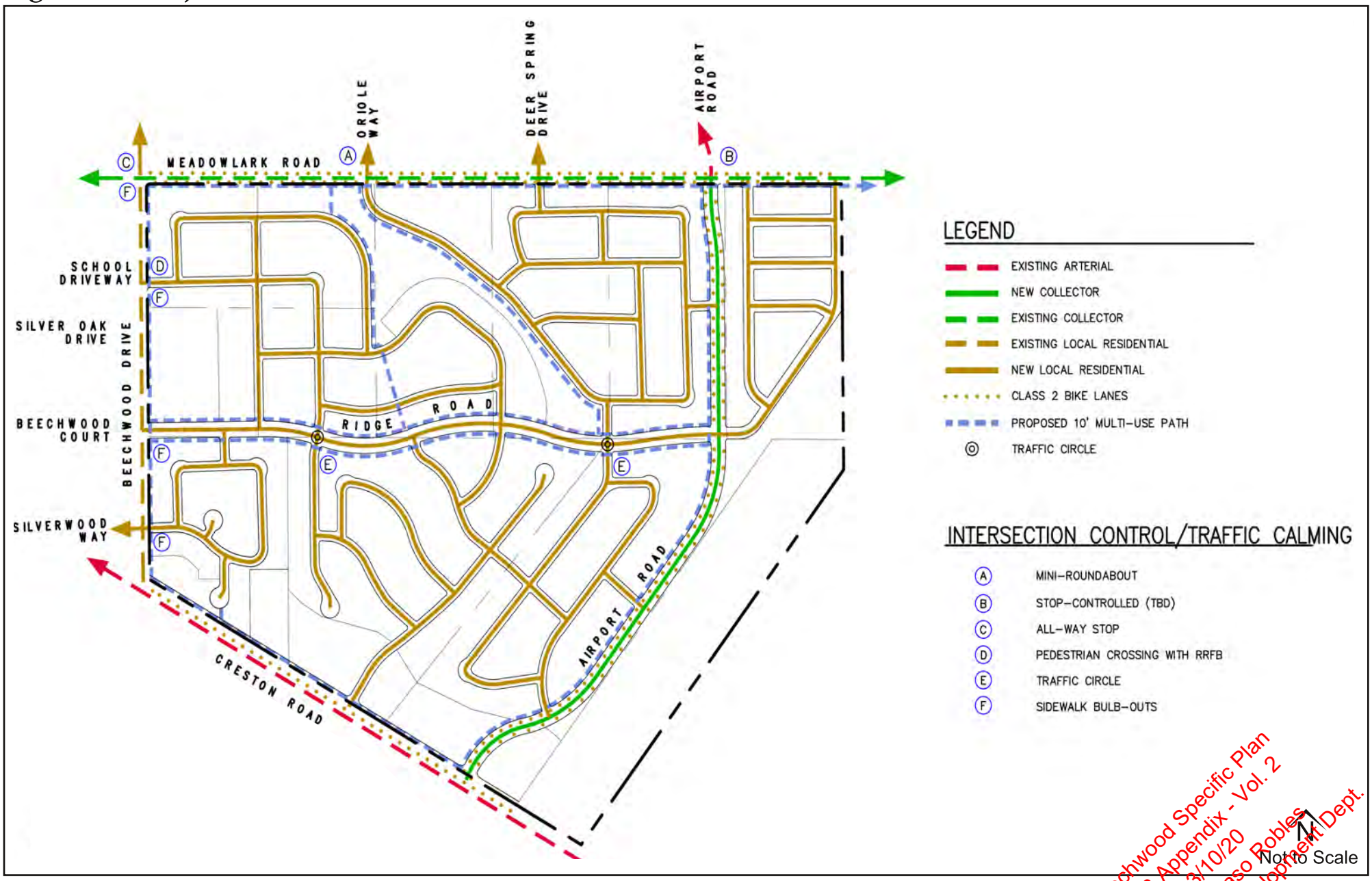
Figure 2a: Project Site Circulation Plan



Source: Rick Engineering Company, February 2019

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Figure 2b: Project Site Phasing Plan

Source: Rick Engineering Company, February 2019

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ANALYSIS METHODS

The analysis approach was developed based on the City of Paso Robles' *Transportation Impact Analysis Guidelines*, County of San Luis Obispo standards, and Caltrans standards.

City of Paso Robles Facilities

The City's TIA Guidelines provide criteria for identifying mobility deficiencies reflecting the City's Circulation Element Goals. Vehicular queues that exceed existing or planned lengths of turn pockets are a deficiency criterion. However, while vehicular level of service (LOS) is a component of the evaluation criteria for stop-controlled intersections, it is not identified as a mobility deficiency criterion for signalized intersections.

The City's TIA Guidelines provide mobility deficiency criteria for a variety of study elements. **Table 1** summarizes these criteria, which are used to identify deficiencies.

Table 1: City of Paso Robles Mobility Deficiency Criteria[1]

Study Element	Deficiency Determination
On-site Circulation and Parking	Project designs fail to meet City or industry standard guidelines, fail to provide adequate truck access, will result in unsafe conditions, or will create parking demand or supply above code requirements.
Pedestrian, Bicycle, Transit Facilities	Project fails to provide safe and accessible connections, conflicts with adopted plans, or adds trips to facility that doesn't meet current design standards
Traffic Operations	Project causes vehicle queues that exceed turn pocket lengths, increases safety hazards, causes stop-controlled intersection to operate below LOS D and meet signal warrants, or causes vehicle demand greater than the roadway capacity.

1. Summary based on Table 5 of City's Transportation Impact Study Guidelines

The City's TIA Guidelines also specify the analysis time periods, noting that typically traffic operations should be studied during the peak one hour of traffic on weekday mornings (between 7-9 AM) and afternoons (between 4-6 PM).

County of San Luis Obispo Facilities

The County of San Luis Obispo has adopted the following Level of Service (LOS) standard for roadways and intersections:

- Rural areas (outside the Urban Reserve Line): LOS C is acceptable; LOS D is not.
- Urban areas (within the Urban Reserve Line): LOS D is acceptable; LOS E is not.

The segments of South River Road from Lake Ysabel Road to Spanish Camp Road South and Barley Grain Road from Creston Road to Spanish Camp Road lie outside of the City limits and the Urban Reserve Line and are subject to the LOS C standard.

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Caltrans Facilities

Caltrans controls the intersections along State Route 46 and the freeway segments on US 101. Caltrans relies on LOS to determine deficiencies. Accordingly, Caltrans intersections have been evaluated using LOS criteria as contained in the HCM 6. Vehicular level of service is based on control delay, which is the total of time spent decelerating when approaching an intersection, time spent stopped or moving in a queue at an intersection, and time spent accelerating after an intersection.

Caltrans strives to maintain operations at the LOS C/D threshold on state-operated facilities. If an existing State Highway facility is operating at LOS D, E, or F the existing measure of effectiveness should be maintained. Note that any improvements proposed within Caltrans right-of-way are subject to Caltrans review and approval via their project development process.

Queuing is not a measure of effectiveness at signalized and unsignalized intersections in the Caltrans Guide for the Preparation of Traffic Impact Studies; therefore, queuing impacts are not considered at Caltrans facilities in the following analysis.

Intersection Analysis

Table 2 presents the vehicular level of service thresholds for both City- and Caltrans-operated intersections based on the Highway Capacity Manual 6th Edition (HCM 6).

Table 2: Intersection Level of Service Thresholds

Signalized Intersections[1]		Stop Sign Controlled Intersections[2]		Roundabout Intersections[3]	
Control Delay (sec/vehicle)	Level of Service	Control Delay (sec/vehicle)	Level of Service	Control Delay (sec/vehicle)	Level of Service
≤ 10	A	≤ 10	A	≤ 10	A
> 10 - 20	B	> 10 - 15	B	> 10 - 15	B
> 20 - 35	C	> 15 - 25	C	> 15 - 25	C
> 35 - 55	D	> 25 - 35	D	> 25 - 35	D
> 55 - 80	E	> 35 - 50	E	> 35 - 50	E
> 80	F	> 50 or v/c > 1	F	> 50 or v/c > 1	F

1. Source: Exhibit 19-8 of the Highway Capacity Manual 6th Edition
2. Source: Exhibits 20-2 and 21-8 of the Highway Capacity Manual 6th Edition.
3. Source: Exhibit 22-8 of the Highway Capacity Manual 6th Edition.

Unsignalized intersections have lower delay thresholds because users experience more uncertainty than at signals, where drivers typically expect higher levels of congestion and more predictable levels of delay.

The study intersections were analyzed with the Synchro 10 software package. The HCM 6 methodology was applied except where unique intersection configurations or signal phasing required the HCM 2000 methodology. The 95th percentile queues for key movements are reported, which reflect the queue length that will not be exceeded 95% of the time.

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Segment Analysis

The roadway study segments were evaluated for capacity utilization and level of service based on average daily traffic (ADT) volumes.

Table 3 presents the vehicular level of service thresholds for basic freeway, merge/diverge, and weaving segments based on the HCM 6.

Table 3: Freeway Segment Level of Service Thresholds

Basic Freeway[1]		Merge/Diverge[4]		Freeway Weaving[5]	
Density (pc/mi/ln)[2]	Level of Service	Density (pc/mi/ln)	Level of Service	Density (pc/mi/ln)[2]	Level of Service
≤ 11	A	≤ 10	A	≤ 10	A
>11 - 18	B	> 10 - 20	B	> 10 - 20	B
> 18 - 26	C	> 20 - 28	C	> 20 - 28	C
> 26 - 35	D	> 28 - 35	D	> 28 - 35	D
> 35 - 45	E	> 35	E	> 35 - 43	E
> 45 or (D > C)[3]	F	v/c > 1	F	> 43 or v/c > 1	F

1. Source: Exhibit 12-15 of the Highway Capacity Manual 6th Edition.
2. Demand in units of passenger car/mile/lane.
3. LOS F if demand exceeds capacity.
4. Source: Exhibit 14-3 of the Highway Capacity Manual 6th Edition.
5. Source: Exhibit 13-6 of the Highway Capacity Manual 6th Edition.

The basic freeway and merge/diverge study segments were analyzed using Highway Capacity Software (HCS 7) package, applying the HCM 6 methodology. The weaving segment was analyzed using the Leisch methodology, which required converting the truck volumes in vehicles per hour (vph) to passenger cars per hour (pcph) based on a passenger car equivalent (PCE) value of 2.

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Existing Conditions

This section describes the existing transportation system and current operating conditions in the study area.

EXISTING ROADWAY NETWORK

US Highway 101 (US 101) is a major north-south interstate facility connecting California, Oregon, and Washington. In the study area, US 101 is a four-lane freeway with a full access interchange at State Route 46.

State Route 46 (SR 46) is an east-west highway connecting the Central Valley with the Central Coast. In the study area, SR 46 consists of four lanes with at-grade intersections at side streets.

Golden Hill Road is a north-south arterial with two travel lanes north of Union Road that expand into four travel lanes between Mesa Road and Dallons Drive.

Union Road is a northeast-southwest arterial with two travel lanes between SR 46 E and Creston Road. Union Road also splits into a second arterial in the northwest-southeast direction just before connecting to SR 46 E.

Airport Road is a discontinuous north-south arterial with two travel lanes which runs north of SR 46 E and between Linne Road and Meadowlark Road.

Buena Vista Drive is a north-south arterial with two travel lanes north of SR 46 E.

Mill Road is a primarily east-west local road with two travel lanes south of SR 46 E.

Riverside Avenue is a north-south collector with two travel lanes west of US 101.

Pine Street is a primarily north-south local road with two travel lanes. In the study area, Pine Street runs east-west under a railroad crossing (only wide enough for one vehicle) to the intersection of Riverside Avenue and the US 101 southbound off ramp.

Paso Robles Street is a north-south collector with two travel lanes and US 101 on and off ramps to the north and south, respectively.

Creston Road is an arterial that runs both east-west and north-south throughout the study area. The segment of Creston Road between Rolling Hills Road and Charolais Road has either three or four travel lanes, while the segment from River Road to Rolling Hills Road has two travel lanes.

13th Street is an east-west facility acting as a two-lane collector and as a two- and four-lane arterial west and east of Spring Street, respectively. 13th Street turns into Creston Road east of River Road.

Niblick Road is an east-west undivided arterial with four travel lanes between Spring Street and Creston Road. West of Spring Street, Niblick Road turns in 1st Street, and east of Creston Road, it turns into Sherwood Road.

1st Street is an east-west collector with two travel lanes between Vine Street and Spring Street.

Stoney Creek Road is an east-west collector with two travel lanes between Rambouillet Road and Creston Road.

Meadowlark Road is an east-west collector with two travel lanes. Meadowlark Road borders the study area to the north.

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Charolais Road is northwest-southeast arterial with two travel lanes between South River Road and Creston Road.

South River Road is a north-south facility acting as a two-lane collector and as a two- and four-lane arterial north and south of Niblick Road, respectively. South River Road turns into Union Road north of Creston Road before intersecting with North River Road.

Riverbank Lane is a northeast-southwest local road with two travel lanes that serves the surrounding residential neighborhoods.

Bridgegate Lane is an east-west local road with two travel lanes that serves the surrounding residential neighborhoods.

Holstein Drive is a north-south local road with two travel lanes that connects the surrounding neighborhoods to Charolais Road.

Otero Lane is a north-south local road with two travel lanes that connects the surrounding neighborhoods to Charolais Road.

St. Andrews Circle is a north-south and east-west local road with two travel lanes that connects the surrounding neighborhood to Charolais Road.

Rambouillet Road is a north-south collector road with two travel lanes that connects the surrounding residential neighborhoods to Niblick Road to the north and Charolais Road to the south.

Oriole Way is a north-south local road with two travel lanes that connects the surrounding neighborhoods to Meadowlark Road to the south.

Barley Grain Road is an east-west local road with two travel lanes that connects the surrounding neighborhoods to South River Road to the west and Creston Road to the east.

EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, multi-use paths, and pedestrian signals at signalized intersections. The existing pedestrian facilities in the project vicinity are described below:

- *Airport Road:* Continuous sidewalk on both sides of the road between Meadowlark Road and Linne Road. There is an uncontrolled crosswalk on the south leg of Running Stag Way and a stop control crosswalk on the south leg of Scott Street.
- *Beechwood Drive:* Continuous sidewalk on west side between Creston Road and Stoney Creek Road. Intermittent sidewalk on east side north of Meadowlark Road. A stop-controlled crosswalk is located on the north leg of Meadowlark Road.
- *Charolais Road:* A Class I bike path and continuous sidewalk is located on the north side of the roadway along the limits from Creston Road to River Road. Class I bikeway connects to the Salinas River Walk running parallel to the Salinas River and connecting to the Creston Road / 13th Street intersection. There are no marked crosswalks on the corridor.
- *Creston Road:* Intermittent sidewalk on both sides of roadway along the limits. Between Flag Way and Charolais Road there is continuous sidewalk on the west side and between Niblick Road/Sherwood Road and Stoney Creek Road there is a continuous sidewalk on the east side. Crosswalks are provided on all four legs of the Creston Road/Niblick Road/Sherwood Road.

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and Creston Road/Cedarwood Drive signalized intersections. An uncontrolled crosswalk is located on the north leg of Meadowlark Road and the south leg of Myrtlewood Drive.

- *Meadowlark Road:* Continuous sidewalk on north side between Creston Road and easterly limits. South side sidewalk between Creston Road and Beechwood Drive. An uncontrolled crosswalk is located on the west leg of Falcon Drive and stop-controlled crosswalks on the west leg of Beechwood Drive and the east leg of Creston Road.
- *Niblick Road/Sherwood Road/1st Street:* Continuous sidewalk on north side between Vine Street and easterly limits. South side sidewalk intermittent. There are multiple uncontrolled and traffic signal-controlled crosswalks. Crosswalks are provided on all four legs of the Creston Road/Niblick Road/Sherwood Road signalized intersection.
- *River Road:* Continuous sidewalk on west side from north of Navajo Avenue to Charolais Road. East side sidewalk intermittent. Crosswalks are provided on all four legs of the River Road/Niblick Road intersection. A stop-controlled crosswalk is located on the north leg of Charolais Road.

Bicycle Facilities

Bicycle facilities in the study area consist of Class I, II, and III bikeways. Class I shared-use paths or bike paths are facilities with a separate right of way with crossflows by vehicles minimized. A Class II bike lane provides a striped lane for one-way bicycle travel on the side of the street adjacent to vehicle traffic. Class III bike routes consist of a roadway that is shared between bicycle and vehicle traffic with supplemental bike signage.

The City's Bicycle and Pedestrian Plan was most recently adopted on December 18, 2018. The existing and proposed bikeways in the project vicinity are described below:

- Airport Road: Existing Class II bikeways between Meadowlark Road and Linne Road. A future Class I bikeway is proposed adjacent and parallel to Airport Road connecting Creston Road and Union Road
- Beechwood Drive: Class I and II bikeways are proposed between Meadowlark Road and Creston Road.
- Charolais Road: Existing Class I bike path on the north side of the roadway along the limits from Creston Road to River Road. West of River Road the Class I bikeway connects to the Salinas River Walk running parallel to the Salinas River and connecting to the Creston Road / 13th Street intersection. The future Class I Salinas River Trail would eventually connect the River Walk to San Miguel and Santa Margarita.
- Creston Road: Existing Class II bike lanes north of Lana Street/Oak Meadow Lane and on north side of road between Beechwood Drive and Meadowlark Road. Class II bike lanes are proposed within the city limits.
- Meadowlark Road: No existing bikeways. Class II bike lanes are proposed west of Beechwood Drive. Class I and II bikeways are proposed east of Beechwood Drive.
- Niblick Road/Sherwood Road/1st Street: Existing Class II bike lanes from Vine Street to the easterly limits.
- River Road: Existing Class II bike lanes from Niblick Road to Charolais Road.

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EXISTING TRANSIT SERVICE

The Paso Express provides fixed route and dial-a-ride transit service throughout the City of Paso Robles. All Paso Express trips begin and end at the North County Transportation Center, located at Pine Street/8th Street. The fixed route service operates Routes A and B, which run clockwise and counterclockwise, respectively. The nearest Route A and B stops to the site are located across the street from one another on Stoney Creek Road, west of Creston Road, with hourly service from 6:45 AM to 7:05 PM on weekdays and 7:45 AM to 6:05 PM on Saturdays. The dial-a-ride service provides curb-to-curb service on weekdays from 7:00 AM to 1:00 PM.

The San Luis Obispo Regional Transit Authority (RTA) provides regional fixed-route service to San Luis Obispo County. Route 9 serves the North County region, providing regional access between San Luis Obispo, Santa Margarita, Atascadero, Templeton, and Paso Robles, including a stop at the North County Transportation Center.

EXISTING SCHOOL CIRCULATION

Virginia Peterson Elementary School is located on the southwest corner of the intersection of Beechwood Drive/Meadowlark Road, adjacent to the project site. During the 2017-18 school year, 440 students were enrolled. On-site parking is provided for buses, visitors, and staff. The designated student drop-off and pick-up area is located on the south side of Meadowlark Road adjacent to the school.

CCTC observed school traffic during the typical morning drop-off and afternoon pick-up. School crossing guards are located at both crosswalks on Meadowlark Drive adjacent to the school. Parents use the designated parking area as well as the north side of Meadowlark Drive and Beechwood Drive north of Meadowlark Drive. No congestion or queuing was observed at the intersection of Meadowlark Drive/Beechwood Drive, and additional parking was located on these two roadways.

Recommendations for school circulation are discussed in the Existing Plus Project Scenario of the report.

EXISTING TRAFFIC CONDITIONS

New peak hour intersection turning movement counts, peak hour freeway and ramp counts, and roadway segment ADT counts were collected in May, June, and October 2018 during clear weather and when local schools were in session. Additionally, pedestrian and bicycle counts were collected at the study intersections. The traffic count sheets are included in **Appendix A**.

Due to construction work near the intersection of Creston Road/Niblick Road (#11), prior turning movement count data from 2016 was used. San Luis Obispo County 2016 ADT counts were used to analyze the capacity utilization of the roadway segment of South River Road south of Spanish Camp Road South.

The bicycle counts collected at the 13th Street/Riverside Avenue intersection (#7) were taken on the same day as the AIDS/LifeCycle event, resulting in uncharacteristically high AM southbound through volumes. The PM bicycle counts, as well as the AM bicycle counts on the unaffected approaches, show that typical bicycle demand at the intersection is not large enough to have a significant effect on the analysis results.

Hourly data from the Caltrans count station on US 101 north of Main Street shows that on midweek school days during the 2017-2018 school year, the peak hours in both directions most frequently

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occurred between 7:00 – 9:00 AM and 4:00 – 6:00 PM. On the counted day (Wednesday, June 6, 2018), the peak hours in both directions also occurred during these times and the peak hour volumes were all within two percent of the average. Hourly data from the Caltrans count station on SR 46 E west of McMillan Canyon Road shows that on mid-weekdays from July through September 2018, the PM peak hour in both directions most frequently occurred between 4:00 – 6:00 PM and had substantially larger volumes on average than the AM peak hour. This data indicates that 7:00 – 9:00 AM and 4:00 – 6:00 PM intersection counts are sufficient.

Figure 3 shows the existing weekday peak hour traffic volumes at the study intersections and the existing ADT on the study segments. **Figure 4** shows the existing lane configurations.

1. Intersection Operations

Table 4 presents the existing LOS for the study intersections, with detailed calculation sheets in **Appendix B** and warrant analysis sheets in **Appendix D**.

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Table 4: Existing Intersection Auto Levels of Service

Intersection	Peak Hour	Delay[1] (sec/veh)	LOS
1. State Route 46 E/Buena Vista Drive	AM	16.7	B
	PM	12.0	B
2. State Route 46 E/Golden Hill Road	AM	24.5	C
	PM	26.2	C
3. State Route 46 E/Union Road	AM	4.2 (23.5)	- (C)
	PM	**5.6 (31.3)**	**- (D)**
4. State Route 46 E/Airport Road	AM	5.6 (20.4)	- (C)
	PM	4.6 (22.7)	- (C)
5. State Route 46 E/Mill Road	AM	0.1 (16.3)	- (C)
	PM	0.2 (19.3)	- (C)
6. Golden Hill Road/Union Road	AM	**51.3**	**F**
	PM	**50.5**	**F**
7. 13th Street/Riverside Avenue	AM	30.0	C
	PM	37.6	D
8. 13th Street/Paso Robles Street	AM	15.5	B
	PM	18.0	B
9. River Road/Creston Road	AM	23.1	C
	PM	19.3	B
10. Creston Road/Golden Hill Road	AM	19.6	B
	PM	17.1	B
11. Creston Road/Niblick Road	AM	29.5	C
	PM	23.7	C
12. Creston Road/Stoney Creek Road	AM	8.1 (40.8)	- (E)
	PM	3.7 (19.9)	- (C)
13. Creston Road/Meadowlark Road	AM	12.7	B
	PM	9.8	A
14. Creston Road/Charolais Road	AM	4.7 (12.8)	- (B)
	PM	5.4 (11.6)	- (B)
15. Riverside Ave/Pine St/US 101 SB Ramp	AM	3.7 (12.3)	- (B)
	PM	5.2 (12.9)	- (B)
16. 1st Street-Niblick Road/Spring Street	AM	29.3	C
	PM	34.6	C
17. Niblick Road/South River Road	AM	33.8	C
	PM	24.6	C
18. South River Road/Riverbank Lane	AM	2.6 (31.2)	- (D)
	PM	1.0 (21.9)	- (C)
19. South River Road/Bridgegate Lane	AM	1.0 (14.2)	- (B)
	PM	0.7 (14.0)	- (B)
20. South River Road/Charolais Road	AM	17.2	C
	PM	21.4	C
21. Charolais Road/Holstein Drive	AM	0.3 (14.0)	- (B)
	PM	0.3 (12.1)	- (B)
22. Charolais Road/Otero Lane	AM	1.5 (16.8)	- (C)
	PM	0.8 (14.5)	- (B)
23. Charolais Road/St Andrews Circle	AM	0.3 (14.6)	- (B)
	PM	0.2 (12.0)	- (B)
24. Charolais Road/Rambouillet Road	AM	3.4 (13.6)	- (B)
	PM	2.9 (10.9)	- (B)
25. Meadowlark Road/Oriole Way	AM	3.7 (9.3)	- (A)
	PM	3.0 (8.8)	- (A)

1. HCM 6th average control delay in seconds per vehicle (HCM 2000 used for Intersections 1, 10 and 15). For side-street-stop controlled intersections the worst approach's delay is reported in parentheses next to the overall intersection delay.
Note: Unacceptable operations shown in **bold** text.

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The following Caltrans intersection operates below the LOS C threshold:

- SR 46 E/Union Road (#3): the northbound approach operates at LOS D during the PM peak hour due to long delays resulting from side street stop control and the high volumes along SR 46 E.

The following stop-controlled City intersections operates below LOS D:

- Golden Hill Road/Union Road (#6): operates at LOS F during the AM and PM peak hours and meets signal warrants due to high volumes from all approaches of the intersection. A single-lane roundabout is being designed for this intersection.
- Creston Road/Stoney Creek Road (#12): operates at LOS E during the AM peak hour but does not meet signal warrants. Therefore, the intersection operates acceptably per the City's TIA Guidelines.

2. Queues

Table 5 summarizes the existing vehicular queuing for key movements.

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Table 5: Existing Queues

Intersection	Movement	Storage Length (ft)	Peak Hour	95th Percentile Queues (ft)[1]
1. State Route 46 E/Buena Vista Drive	EBL[2]	345	AM	248
			PM	197
2. State Route 46 E/Golden Hill Road	NBL	160	AM	142
			PM	125
	SBL	140	AM	63
			PM	108
	EBL[2]	225	AM	127
			PM	108
	WBL[2]	125	AM	29
			PM	39
3. State Route 46 E/Union Road	WBL[2]	195	AM	55
			PM	60
4. State Route 46 E/Airport Road	EBL[2]	580	AM	135
			PM	35
5. State Route 46 E/Mill Road	WBL[2]	305	AM	0
			PM	0
6. Golden Hill Road/Union Road	NBR	190	AM	103
			PM	153
	WBL	250	AM	235
			PM	203
7. 13th Street/Riverside Avenue	WBL	125	AM	**332**
			PM	**266**
	WBT	295	AM	268
			PM	**342**
8. 13th Street/Paso Robles Street	NBL	130	AM	**200**
			PM	**221**
	NBR	110	AM	42
			PM	**268**
	EBL	120	AM	85
			PM	107
	EBT	295	AM	227
			PM	**381**
9. River Road/Creston Road	NBL	140	AM	**182**
			PM	134
10. Creston Road/Golden Hill Road	EBL	125	AM	103
			PM	86
11. Creston Road/Niblick Road	NBL	230	AM	156
			PM	146
	SBL	245	AM	150
			PM	166
	EBL	150	AM	128
			PM	**152**
	WBL	170	AM	56
			PM	105
16. 1st Street-Niblick Road/Spring Street	NBL	165	AM	122
			PM	148
	NBR	290	AM	48
			PM	213
	SBL	305	AM	187
			PM	291
17. Niblick Road/South River Road	NBL	150	AM	**264**
			PM	**177**
	SBL	110	AM	**#315**
			PM	**172**
	EBL	140	AM	73
			PM	139
	WBL	80	AM	**126**
			PM	**132**

1. Queue length that would not be exceeded 95 percent of the time.
2. Deceleration length of 530 feet has been subtracted from the storage length per the Highway Design Manual for 60 mph design speed.
# indicates that 95th percentile volume exceeds capacity, queue may be longer.
Bold indicates queue length longer than storage length.

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The following queue deficiencies at City intersections are noted:

1. 13th Street/Riverside Avenue (#7): The westbound left turn queue length exceeds storage length during the AM and PM peak hours, while the westbound through queue length exceeds storage length during the PM peak hour.
2. 13th Street/Paso Robles Street (#8): Queues exceed storage length during at least one peak hour on the northbound left, northbound right, and eastbound through turning movements.
3. River Road/Creston Road (#9): The northbound left turn queue length exceeds storage length during the AM peak hour.
4. Creston Road/Niblick Road (#11): The eastbound left turn queue length exceeds storage length during the PM peak hour.
5. Niblick Road/South River Road (#17): Queues exceed storage length during the AM and PM peak hours on the northbound left, southbound left, and westbound left turning movements.

3. Roadway Segment Operations

Table 6 shows the existing capacity utilization and LOS for the study segments.

Table 6: Existing Roadway Segment Operations

Street	ID	Segment	Facility Type	Lanes	ADT	LOS	Capacity Utilization
Creston Road	1	East of Ferro Lane	Arterial	2*	16,049	D	74%
	2	East of Golden Hill Road	Arterial	4	13,675	A	37%
	3	South of Niblick Road	Arterial	4	14,856	A	40%
	4	North of Meadowlark	Arterial	4	6,008	A	16%
Golden Hill Road	5	South of Union Road	Arterial	3	12,676	C	58%
	6	North of Union Road	Arterial	3	9,805	C	45%
Niblick Road	7	East of Spring Street	Arterial	4	29,676	D	79%
	8	East of Quarterhorse	Arterial	4	20,115	A	54%
Charolais Road	9	East of South River Road	Arterial	2*	7,838	C	36%
South River Road	10	South of Spanish Camp Road South	Local	2	1,458	A	15%
	11	North of Charolais Road	Arterial	2*	9,531	C	44%
Barley Grain Road	12	South of Creston Road	Local	2	439	A	5%

* Note that an asterisk (*) indicates the prescence of a raised median or two-way left-turn lane on a two-lane arterial.
Source: City of Paso Robles General Plan Circulation Element, 2011; CCTC, 2019.

All City segments report a capacity utilization below 90% and both County segments operate at LOS A.

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Freeway Segment Operations

Table 7 shows the existing peak hour volumes at the freeway mainline and ramp locations and **Table 8** shows the existing LOS, with calculation sheets in **Appendix C**. The ramp peak hour factors (PHF) were calculated based on the individual on and off ramp peak hour volumes. The PHFs and truck percentages for the Riverside Avenue/Pine Street, Spring Street, and SR 46 W ramps were calculated using turning movement count data. The PHFs and truck percentages from the US 101 mainline count taken at the Niblick Road Bridge (per direction) were used as the baseline for all mainline segments, with modified PHFs and truck percentages north of SR 46 E based on ramp data. The Leisch method was employed to calculate the LOS for the US 101 southbound weaving segment (SR 46 E on ramp to Riverside/17th Street off ramp). For a worst-case analysis, no volume was assigned to the weave segment's ramp-to-ramp movement.

Table 7: US 101 Existing Peak Hour Volumes

Direction	Segment ID	Location		Existing
US 101 NB	1	SR 46W Off Ramp		146 (114)
	2	SR 46W On Ramp		427 (755)
	3	Mainline North of SR 46W		2221 (3281)
	4	Spring St. Off Ramp		756 (1337)
	5	Paso Robles St. Off Ramp		323 (561)
	6	Paso Robles St. On Ramp		394 (326)
	7	Mainline South of SR 46E		1536 (1709)
	8	SR 46E Off Ramp		890 (947)
	9	SR 46E On Ramp		260 (249)
	10	Mainline North of SR 46E		906 (1011)
US 101 SB	11	Mainline North of SR 46E		850 (1361)
	12	SR 46E Off Ramp		248 (327)
	13	SR 46E to Riverside/17th St. Weave	On	892 (992)
	14		Off	218 (303)
	15	Mainline South of SR 46E		1276 (1723)
	16	Riverside/17th St. On Ramp		298 (205)
	17	Riverside/Pine St. Off Ramp		93 (126)
	18	Spring St. On Ramp		1190 (894)
	19	Mainline North of SR 46W		3020 (3046)
	20	SR 46W Off Ramp		510 (523)
	21	SR 46W On Ramp		92 (146)

AM (PM) Peak Hour Volumes

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Table 8: Existing Freeway Operations

Direction	Location	Segment Type	Peak Hour	Density[1]	LOS
US 101 NB	SR 46W Off Ramp	Diverge	AM	22.2	C
			PM	26.2	C
	SR 46W On Ramp	Merge	AM	23.8	C
			PM	**30.4**	**D**
	North of SR 46W	Mainline	AM	19.9	C
			PM	**28.0**	**D**
	Spring St. Off Ramp	Diverge	AM	27.1	C
			PM	**33.6**	**D**
	Paso Robles St. Off Ramp	Diverge	AM	16.9	B
			PM	19.6	B
	Paso Robles St. On Ramp	Merge	AM	17.7	B
			PM	17.0	B
	South of SR 46E	Mainline	AM	13.6	B
			PM	13.4	B
	SR 46E Off Ramp	Diverge	AM	18.1	B
			PM	17.8	B
	SR 46E On Ramp	Merge	AM	13.5	B
			PM	13.1	B
	North of SR 46E	Mainline	AM	10.1	A
			PM	9.7	A
US 101 SB	North of SR 46E	Mainline	AM	8.1	A
			PM	13.4	B
	SR 46E Off Ramp	Diverge	AM	12.2	B
			PM	18.3	B
	SR 46E to Riverside/17th St.[2]	Weave	AM	-	A
			PM	-	B
	South of SR 46E	Mainline	AM	11.1	B
			PM	14.8	B
	Riverside/17th St. On Ramp	Merge	AM	17.6	B
			PM	20.9	C
	Riverside/Pine St. Off Ramp	Diverge	AM	18.3	B
			PM	21.7	C
	Spring St. On Ramp	Merge	AM	23.6	C
			PM	23.9	C
	North of SR 46W	Mainline	AM	**28.5**	**D**
			PM	**28.6**	**D**
	SR 46W Off Ramp	Diverge	AM	**32.5**	**D**
			PM	**32.6**	**D**
	SR 46W On Ramp	Merge	AM	27.1	C
			PM	27.6	C

1. HCM 6 density (passenger cars per mile per lane).
2. The Leisch method used for weave section analysis does not report density.
Note: Unacceptable operations shown in **bold** text.

The following freeway segments operate below the LOS C threshold:

1. SR 46 W northbound on ramp merge segment operates at LOS D during the PM peak hour.
2. US 101 mainline north of SR 46 W operates at LOS D northbound during the PM peak hour and southbound during the AM and PM peak hours.
3. Spring Street northbound off ramp diverge segment operates at LOS D during the PM peak hour.
4. SR 46 W southbound off ramp diverge segment operates at LOS D during the AM and PM peak hours.

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COLLISION RATE ANALYSIS

Table 9 summarizes the existing collision rates for the analyzed roadways segments:

Table 9: Collision Rate Analysis

Location	Reported Collisions[1]	Reported Rate[2]	Reference Rate[3]	Collisions Significant[4]	Significant?
Creston Road (River to Golden Hill)	62	2.52	1.24	46	**Yes**
Creston Road (Golden Hill to Niblick)	20	2.67	1.67	23	No
Creston Road (Niblick to Cedarwood)	11	1.13	1.67	28	No
Creston Road (Cedarwood to Charolais)	13	3.29	1.29	12	**Yes**
Golden Hill Road (Creston to Union)	15	0.81	1.67	47	No
Golden Hill Road (Union to SR 46E)	7	2.13	1.03	9	No
Niblick Road (Spring to River)	58	1.49	1.42	76	No
Niblick Road (River to Creston)	62	4.92	1.67	34	**Yes**
Charolais Road (River to Creston)	6	0.50	1.03	23	No
South River Road (Neal Spring to Spanish Camp)	6	1.71	1.31	11	No
South River Road (Charolais to Niblick)	17	2.73	1.19	16	**Yes**
Barley Grain Road (Creston to Spanish Camp)	0	0.00	1.87	5	No

1. Based on 3 years of SWITRS data (2015-2017).
2. Rates are in units of collisions per million vehicle miles.
3. Average rate for similar facilities from Caltrans "2015 Collision Data on California State Highways".
4. Based on Caltrans Significance Test. Source: Caltrans Table C Task Force Summary Report, 2002.

The following roadways segments have been identified as having a statistically significant, higher than average collision rate:

- Creston Road (River Road to Golden Hill Road)
- Creston Road (Cedarwood Drive to Charolais Road)
- Niblick Road (River Road to Creston Road)
- South River Road (Charolais Road to Niblick Road)

On Creston Road and Niblick Road, approximately 50% of collisions are rear end due to unsafe speed. On South River Road, the primary collision factors are unsafe speed and auto right-of-way violations.

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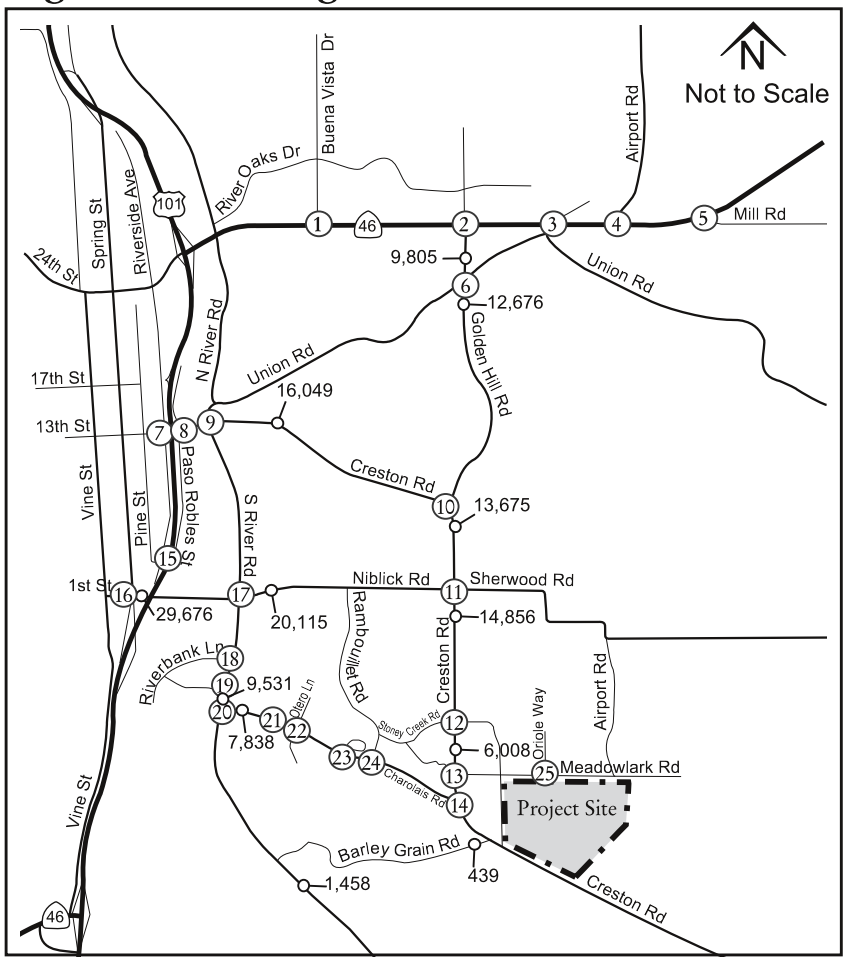
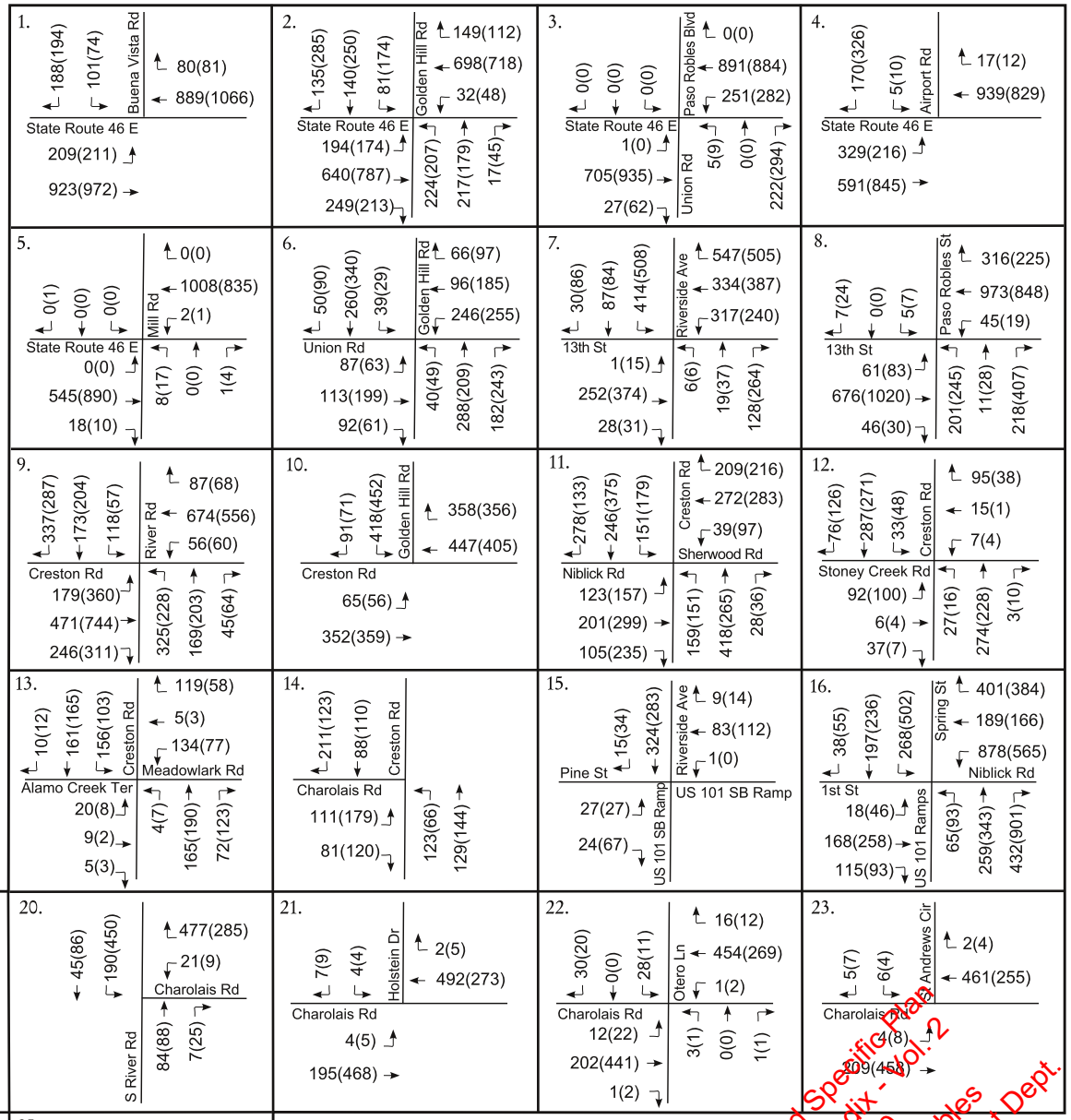
Figure 3: Existing Traffic Volumes





Legend:

- (x) - Study Intersection
- o— - Average Daily Traffic Volumes
- xx(yy) - AM (PM) Peak Hour Traffic Volumes

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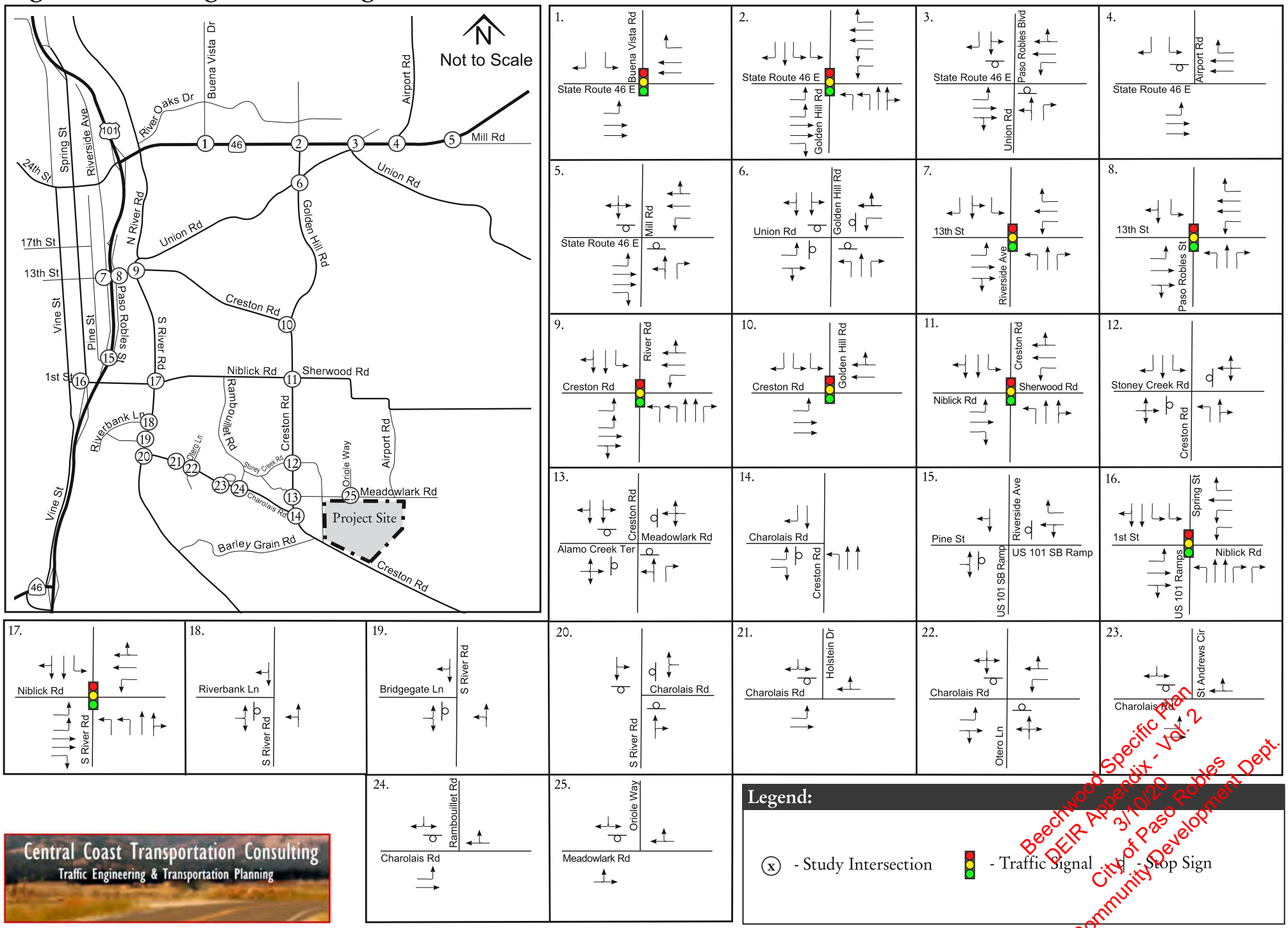
Figure 4: Existing Lane Configurations



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Existing Plus Project Conditions

This section evaluates the impacts of the proposed project on the surrounding transportation network, including traffic operations, bicycle, pedestrian, transit, and site access deficiencies. Existing Plus Project conditions reflect existing traffic levels plus the estimated traffic generated by the proposed project.

PROJECT TRAFFIC ESTIMATES

The amount of project traffic affecting the study intersections is estimated in three steps: trip generation, trip distribution, and trip assignment. Trip generation refers to the total number of new trips generated by the site. Trip distribution identifies the general origins and destinations of these trips, and trip assignment identifies the specific routes taken to reach these origins and destinations.

Trip Generation

The Institute of Transportation Engineers (ITE) *Trip Generation Manual* 10th Edition was used to estimate project trip generation. Internal capture trips made between the residential and commercial land uses were subtracted from the total external trips generated by the project. Pass-by trip reductions were not applied due to low existing volumes on adjacent roads. **Table 10** summarizes the estimated trip generation for the two project sizes.

Table 10: Weekday Vehicle Trip Generation

Land Use	Size	Unit[4]	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
674-Unit Project									
Single-Family Residential Housing[1]	474	DU	4,352	85	256	341	285	167	452
Multifamily Housing (Low-Rise)[2]	200	DU	1,471	21	71	92	69	40	109
Shopping Center[3]	47,000	s.f.	3,598	109	66	175	149	162	311
		Gross Trips	***9,421***	***215***	***393***	***608***	***503***	***369***	***872***
		Internal Trips[5]	882	5	5	10	57	57	114
		Net New Trips	**8,539**	**210**	**388**	**598**	**446**	**312**	**758**
911-Unit Project									
Single-Family Residential Housing[1]	676	DU	6,032	121	364	485	401	235	636
Multifamily Housing (Low-Rise)[2]	235	DU	1,736	25	82	107	79	47	126
Shopping Center[3]	47,000	s.f.	3,598	109	66	175	149	162	311
		Gross Trips	***11,366***	***255***	***512***	***767***	***629***	***444***	***1,073***
		Internal Trips[5]	882	7	7	14	57	57	114
		Net New Trips	**10,484**	**248**	**505**	**753**	**572**	**387**	**959**

1) ITE Land Use Code #210, Single-Family Detached Housing. Fitted curve equation used.
2) ITE Land Use Code #220, Multifamily Housing (Low-Rise). Fitted curve equation used.
3) ITE Land Use Code #820, Shopping Center. Fitted curve equation used.
4) DU = Dwelling Unit; s.f. = Square Foot Gross Leasable Area
5) AM and PM Internal Trips from TripGen 10 software; Daily Internal Trips from TripGen 2014 software
Source: ITE *Trip Generation Manual*, 10th Edition, 2017; CCTC, 2019.

The 674-Unit Project would generate 8,539 net new trips per weekday, including 598 AM peak hour trips and 758 PM peak hour trips. The 911-Unit Project would generate 10,484 net new trips per weekday, including 753 AM peak hour trips and 959 PM peak hour trips.

The 911-unit project proposes two phases. As shown in **Figure 2a,** Phase 1 would develop Subareas A through H and consist of 474 single family dwelling units and 80 multi-family dwelling units. Phase 1 would generate 4,916 net new trips per weekday, including 380 AM peak hour trips and 500 PM peak hour trips.

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Trip Distribution and Assignment

Project trip distribution was derived using a select zone procedure of the City's Travel Demand Model (TDM). **Figure 5** displays the trip distribution for the project under Existing and Cumulative conditions. The Existing conditions distribution will also be used for Near Term conditions. **Figures 6a and 6b** display the trip assignment for the project under Existing and Near Term conditions.

Planned Improvements

It was assumed that either project size would convert the intersection of Meadowlark Road/Oriole Way (#25) to roundabout control in addition to constructing the fourth leg.

Additional project improvements are discussed in detail in the Site Access and On-Site Circulation section of this report.

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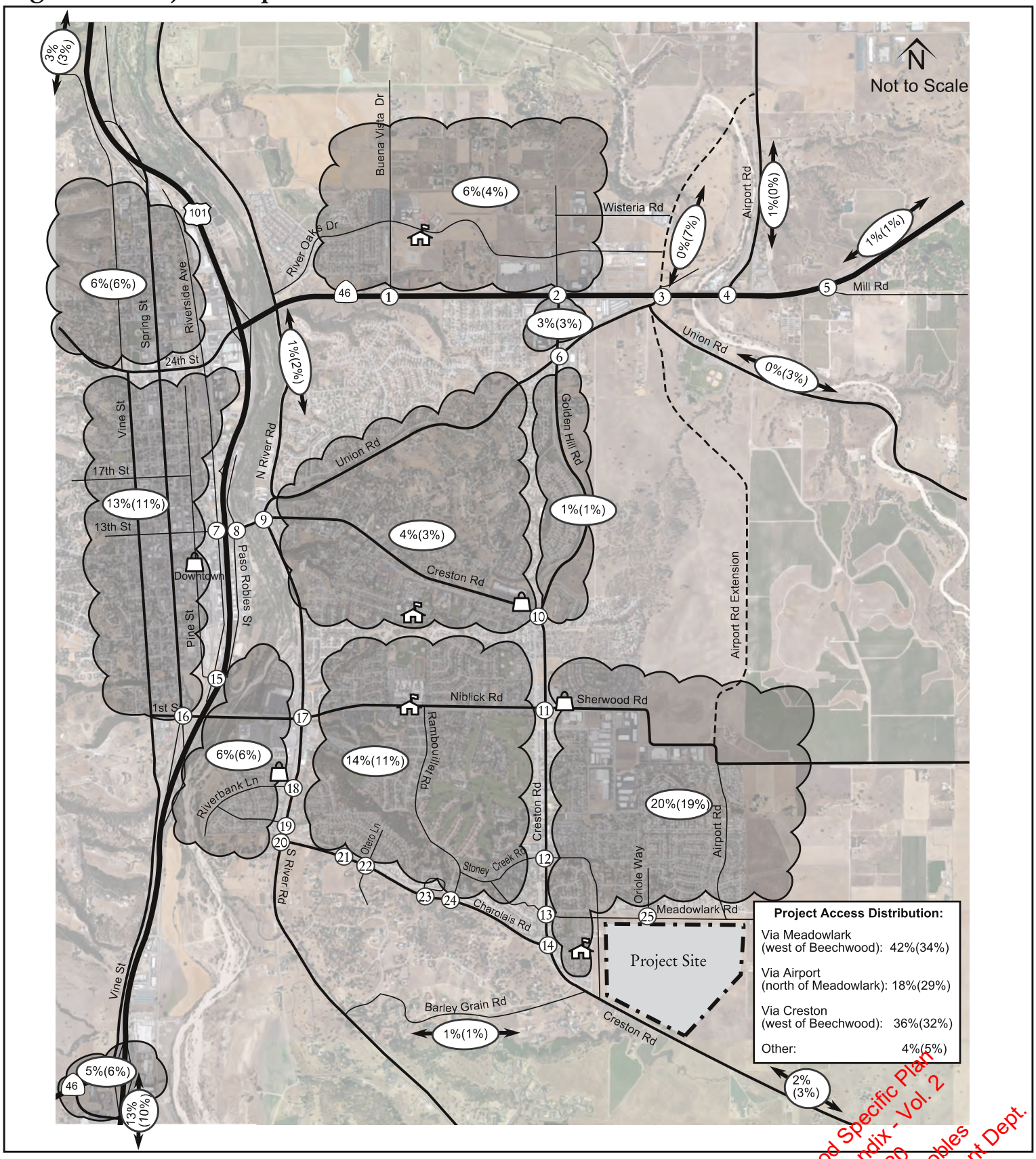
Figure 5: Project Trip Distribution



Legend:

- (x) - Study Intersection
- - - Cumulative Improvements
- x%(y%) - Existing/Near Term % (Cumulative %) Project Trip Distribution
- School
- Retail Center

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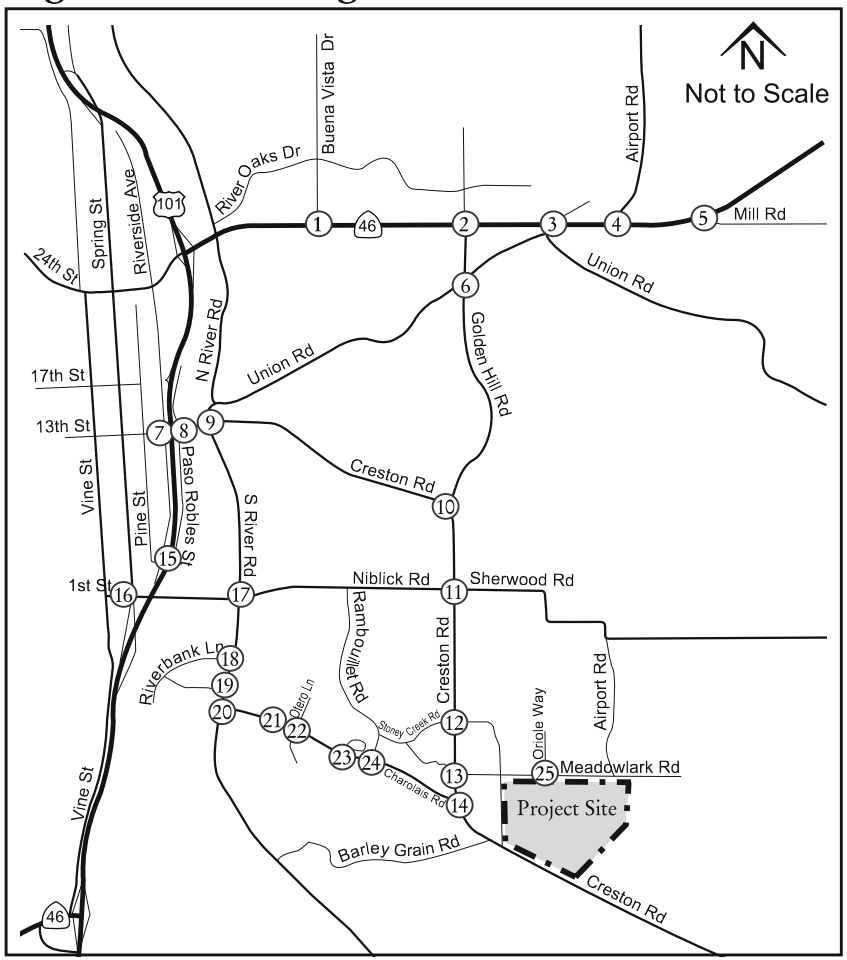
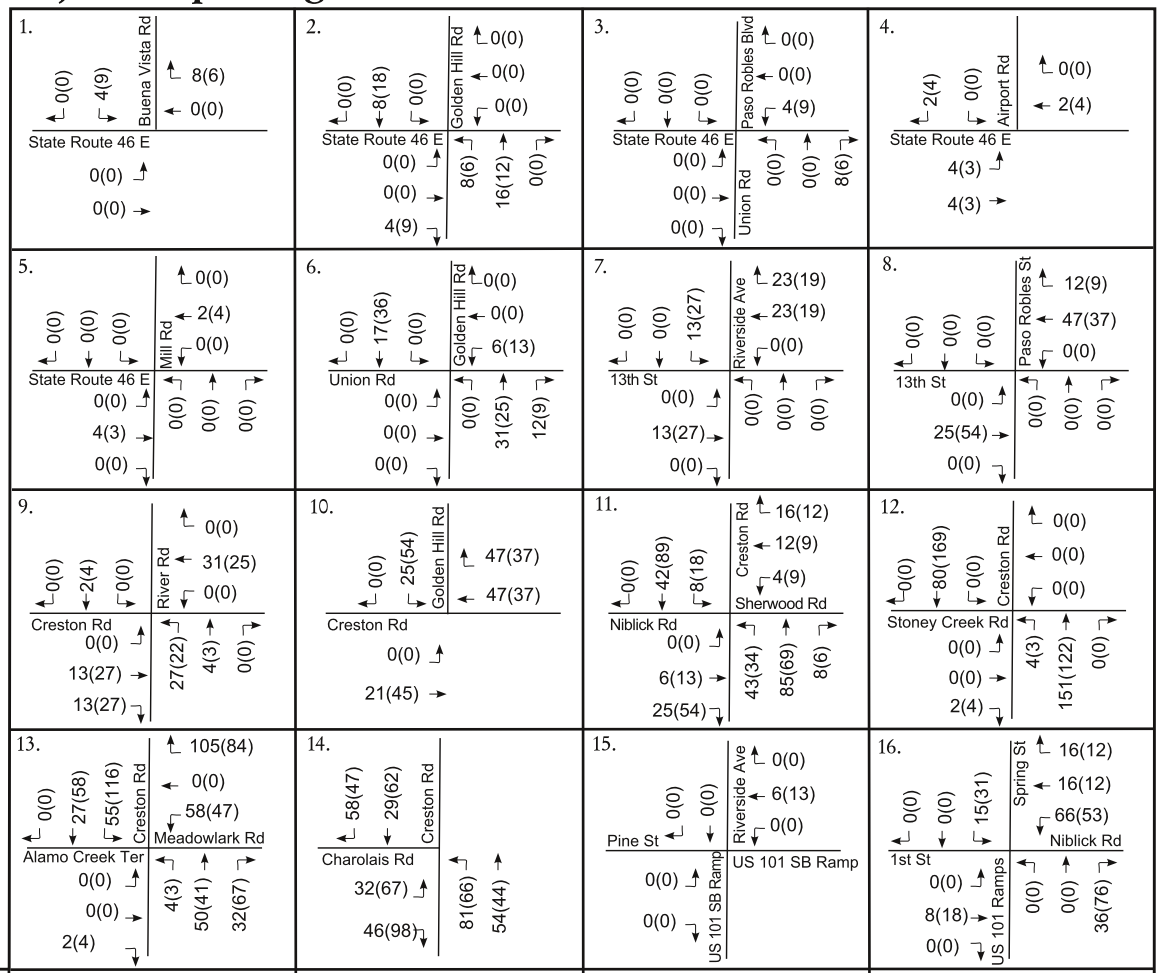
Figure 6a: Existing and Near Term 674-Unit Project Trip Assignment





Legend:

(x) - Study Intersection

xx(yy) - AM (PM) Peak Hour Traffic Volumes

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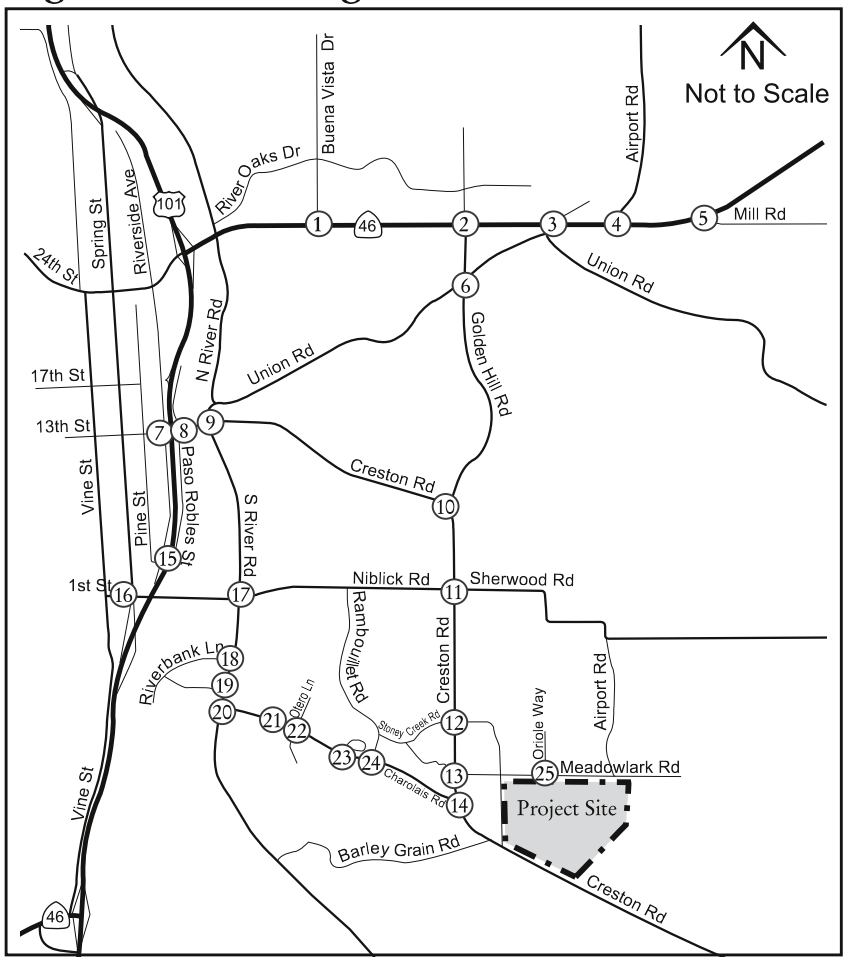
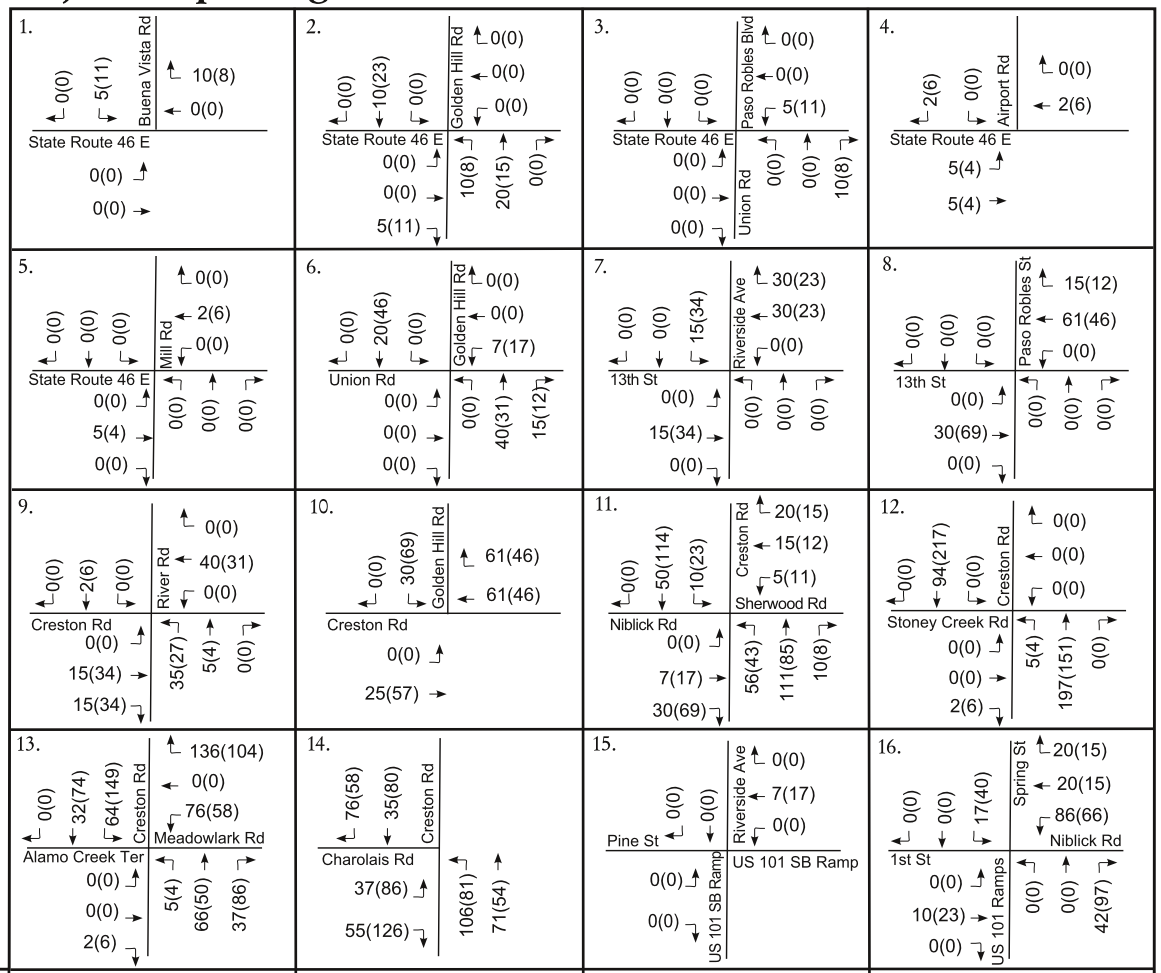
Figure 6b: Existing and Near Term 911-Unit Project Trip Assignment





Legend:

(x) - Study Intersection

xx(yy) - AM (PM) Peak Hour Traffic Volumes

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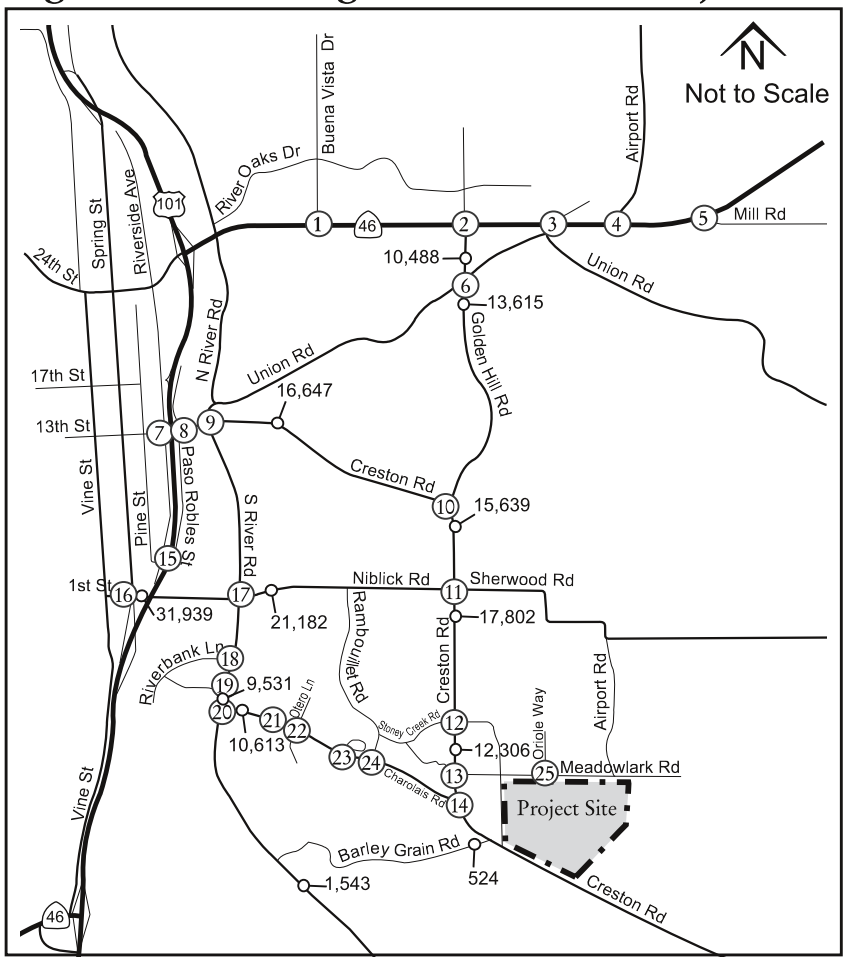
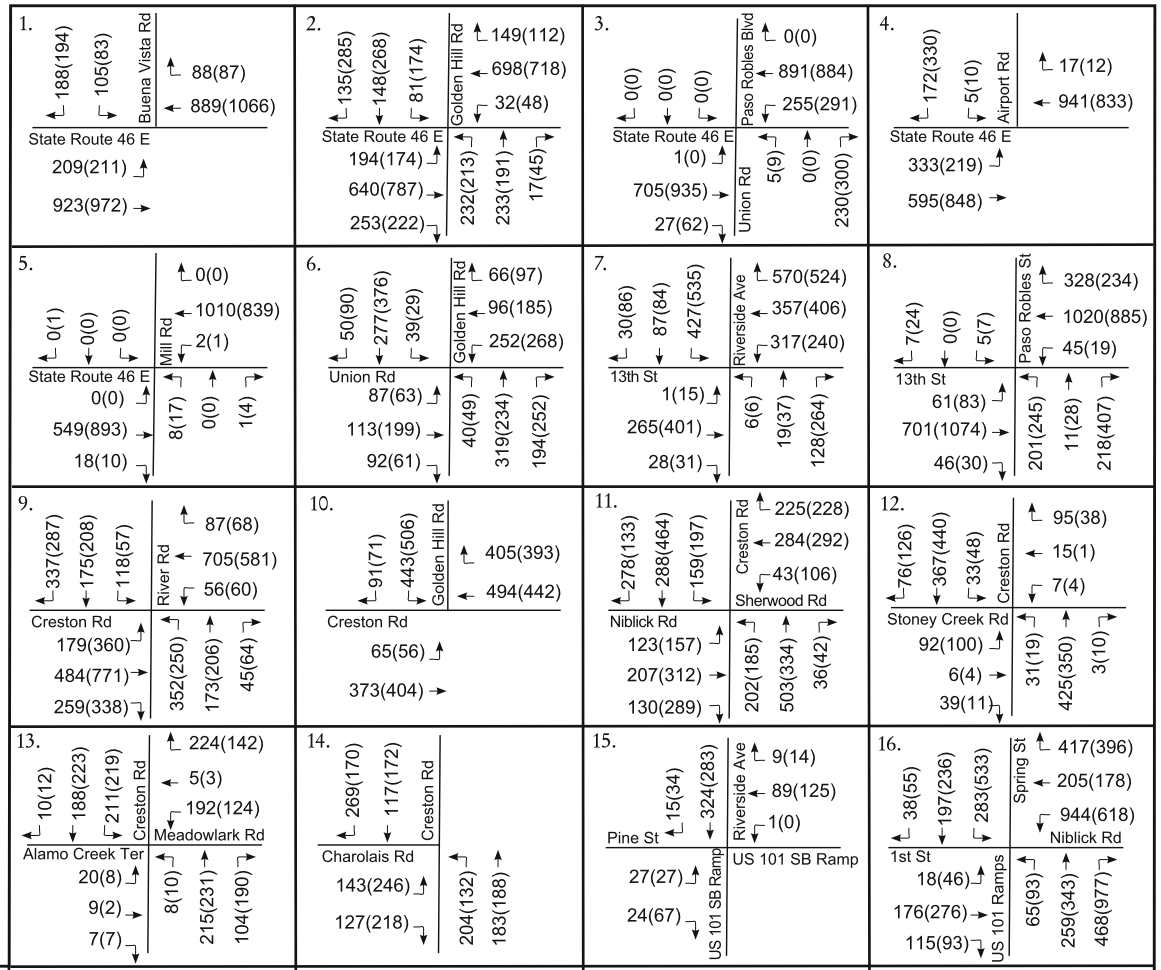
Figure 7a: Existing Plus 674-Unit Project Traffic Volumes





Legend:

(x) - Study Intersection

xx(yy) - AM (PM) Peak Hour Traffic Volumes

o— - Average Daily Traffic Volumes

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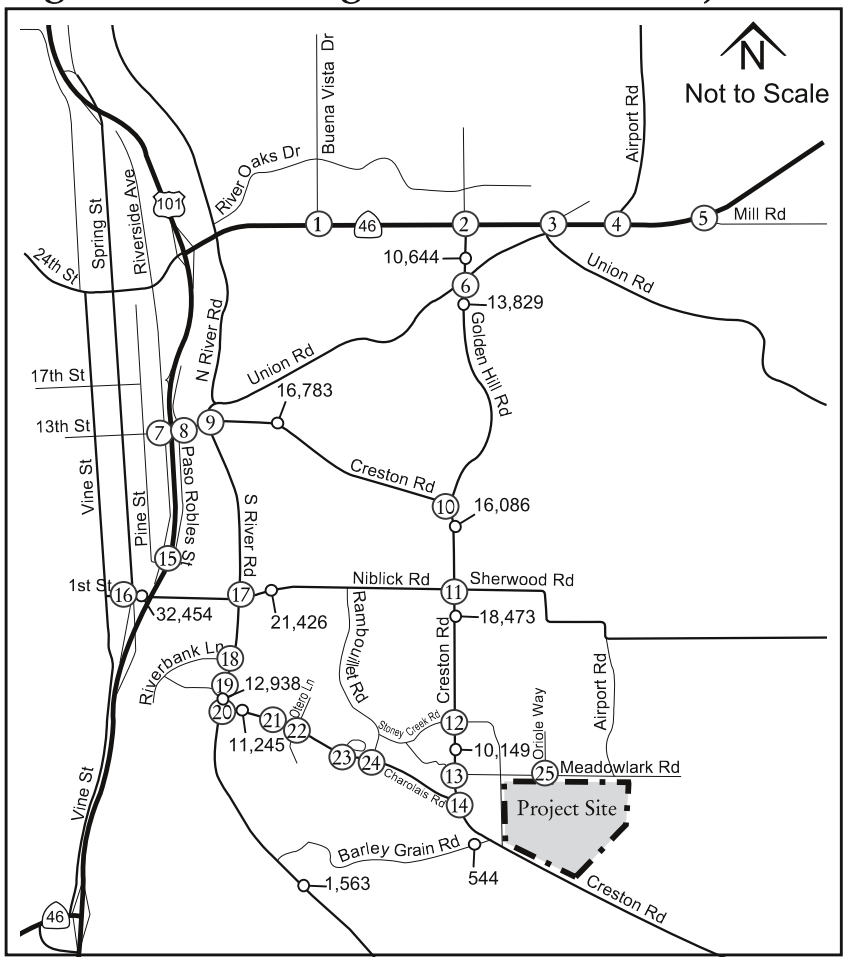
Figure 7b: Existing Plus 911-Unit Project Traffic Volumes



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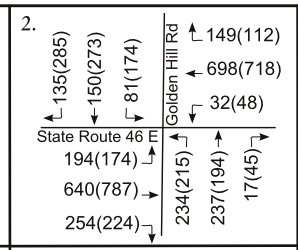

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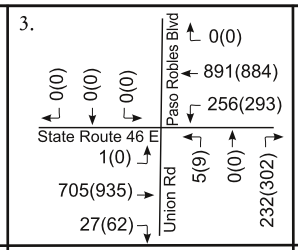

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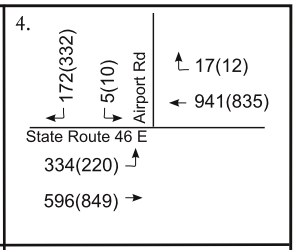

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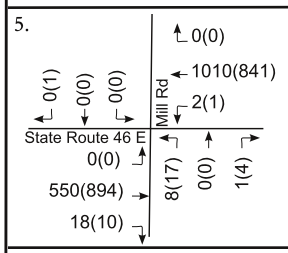

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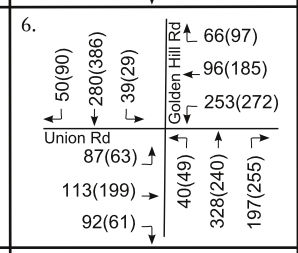

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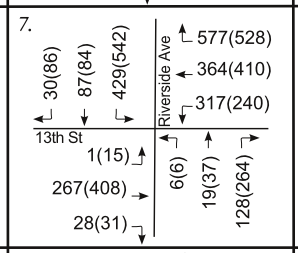

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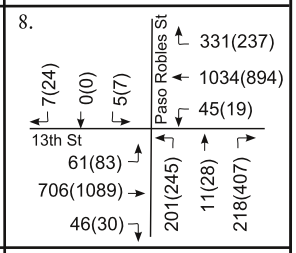

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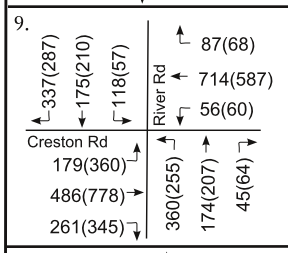

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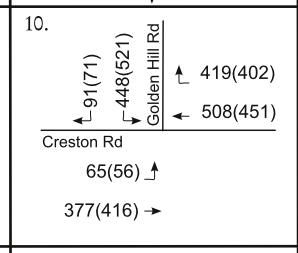

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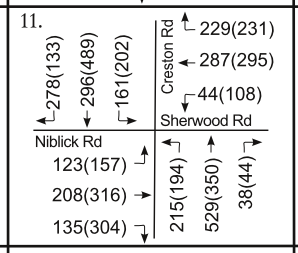

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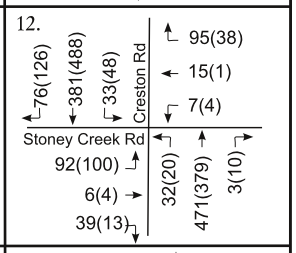

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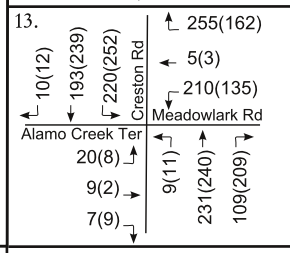

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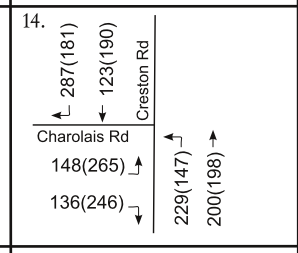

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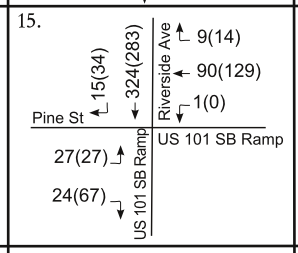

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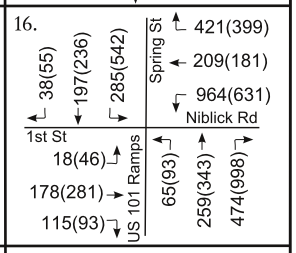

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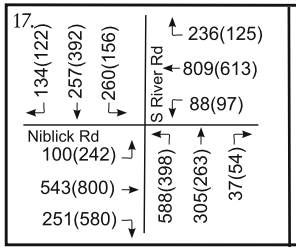

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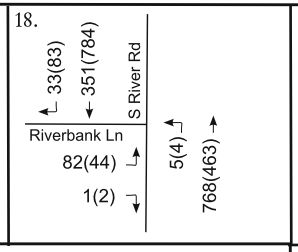

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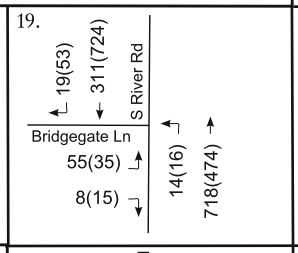

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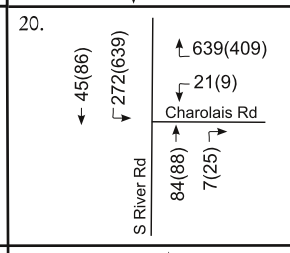

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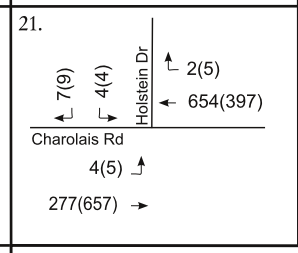

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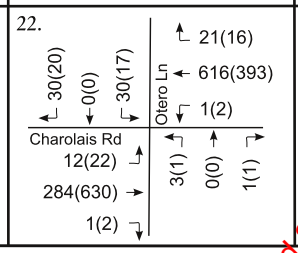

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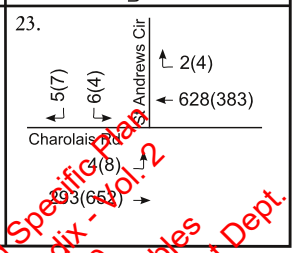

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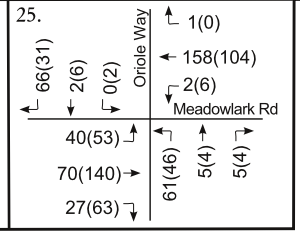

Legend:

- (x) - Study Intersection
- o— - Average Daily Traffic Volumes
- xx(yy) - AM (PM) Peak Hour Traffic Volumes

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EXISTING PLUS PROJECT IMPACT ANALYSIS

1. Intersection Operations

Figures 7a and 7b show the traffic volumes for the study intersections during the weekday peak hours and ADT on the study segments under Existing Plus Project conditions.

Table 11 summarizes the intersection operating conditions under Existing and Existing Plus Project conditions with detailed calculation sheets in **Appendix B** and warrant analysis sheets in **Appendix D**.

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Table 11: Existing and Existing Plus Project Intersection Auto Levels of Service

Intersection	Peak Hour	Existing Delay[1]	Existing LOS	Existing + 674 Delay[1]	Existing + 674 LOS	Existing + 911 Delay[1]	Existing + 911 LOS
1. State Route 46 E/Buena Vista Drive	AM	16.7	B	16.9	B	16.9	B
	PM	12.0	B	12.2	B	12.3	B
2. State Route 46 E/Golden Hill Road	AM	24.5	C	24.8	C	24.8	C
	PM	26.2	C	26.4	C	26.5	C
3. State Route 46 E/Union Road	AM	4.2 (23.5)	- (C)	4.4 (24.2)	- (C)	4.4 (24.2)	- (C)
	PM	**5.6 (31.3)**	**- (D)**	**5.8 (32.2)**	**- (D)**	**5.9 (32.4)**	**- (D)**
4. State Route 46 E/Airport Road	AM	5.6 (20.4)	- (C)	5.8 (20.6)	- (C)	5.8 (20.6)	- (C)
	PM	4.6 (22.7)	- (C)	4.7 (23.2)	- (C)	4.8 (23.5)	- (C)
5. State Route 46 E/Mill Road	AM	0.1 (16.3)	- (C)	0.1 (16.4)	- (C)	0.1 (16.4)	- (C)
	PM	0.2 (19.3)	- (C)	0.2 (19.3)	- (C)	0.2 (19.3)	- (C)
6. Golden Hill Road/Union Road	AM	**51.3**	**F**	**64.2**	**F**	**68.3**	**F**
	PM	**50.5**	**F**	**64.9**	**F**	**69.3**	**F**
7. 13th Street/Riverside Avenue	AM	30.0	C	32.0	C	32.7	C
	PM	37.6	D	40.2	D	40.9	D
8. 13th Street/Paso Robles Street	AM	15.5	B	15.8	B	15.9	B
	PM	18.0	B	18.5	B	18.7	B
9. River Road/Creston Road	AM	23.1	C	24.1	C	24.3	C
	PM	19.3	B	19.8	B	20.0	B
10. Creston Road/Golden Hill Road	AM	19.6	B	21.0	C	21.4	C
	PM	17.1	B	18.1	B	18.3	B
11. Creston Road/Niblick Road	AM	29.5	C	34.6	C	36.5	D
	PM	23.7	C	26.6	C	27.8	C
12. Creston Road/Stoney Creek Road	AM	8.1 (40.8)	- (E)	**19.2 (145.5)**	**- (F)**	**24.8 (>200)**	**- (F)**
	PM	3.7 (19.9)	- (C)	4.6 (37.2)	- (E)	5.3 (46.5)	- (E)
13. Creston Road/Meadowlark Road	AM	12.7	B	26.9	D	**39.3**	**E**
	PM	9.8	A	14.9	B	18.0	C
14. Creston Road/Charolais Road	AM	4.7 (12.8)	- (B)	7.3 (21.2)	- (C)	8.9 (27.5)	- (D)
	PM	5.4 (11.6)	- (B)	8.4 (18.0)	- (C)	10.4 (22.5)	- (C)
15. Riverside Ave/Pine St/US 101 SB Ramp	AM	3.7 (12.3)	- (B)	3.8 (12.4)	- (B)	3.8 (12.4)	- (B)
	PM	5.2 (12.9)	- (B)	5.5 (13.2)	- (B)	5.6 (13.4)	- (B)
16. 1st Street-Niblick Road/Spring Street	AM	29.3	C	31.8	C	32.4	C
	PM	34.6	C	36.2	D	36.8	D
17. Niblick Road/South River Road	AM	33.8	C	38.9	D	40.5	D
	PM	24.6	C	33.1	C	36.6	D
18. South River Road/Riverbank Lane	AM	2.6 (31.2)	- (D)	3.7 (51.5)	- (F)	4.2 (61.3)	- (F)
	PM	1.0 (21.9)	- (C)	1.1 (31.3)	- (D)	1.2 (34.5)	- (D)
19. South River Road/Bridgegate Lane	AM	1.0 (14.2)	- (B)	1.1 (16.2)	- (C)	1.1 (16.9)	- (C)
	PM	0.7 (14.0)	- (B)	0.7 (16.3)	- (C)	0.8 (17.1)	- (C)
20. South River Road/Charolais Road	AM	17.2	C	**41.8**	**E**	**56.9**	**F**
	PM	21.4	C	**68.9**	**F**	**90.2**	**F**
21. Charolais Road/Holstein Drive	AM	0.3 (14.0)	- (B)	0.2 (16.7)	- (C)	0.2 (17.7)	- (C)
	PM	0.3 (12.1)	- (B)	0.2 (14.3)	- (B)	0.2 (15.0)	- (C)
22. Charolais Road/Otero Lane	AM	1.5 (16.8)	- (C)	1.7 (22.9)	- (C)	1.7 (25.2)	- (D)
	PM	0.8 (14.5)	- (B)	0.8 (18.5)	- (C)	0.9 (20.0)	- (C)
23. Charolais Road/St Andrews Circle	AM	0.3 (14.6)	- (B)	0.3 (18.1)	- (C)	0.3 (19.2)	- (C)
	PM	0.2 (12.0)	- (B)	0.2 (14.4)	- (B)	0.2 (15.1)	- (C)
24. Charolais Road/Rambouillet Road	AM	3.4 (13.6)	- (B)	3.5 (18.1)	- (C)	3.6 (19.9)	- (C)
	PM	2.9 (10.9)	- (B)	2.8 (15.5)	- (C)	2.8 (17.6)	- (C)
25. Meadowlark Road/Oriole Way	AM	3.7 (9.3)	- (A)	3.9	A	4.0	A
	PM	3.0 (8.8)	- (A)	3.8	A	4.0	A

1. HCM 6th average control delay in seconds per vehicle (HCM 2000 used for Intersections 1, 10 and 15). For side-street-stop controlled intersections the worst approach's delay is reported in parentheses next to the overall intersection delay.
Note: Unacceptable operations shown in **bold** text.

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The following Caltrans intersection operates below the LOS C threshold:

- SR 46 E/Union Road (#3): the addition of traffic from either project would increase unacceptable delay on the side street approach during the PM peak hour. Restricting the northbound lefts at the intersection would improve operations to LOS C under either project scenario and reduce the conflict points at the intersection. Currently 5 and 9 vehicles make this turn in the AM and PM peak hour, respectively. Restricting westbound left turns is not required or recommended and could impact operations at SR 46 E/Golden Hill Road. A Project Study Report (PSR) has been prepared for this area which will ultimately construct an overcrossing and restrict left turns on SR 46 E. This improvement is consistent with the City's Circulation Element; however, the improvements are in the Caltrans right-of-way and subject to Caltrans review and approval.

  Recommendation: Restrict northbound left turns.

The following stop-controlled City intersections operate below LOS D:

- Golden Hill Road/Union Road (#6): the intersection currently operates at LOS F during the AM and PM peak hours and meets signal warrants. A single-lane roundabout would also improve operations to LOS D or better and is consistent with the City's Circulation Element. This project is scheduled to be designed in 2019.

  Recommendation: Install a single lane roundabout.

- Creston Road/Stoney Creek Road (#12): the addition of traffic from either project would increase delay at the intersection and would cause the intersection to meet signal warrants. The City's Circulation Element includes a traffic signal at this location. The bulb-out on the northwest corner is not recommended. The existing dedicated left, through, and right southbound turn lanes are desired for signal operations. The eastbound approach should be restriped with a dedicated left-through and right turn lane consistent with the Circulation Element. The northbound left turn lane storage should be maximized.

  Recommendation: Install traffic signal prior to occupancy of 674 units.

- Creston Road/Meadowlark Road (#13): the addition of traffic from the 911-Unit Project would cause the intersection to operate below LOS D during the AM peak hour and meet signal warrants. A traffic signal and restriping at this location are consistent with the City's Circulation Element. Storage for the southbound left turn lane should be extended.

  Recommendation: Install traffic signal prior to occupancy of 911 units.

- South River Road/Riverbank Lane (#18): the addition of traffic from either project would cause the intersection to operate below LOS D during the AM peak hour. However, the intersection would not meet signal warrants and therefore would operate acceptably.

  Recommendation: None. Signal warrant not met.

- South River Road/Charolais Road (#20): the addition of traffic from either project would cause the intersection to operate below LOS D during the AM and PM peak hours. The intersection would meet signal warrants. A roundabout is consistent with the City's Circulation Element.

  Recommendation: Install single lane roundabout.

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2. Queues

Table 12 summarizes the vehicular queuing under Existing and Existing Plus Project conditions.

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Table 12: Existing and Existing Plus Project Queues

Intersection	Movement	Storage Length (ft)	Peak Hour	95th Percentile Queues (ft)[1]		
				Existing	Existing + 674	Existing + 911
1. State Route 46 E/Buena Vista Drive	EBL[2]	345	AM	248	252	253
			PM	197	201	201
2. State Route 46 E/Golden Hill Road	NBL	160	AM	142	148	150
			PM	125	131	134
	SBL	140	AM	63	64	64
			PM	108	112	112
	EBL[2]	225	AM	127	128	129
			PM	108	112	112
	WBL[2]	125	AM	29	29	29
			PM	39	40	40
3. State Route 46 E/Union Road	WBL[2]	195	AM	55	58	58
			PM	60	63	63
4. State Route 46 E/Airport Road	EBL[2]	580	AM	135	140	140
			PM	35	38	38
5. State Route 46 E/Mill Road	WBL[2]	305	AM	0	0	0
			PM	0	0	0
6. Golden Hill Road/Union Road	NBR	190	AM	103	118	123
			PM	153	180	188
	WBL	250	AM	235	**258**	**260**
			PM	203	248	**263**
7. 13th Street/Riverside Avenue	WBL	125	AM	**332**	**333**	**333**
			PM	**266**	**266**	**266**
	WBT	295	AM	268	290	**296**
			PM	**342**	**362**	**366**
8. 13th Street/Paso Robles Street	NBL	130	AM	**200**	**200**	**200**
			PM	**221**	**221**	**221**
	NBR	110	AM	42	45	46
			PM	**268**	**273**	**273**
	EBL	120	AM	85	85	85
			PM	107	107	107
	EBT	295	AM	227	236	238
			PM	**381**	**408**	**416**
9. River Road/Creston Road	NBL	140	AM	**182**	**197**	**202**
			PM	134	**145**	**148**
10. Creston Road/Golden Hill Road	EBL	125	AM	103	103	103
			PM	86	88	88
11. Creston Road/Niblick Road	NBL	230	AM	156	#212	**#234**
			PM	146	#193	#206
	SBL	245	AM	150	158	159
			PM	166	182	#187
	EBL	150	AM	128	128	128
			PM	**152**	**152**	**152**
	WBL	170	AM	56	59	61
			PM	105	113	116
16. 1st Street-Niblick Road/Spring Street	NBL	165	AM	122	122	122
			PM	148	149	149
	NBR	290	AM	48	58	60
			PM	213	258	269
	SBL	305	AM	187	197	198
			PM	291	**309**	**315**
17. Niblick Road/South River Road	NBL	150	AM	**264**	**#334**	**#356**
			PM	**177**	**207**	**215**
	SBL	110	AM	**#315**	**#328**	**#329**
			PM	**172**	**185**	**191**
	EBL	140	AM	73	73	73
			PM	139	139	139
	WBL	80	AM	**126**	**126**	**126**
			PM	**132**	**132**	**132**

1. Queue length that would not be exceeded 95 percent of the time.
2. Deceleration length of 530 feet has been subtracted from the storage length per the HDM for 60 mph design speed.
# indicates that 95th percentile volume exceeds capacity, queue may be longer.
Bold indicates queue length longer than storage length.

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The following queue deficiencies at City intersections are noted:

- Golden Hill Road/Union Road (#6): the westbound left turn queue length exceeds storage during at least one peak hour with the addition of traffic from either project. A single-lane roundabout is being designed for this intersection consistent with the City's Circulation Element.

  Recommendation: Install a single lane roundabout.

- 13th Street/Riverside Avenue (#7): the westbound left turn and through queue lengths would further exceed storage length during both peak hours with the addition of traffic from either project. The addition of project traffic lengthens queues by one vehicle or less, an insignificant amount. Bridge widening at this location in not included in the City's Circulation Element and any widening in this location is unlikely; signal timing should be reviewed, coordinated, and optimized. With coordination and overlaps, the queues would improve to no project conditions. The City's Circulation Element accepts that this location will reach capacity.

  Recommendation: Review, coordinate, and optimize corridor operations. Add westbound right and northbound right turn overlap phases.

- 13th Street/Paso Robles Street (#8): the northbound left and right turn and eastbound through queue lengths would further exceed storage length during at least one peak hour with the addition of traffic from either project. The addition of project traffic lengthens queues by two vehicles or fewer. Bridge widening at this location is not included in the City's Circulation Element and any widening in this location is unlikely; signal timing should be reviewed, coordinated, and optimized. If parking is removed on the east side of Paso Robles Street north of 12th Street the northbound right turn lane can be extended. With coordination, queues would improve to no project levels. The City's Circulation Element accepts that this location will reach capacity.

  Recommendation: Review, coordinate, and optimize corridor operations.

- River Road/Creston Road (#9): the northbound left turn queue length would further exceed storage length during at least one peak hour with the addition of traffic from either project. Additional storage is available in the striped median. Coordination with the adjacent 13th Street intersections could also improve the queue lengths.

  Recommendation: None. Additional storage is available in the striped median.

- Creston Road/Niblick Road (#11): the northbound left turn queue length would exceed storage length during the AM peak hour due to the addition of traffic from the 911-Unit Project.

  Recommendation: None. Additional storage is available in the two-way left turn lane.

- 1st Street-Niblick Road/Spring Street (#16): the southbound left turn queue length would exceed storage length during the PM peak hour due to the addition of traffic from the 911-Unit Project.

  Recommendation: None. Additional storage is available in the bay taper.

- Niblick Road/South River Road (#17): the north-, south-, and westbound left turn queue lengths would further exceed storage length during both peak hours with the addition of traffic.

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from either project. No mitigation has been identified to return queues to no project levels. The City's Circulation Element includes widening at this intersection and corridor improvements. Intersection would benefit from additional westbound left turn lane storage; additional right turn lanes and right turn overlap phasing.

Recommendation: Review, coordinate, and optimize corridor operations including Niblick Road complete streets corridor plan improvements.

Summary of Intersection Mitigations

Table 13 summarizes the required mitigation measures under Existing conditions. In addition to the 674-Unit project and 911-Unit project analysis, intersections requiring mitigation measures under either project condition were evaluated under the 554-Unit (Phase 1) conditions as shown in **Table 13**.

Table 13: Existing Conditions Mitigations

Intersection	Impact	Mitigation	No Project	Total Units 554	674	911	Cir. Elem. and TIF[1]	Responsible Agency
3. SR 46 E/Union Rd[2]	LOS	Prohibit NB lefts	X	X	X	X	Yes	Caltrans
6. Golden Hill Rd/Union Rd	LOS, Queue	Install single lane roundabout	X	X	X	X	Yes	City
7. 13th St/Riverside Ave	Queue	Optimize corridor operations, WBR and NBR overlap	X	X	X	X	No	City
8. 13th St/Paso Robles St	Queue	Optimize corridor operations	X	X	X	X	No	City
12. Creston Rd/Stoney Creek Rd	LOS	Install traffic signal	-	-	X	X	Yes	City
13. Creston Rd/Meadowlark Rd	LOS	Install traffic signal	-	-	-	X	Yes	City
17. Niblick Rd/South River Rd	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City
20. South River Rd/Charolais Rd	LOS	Install single lane roundabout	-	X	X	X	Yes	City

X - Mitigation required.
1. Intersection improvements are included in the Paso Robles Circulation Element and Traffic Impact Fee (TIF).
2. The Paso Robles Circulation Element includes improvements on State Route 46 East and in the vicinity between Buena Vista Drive and Dry Creek Road. Recommend project make a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents. Ultimate improvements will be determined in the project documents.

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3. Roadway Segment Operations

Table 14 shows the Existing and Existing Plus Project capacity utilization and LOS for the roadway study segments.

Table 14: Existing and Existing Plus Project Roadway Segment Operations

Street	ID	Segment	Facility Type	Lanes	Existing			Existing + 674			Existing + 911		
					ADT	LOS	Capacity Utilization	ADT	LOS	Capacity Utilization	ADT	LOS	Capacity Utilization
Creston Road	1	East of Ferro Lane	Arterial	2*	16,049	D	74%	16,647	D	77%	16,783	D	77%
	2	East of Golden Hill Road	Arterial	4	13,675	A	37%	15,639	A	42%	16,086	A	43%
	3	South of Niblick Road	Arterial	4	14,856	A	40%	17,802	A	48%	18,473	A	49%
	4	North of Meadowlark	Arterial	4	6,008	A	16%	9,381	A	25%	10,149	A	27%
Golden Hill Road	5	South of Union Road	Arterial	3	12,676	C	58%	13,615	D	63%	13,829	D	64%
	6	North of Union Road	Arterial	3	9,805	C	45%	10,488	C	48%	10,644	C	49%
Niblick Road	7	East of Spring Street	Arterial	4	29,676	D	79%	31,939	D	85%	32,454	D	87%
	8	East of Quarterhorse	Arterial	4	20,115	A	54%	21,182	A	57%	21,426	A	57%
Charolais Road	9	East of South River Road	Arterial	2*	7,838	C	36%	10,613	C	49%	11,245	C	52%
South River Road	10	South of Spanish Camp Road South	Local	2	1,458	A	15%	1,543	A	16%	1,563	A	16%
	11	North of Charolais Road	Arterial	2*	9,531	C	44%	12,306	C	57%	12,938	C	60%
Barley Grain Road	12	South of Creston Road	Local	2	439	A	5%	524	A	5%	544	A	6%

* Note that an asterisk (*) indicates the prescence of a raised median or two-way left-turn lane on a two-lane arterial.
Source: City of Paso Robles General Plan Circulation Element, 2011; CCTC, 2019.

With the addition of traffic from either project, all City segments would have a capacity utilization below 90% and both County segments would operate at LOS A.

4. Freeway Segment Operations

Table 15 shows the Existing and Existing Plus Project peak hour volumes at the freeway mainline and ramp locations and **Table 16** shows the LOS, with calculation sheets in **Appendix C**.

Table 15: US 101 Existing and Existing Plus Project Peak Hour Volumes

Direction	Segment ID	Location		Existing	Existing + 674	Existing + 911
US 101 NB	1	SR 46W Off Ramp		146 (114)	146 (114)	146 (114)
	2	SR 46W On Ramp		427 (755)	435 (773)	437 (778)
	3	Mainline North of SR 46W		2221 (3281)	2257 (3357)	2263 (3378)
	4	Spring St. Off Ramp		756 (1337)	792 (1413)	798 (1434)
	5	Paso Robles St. Off Ramp		323 (561)	323 (561)	323 (561)
	6	Paso Robles St. On Ramp		394 (326)	406 (335)	409 (338)
	7	Mainline South of SR 46E		1536 (1709)	1548 (1718)	1551 (1721)
	8	SR 46E Off Ramp		890 (947)	890 (947)	890 (947)
	9	SR 46E On Ramp		260 (249)	260 (249)	260 (249)
	10	Mainline North of SR 46E		906 (1011)	918 (1020)	921 (1023)
US 101 SB	11	Mainline North of SR 46E		850 (1361)	856 (1374)	857 (1378)
	12	SR 46E Off Ramp		248 (327)	248 (327)	248 (327)
	13	SR 46E to Riverside/17th St. Weave	On	892 (992)	892 (992)	892 (992)
	14		Off	218 (303)	218 (303)	218 (303)
	15	Mainline South of SR 46E		1276 (1723)	1282 (1736)	1283 (1740)
	16	Riverside/17th St. On Ramp		298 (205)	298 (205)	298 (205)
	17	Riverside/Pine St. Off Ramp		93 (126)	99 (139)	100 (143)
	18	Spring St. On Ramp		1190 (894)	1256 (947)	1276 (960)
	19	Mainline North of SR 46W		3020 (3046)	3086 (3099)	3106 (3112)
	20	SR 46W Off Ramp		510 (523)	526 (535)	530 (538)
	21	SR 46W On Ramp		92 (146)	92 (146)	92 (146)

AM (PM) Peak Hour Volumes

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Table 16: Existing and Existing Plus Project Freeway Operations

Direction	Location	Segment Type	Peak Hour	Existing Density[1]	Existing LOS	Existing + 674 Density[1]	Existing + 674 LOS	Existing + 911 Density[1]	Existing + 911 LOS
US 101 NB	SR 46W Off Ramp	Diverge	AM	22.2	C	22.4	C	22.5	C
			PM	26.2	C	26.8	C	26.9	C
	SR 46W On Ramp	Merge	AM	23.8	C	24.2	C	24.2	C
			PM	**30.4**	**D**	**31.0**	**D**	**31.2**	**D**
	North of SR 46W	Mainline	AM	19.9	C	20.2	C	20.3	C
			PM	**28.0**	**D**	**28.9**	**D**	**29.3**	**D**
	Spring St. Off Ramp	Diverge	AM	27.1	C	27.5	C	27.6	C
			PM	**33.6**	**D**	**34.3**	**D**	**34.5**	**D**
	Paso Robles St. Off Ramp	Diverge	AM	16.9	B	16.9	B	16.9	B
			PM	19.6	B	19.6	B	19.6	B
	Paso Robles St. On Ramp	Merge	AM	17.7	B	17.9	B	17.9	B
			PM	17.0	B	17.1	B	17.1	B
	South of SR 46E	Mainline	AM	13.6	B	13.7	B	13.7	B
			PM	13.4	B	13.5	B	13.5	B
	SR 46E Off Ramp	Diverge	AM	18.1	B	18.2	B	18.2	B
			PM	17.8	B	17.9	B	17.9	B
	SR 46E On Ramp	Merge	AM	13.5	B	13.7	B	13.7	B
			PM	13.1	B	13.2	B	13.2	B
	North of SR 46E	Mainline	AM	10.1	A	10.3	A	10.3	A
			PM	9.7	A	9.8	A	9.8	A
US 101 SB	North of SR 46E	Mainline	AM	8.1	A	8.8	A	9.0	A
			PM	13.4	B	13.9	B	14.0	B
	SR 46E Off Ramp	Diverge	AM	12.2	B	12.9	B	13.2	B
			PM	18.3	B	18.9	B	19.0	B
	SR 46E to Riverside/17th St.[2]	Weave	AM	-	A	-	A	-	A
			PM	-	B	-	B	-	B
	South of SR 46E	Mainline	AM	11.1	B	11.1	B	11.1	B
			PM	14.8	B	14.9	B	15.0	B
	Riverside/17th St. On Ramp	Merge	AM	17.6	B	17.7	B	17.7	B
			PM	20.9	C	21.1	C	21.1	C
	Riverside/Pine St. Off Ramp	Diverge	AM	18.3	B	18.3	B	18.3	B
			PM	21.7	C	21.8	C	21.8	C
	Spring St. On Ramp	Merge	AM	23.6	C	24.1	C	24.3	C
			PM	23.9	C	24.4	C	24.5	C
	North of SR 46W	Mainline	AM	**28.5**	**D**	**29.5**	**D**	**29.8**	**D**
			PM	**28.6**	**D**	**29.3**	**D**	**29.5**	**D**
	SR 46W Off Ramp	Diverge	AM	**32.5**	**D**	**33.2**	**D**	**33.4**	**D**
			PM	**32.6**	**D**	**33.1**	**D**	**33.2**	**D**
	SR 46W On Ramp	Merge	AM	27.1	C	27.6	C	27.7	C
			PM	27.6	C	27.9	C	28.0	C

1. HCM 6 density (passenger cars per mile per lane).
2. The Leisch method used for weave section analysis does not report density.
Note: Unacceptable operations shown in **bold** text.

The addition of traffic from either project would increase the density at the five freeway segments currently operating at unacceptable LOS. No additional freeway segments would operate unacceptably. The addition of project traffic increases density by less than two passenger cars per mile per lane at the unacceptable locations.

Recommendation: Development of mitigation measures and recommendations will require Caltrans coordination. The freeway facility operations and recommendations are discussed in detail under Cumulative conditions.

5. San Luis Obispo County Facilities

Under Existing Plus Project conditions, three percent of project traffic is estimated to travel south of the City of Paso Robles via Creston Road or River Road. One percent of project traffic is estimated to enter the Templeton Road Improvement Fee Area and Urban Reserve Line (URL) via El Pomar Drive. Two percent of project traffic is estimated to travel to State Route 41 via Creston Road. These trips may travel through the fee area via South El Pomar Road.

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The Templeton Travel Demand Model and Circulation Study Update (2017) evaluated existing operations and forecast future traffic volumes on El Pomar Drive, Neal Springs Road, and Templeton Road. These roadways operated at LOS A under Existing conditions and would operate acceptably with the proposed project. The intersection of El Pomar Drive/Templeton Road is also forecast to operate acceptably at LOS B under Existing conditions with the proposed project.

The 674-Unit and 911-Unit project would generate 8 and 10 PM peak hour trips into the Templeton Road Improvement Fee Area, respectively.

SITE ACCESS AND ON-SITE CIRCULATION

This section discusses issues related to site access and on-site circulation. On-site circulation deficiencies would occur if project designs fail to meet appropriate standards, fail to provide adequate truck access, or would result in hazardous conditions. **Table 17** summarizes the circulation recommendations, with details provided in the subsequent discussion.

Table 17: Summary of Circulation Recommendations

Topic	Recommendations	Responsibility
Project Site Circulation Plan (Figure 2a)	Meadowlark Road: Consider installing additional parallel parking on south side east of Beechwood Drive for school and park. Currently allowed adjacent to the roadway.	Project
	Beechwood Drive: Remove proposed parking on east side south of Ridge Road.	Project
	Ridge Road: Recommend 12' travel lane widths (15' proposed).	Project
	Airport Road/Meadowlark Road: Existing two-way stop control should remain unless roundabout is installed or all-way stop control warrants are met.	Project
	Airport Road Extension: Construct at the time of adjacent development. Airport Road north of Ridge Road should be constructed during Phase 1 (Subareas A through H). The Airport Road extension to Creston Road should be constructed prior to development of Phase 2 (Subareas I and J).	Project
Virginia Peterson School Circulation	Update existing school speed limit and crossing signage per CAMUTCD.	City
	Use ladder crosswalk striping at uncontrolled crosswalks.	City
	Meadowlark Road: Remove north side parking adjacent to school and south side parking west of school to install bike lanes. Keep current drop-off and pick-up area.	City
	Beechwood Drive: Install southbound Class II bike lane from Meadowlark Road to Creston Road.	Project/City
	Beechwood Drive: Install 25 MPH school signage and other school signage consistent with CAMUTCD.	Project/City
Traffic Calming	Meadowlark Road: If lower posted speed is desired, design roadway improvements to reduce prevailing speed. Consider roundabout(s) and/or mini-roundabout(s) on corridor.	Project
Creston Road Bicycle and Pedestrian Assessment	Niblick Road/Sherwood Road to Charolais Road: Restripe to include Class II bike lanes (remove parking where necessary) and include buffer where width allows.	City
	Complete sidewalk gap on east side between Stoney Creek Road and Meadowlark Road.	Project/City
	Complete sidewalk gaps on west side between Santa Ynez Avenue and Flag Way.	City
	Remove unsignalized crossing at Myrtlewood Drive when traffic signal is installed at Stoney Creek Road.	City

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Roadways within the development shall be designed consistent with the City's Circulation Element Policies and Standards and Specifications. Any improvements outside the City shall be consistent with San Luis Obispo County Public Improvement Standards. The project site circulation plan is shown in **Figure 2a**.

Project Driveways/Access Points

Access points for the proposed project are located on Creston Road, Beechwood Drive, Meadowlark Road, and the future extension of Airport Road. The following summarizes the access points on these roadways:

- *Creston Road*: Two new stop-controlled access points on Creston Road are proposed, one with the Airport Road extension and another local road connection.
- *Beechwood Drive*: Stop-controlled access points are proposed on Beechwood Drive at the existing school driveway, at Silverwood Way, and at Beechwood Court/Ridge Road.
- *Meadowlark Road*: Three new connections at existing intersections are proposed on Meadowlark Road. A mini-roundabout is proposed at Oriole Way and stop control is proposed at Deer Springs Drive and Airport Road.
- *Airport Road Extension*: The project will extend Airport Road from Meadowlark Road to Creston Road. Four new stop-controlled access points are proposed on the Airport Road Extension, one with Ridge Road and three local road connections.

All project access points are forecast to operate acceptably under Cumulative Plus Project conditions with the proposed intersection control, as is the intersection of Meadowlark Road/Beechwood Drive.

At the intersection of Meadowlark Road/Airport Road, a roundabout could be considered for traffic calming. The existing two-way stop control is forecast to operate acceptably under Cumulative Plus Project conditions. If a roundabout is not pursued, two-way stop control should remain at the intersection until the California Manual on Uniform Traffic Control Devices (CAMUTCD) all-way stop control warrants are met, if ever. The warrants require eight hours of traffic volume data. Roundabouts and mini-roundabouts on Meadowlark Road are discussed in more detailed in the subsequent traffic calming section.

The extension of Airport Road should be constructed at the time of adjacent development. Airport Road north of Ridge Road should be constructed during Phase 1 (Subareas A through H). The Airport Road extension to Creston Road should be constructed prior to development of Phase 2 (Subareas I and J). This is consistent with the proposed phasing in the Specific Plan.

On-Site Circulation

In addition to the Airport Road collector extension, the proposed project will construct a network of local residential streets. Class II bike lanes are included on all collectors and arterials on the project boundary as is more than one north-south and east-west Class I bikeway connection. The development contains minimal cul-de-sacs to facilitate pedestrian and bicycle travel.

Crosswalks should only be installed at new intersections where supported by the City. Currently most intersections on Airport Road, Beechwood Drive, and Meadowlark Road do not have crosswalks on the side street stop-controlled approaches.

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While Ridge Road has proposed travel lane widths of 15', 12' lanes are recommended to control vehicle speeds. All other proposed roads have 11' and 12' travel lane widths. In addition, the proposed parallel parking on the east side of Beechwood Drive south of Ridge Road is not recommended. There is likely little demand and the wider cross section could increase speeds.

The project is consistent with the City's Circulation Element by establishing safe pedestrian and bicycle paths and improving the circulation network.

SCHOOL CIRCULATION

Virginia Peterson Elementary School is located at the southwest corner of the intersection of Beechwood Drive/Meadowlark Road and the proposed project is located at the southeast corner of the intersection. The following section summarizes the recommendations for school access and circulation.

Pedestrian Access

Sidewalks are located adjacent to the school site and additional sidewalks will be constructed on the new sections of roadway to facilitate pedestrian travel. Currently, school crosswalks are located at the following locations:

- Creston Road: Stop-controlled crosswalk on north leg of Meadowlark Road intersection.
- Beechwood Drive/Meadowlark Road: Stop-controlled crosswalks on the north and west legs of the intersection with crossing guards during school drop-off and pick-up.
- Meadowlark Road: Uncontrolled crosswalk on the west side of Falcon Drive intersection with crossing guard during school drop-off and pick-up.

A crosswalk with a rectangular rapid flashing beacon (RRFB) at the school driveway on Beechwood Drive is proposed. A bulb-out on the southwest corner and additional crosswalks on the south and east side of the Beechwood Drive/Meadowlark Road intersection are also proposed.

CCTC recommends updating the existing school crossing signage per the CAMUTCD. Ladder crosswalk striping is also recommended at uncontrolled crosswalks. If ladder crosswalks are pursued at stop-controlled crosswalks, striping should be consistent within the intersection and at adjacent intersections.

Bike Access

There are currently no marked bikeways adjacent to the school. Class II bike lanes are proposed on Meadowlark Road. West of Beechwood Drive, Meadowlark Road is not wide enough to support bike lanes and parking on both sides. Adjacent to the school site, removal of parking on the north side of the road is recommended to facilitate the existing drop-off and pick-up area. Due to an existing bulb-out on the north side of the road, removal of parking on the south side of the road is recommended west of the school. Four driveways would be impacted by the proposed parking removals.

A Class I bikeway is currently proposed on the east side of Beechwood Drive adjacent to the proposed project. In addition, Class II bike lanes are proposed between Meadowlark Road and Creston Road per the City's Bicycle and Pedestrian Master Plan. Currently parking is included on both sides of Beechwood Drive within the project improvements. Although the Class I will facilitate bike traffic, a southbound Class II bike lane is also recommended. For students living west of Beechwood Drive crossing the roadway twice is undesirable. Parallel and angled parking are proposed on the east side of the road. A northbound Class II bike lane adjacent to angled parking is not recommended.

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Student Drop-off and Pick-up

The current student drop-off and pick-up area at Virginia Peterson Elementary School is located on the south side of Meadowlark Road between Falcon Drive and Beechwood Drive. Students have direct access from the school and can wait at this location for parents. No modification to this drop-off area is recommended.

The project will construct angled parking on the east side of Beechwood Drive adjacent to the school. Students can access the school from one of the two new crosswalks to be provided on Beechwood Drive.

The two drop-off and pick-up areas will facilitate circulation clockwise and counterclockwise surrounding the school. Additional parallel parking on the south side of Meadowlark Road east of Beechwood Drive should be considered for school access.

NEIGHBORHOOD CIRCULATION

Charolais Road, Meadowlark Road, Beechwood Drive, and Creston Road were evaluated for traffic calming. In addition, bicycle and pedestrian circulation on Creston Road was analyzed.

Traffic Calming

Charolais Road has a separated Class I bikeway as well as adjacent sidewalk in some portions and a Class III bikeway is proposed. The existing posted speed limit is 45 MPH. The speed limit was previously 40 MPH and was raised due to higher prevailing speed. The road has rolling terrain with horizontal and vertical curves. Based on the California Vehicle Code and prevailing speeds, a lower speed is not warranted or recommended. Pedestrian and bicycle traffic are separated from vehicular traffic and no traffic calming is recommended. The collision rate is well below the state average and no collision patterns are observed. No improvements are recommended.

Meadowlark Road if fully developed west of Beechwood Drive and on the north side of the road from Creston Road to east of Airport Road. The existing posted speed limit is 25 MPH west of Beechwood Drive and 45 MPH east of Beechwood Drive. The road is straight with rolling terrain. Prior to 2014, the speed limit on Meadowlark Road was 35 MPH. Based on the prevailing speed of traffic the City raised the speed limit to 40 MPH in 2014 and to 45 MPH in 2018 to maintain enforcement. If a posted speed lower than 45 MPH is desired, roadway improvements will need to be designed to reduce the prevailing speed of drivers. With minimal or no driveways fronting this portion of roadway, limiting speeds may be difficult.

The existing all-way stop controlled intersection at Beechwood Drive and the proposed mini-roundabout at Oriole Way may help to control speeds. Mini-roundabouts are small roundabouts with a fully traversable central island. The Federal Highway Administration (FHWA) does not recommend mini-roundabouts where approach speeds are greater than 30 MPH or in locations with high U-turning volumes. Controlling the entry speeds into the proposed mini-roundabout should be considered in the design. At the intersection of Meadowlark Road/Airport Road, a roundabout could be considered for traffic calming.

The proposed project will construct roadway improvements and the southern curb, gutter, and sidewalk east of Beechwood Drive. A Class I bikeway is proposed on the south side of the road and Class II bikeways are also proposed.

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Beechwood Drive is fully developed north of Meadowlark Road and on the west side of the road south of Meadowlark Road. There is currently no posted speed limit and with limited driveways the street does not qualify as a 25 MPH residential district per the California Vehicle Code. The road is flat and straight which can increase speeds. Bulb-outs are proposed at all new two-way stop-controlled intersection connections with the school driveway, Beechwood Court/Ridge Road, and Silverwood Way. A Class I bikeway on the east side of the roadway and a crosswalk with an RRFB at the school driveway are also proposed. In addition to these improvements, a Class II bike lane on the west side of the road and 25 MPH school signage and other school signage consistent with the CAMUTCD are recommended. To reduce the cross section and control speeds, the proposed parallel parking on the east side of Beechwood Drive south of Ridge Road is not recommended.

Creston Road Bicycle and Pedestrian Assessment

CCTC analyzed pedestrian and bicycle access and needs on Creston Road between Niblick Road/Sherwood Road and Charolais Road.

On the west side of the roadway, there is continuous curb, gutter, and sidewalk between Flag Way and Charolais Road. Between Niblick Road/Sherwood Road and Flag Way there is approximately 1800' of rolled curb and gutter without sidewalk adjacent to residential parcels north of Santa Ynez Avenue and 600' of curb and gutter south of Santa Ynez Avenue fronting the Paso Robles Golf Club.

On the east side of the roadway there is continuous sidewalk between Niblick Road/Sherwood Road and Stoney Creek Road. There is a 600' gap in curb, gutter, and sidewalk on the east side between Stoney Creek Road and Meadowlark Road fronting three residential parcels.

Crosswalks are marked at most side street stop-controlled and all side street signal-controlled locations. Marked crosswalks on Creston Road are located at:

- *Niblick Road/Sherwood Road:* Signal controlled crosswalks on both north and south leg.
- *Cedarwood Drive:* Signal controlled crosswalks on both north and south leg.
- *Myrtlewood Drive:* Un-controlled crosswalk on south leg.
- *Meadowlark Road:* Stop-controlled crosswalk on north leg.

There is currently all-way stop control at the intersection of Creston Road/Santa Ynez Road; however, no crosswalks are provided. Future crossings are planned at:

- *Meadowlark Road:* Future traffic signal per the City's Circulation Element.
- *Scott Street:* Future traffic signal per the City's Circulation Element.
- *Stoney Creek Road:* Future traffic signal per the City's Circulation Element.
- *Charolais Road:* Recommended all-way stop in mitigation measures.

There are currently no marked bikeways on Creston Road between Niblick Road/Sherwood Road and Meadowlark Road. Between Meadowlark Road and Charolais Road a northbound bike lane is signed.

Parking is restricted on the corridor except on the west side adjacent to the rolled curb and on the east side near Stoney Creek Road. The existing posted speed limit is 35 MPH north of Charolais Road and 45 MPH south of Charolais Road. The road is four-lanes north of Flag Way and between Meadowlark Road and Charolais Road.

CCTC recommends restriping Creston Road to include Class II bike lanes. The existing width can accommodate Class II bike lanes with existing lane configurations and parking except near Stoney

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Creek Road. North of Stoney Creek, parking would likely need to be removed to allow for the existing southbound left turn lane to remain. Parking near the future signalized intersection is also not recommended. Widening on the east side between Stoney Creek Road and Meadowlark Road would reduce the transition but is not required. Where width allows, buffered Class II bike lanes are recommended.

CCTC also recommends completing the sidewalk gap on the east side between Stoney Creek Road and Meadowlark Road. With no planned crossing in the area and no attractors, the sidewalk gap on the west side between Niblick Road/Sherwood Road and Santa Ynez Avenue adjacent to residential driveways is not required for overall connectivity. Completing the sidewalk gap on the west side between Santa Ynez Avenue and Flag Way is recommended. Pedestrians can use the traffic signal at Niblick Road/Sherwood Road and the all-way stop controlled intersection at Santa Ynez Avenue to cross Creston Road. A traffic signal at Scott Street is not currently installed and crossing at that location is not recommended. It is also recommended that the unsignalized crossing at Myrtlewood Drive be removed when the traffic signal is installed at Stoney Creek Road. This action will require a public hearing.

In addition, the City's Circulation Element includes construction of a frontage road on the west side of Creston Road between Niblick Road and Santa Ynez Avenue and a traffic signal at Scott Street.

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Near Term Conditions

Near Term conditions reflect the development of approved and pending projects in the study area.

METHODOLOGY

A list of approved, pending, and reasonably foreseeable projects was obtained from City staff. The following projects were assumed to be in place under Near Term conditions:

- Olsen-Chandler Specific Plan (1,065 SF units, 168 MF units, 9,800 s.f. commercial, 495-student elementary school).
- Dallons Drive Homewood Suites (105 rooms)
- Black Oak Lodge Hotel (96 rooms, 2717 Black Oak Drive)
- Golden Hill Residential Care Assisted Living Facility (125 beds converted to equivalent MF units, Golden Hill Road south of Union Road)
- Furlotti Annexation/Gateway Project), NW quadrant of SR 46 W/US 101 interchange (425 rooms in three hotels, 97 residential units, 73,700 s.f. commercial uses)
- Justin Vineyards Wine Storage Warehouse (54,000 s.f. warehouse on Wisteria Lane)
- Vintner's Vault wine processing/storage (56,000 s.f. warehouse on Germaine Way)
- Spring Street Village (42 MF units, 3328 Spring Street)
- Hotel Cheval Phase 2 (20 rooms, 1020 Pine Street)
- Hotel Alexa (38 rooms, Alexa Court)
- Oak Park Residential (75 MF units, 29th/Park Street)
- Truck Sales/Installation (4,950 s.f., 3527 Combine Street)
- River Oaks The Next Generation (271 SF units, Club House Drive)
- Cabernet Links RV Resort (290 RV spaces, golf course, 5151 Jardine Road)
- Mullahey Dodge expansion (3,000 s.f., Tractor/Golden Hill Road)
- Bejar Industrial (4,981 s.f., Combine Street)
- Gym/Office (4,958 s.f., 3523 Combine Street)
- Mariott Residence Inn (128 rooms, S Vine Street)
- Habitat Vine Street (9 MF units, Vine Street)
- Oaks Assisted Living (101 beds, S River/Serenade)
- Oaks Hotel Expansion (66 rooms, 3002 Riverside Drive)
- Fairfield Inn (119 rooms, 2940 Union Road)
- Sonic Burger Drive-Thru (2,000 s.f., Golden Hills Plaza)
- 301 Creston Tentative Map (4 MF units)
- Paso Robles Public Market (6 MF units, 16,500 s.f. commercial, 1803 Spring Street)
- Bellissimo Restaurant and Apartments (4 MF units, 6,000 s.f. commercial, 4th Street/Spring Street)
- Tidwell office/maintenance (9,960 s.f. office, Dallons Drive)
- Pine Street Hotel (151 rooms, 944 Pine Street)
- Riverside Wine Storage (18,500 s.f. warehouse, 3230 Riverside Avenue)
- Westco Industrial (3,948 s.f. industrial, Combine Street)
- Viborg Industrial (7,200 s.f. industrial, 1621 N River Road)

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- Blue Oaks Apartments (142 MF units, 802 Experimental Station Road)
- Oxford Suites Hotel (127 rooms, 4th Street/Pine Street)
- North Vine Apartments (8 MF units, North Vine Street)
- Webb Apartments (10 MF units, 36th Street/Oak Street)
- Cava Robles RV Resort (310 RV sites, 32 cottages, north end of Golden Hill Road)
- 6th Street/Spring Street retail (4,600 s.f.)
- TTM 3098 (9 MF units, Union Road/Golden Hill Road)
- Oak Park Phase 3 Apartments (75 MF units, 3000 Park Street)
- Firestone Warehouse/Cold Block (69,000 s.f. warehouse, Ramada Drive)
- Paso Robles Inn Expansion (23 rooms, 600 12th Street)
- Buttonwillow Product Warehouse (5,000 s.f., 2203 Wisteria Lane)
- Lone Oak Hotel Conversion (37 rooms, 715 24th Street)
- Destino Resort Hotel Phase 1 (73 rooms, 3340 Airport Road)

These projects were added to the base year TDM to develop 2025 Near Term conditions. An ambient annual growth rate of one percent per year was applied to US 101 volumes and a growth rate of two percent per year was applied to SR 46 E to account for regional growth to year 2025.

Figure 8 shows the Near Term weekday peak hour traffic volumes at the study intersections and the Near Term ADT on the study segments.

Under Near Term conditions a PHF of 0.92 was used for the intersection analysis and a PHF of 0.94 was used for the freeway analysis consistent with methodologies in the HCM 6th Edition. However, if the existing PHF exceeded these respective values, the higher PHF was used.

Transportation Network

The following roadway improvements were assumed to be in place under Near Term conditions:

- Golden Hill Road/Union Road (#6): A single-lane roundabout is scheduled to be designed in 2019 and was assumed to be in place under Near Term conditions.
- Airport Road Extension from Meadowlark Road to Creston Road: Assumed to be constructed with the Olsen-Chandler development.
- Olsen-Chandler site buildout: Roadways internal to the Olsen-Chandler Specific Plan were assumed to be in place under Near Term conditions.

The SR 46 E overcrossing at Union Road was not assumed to be in place under Near Term conditions.

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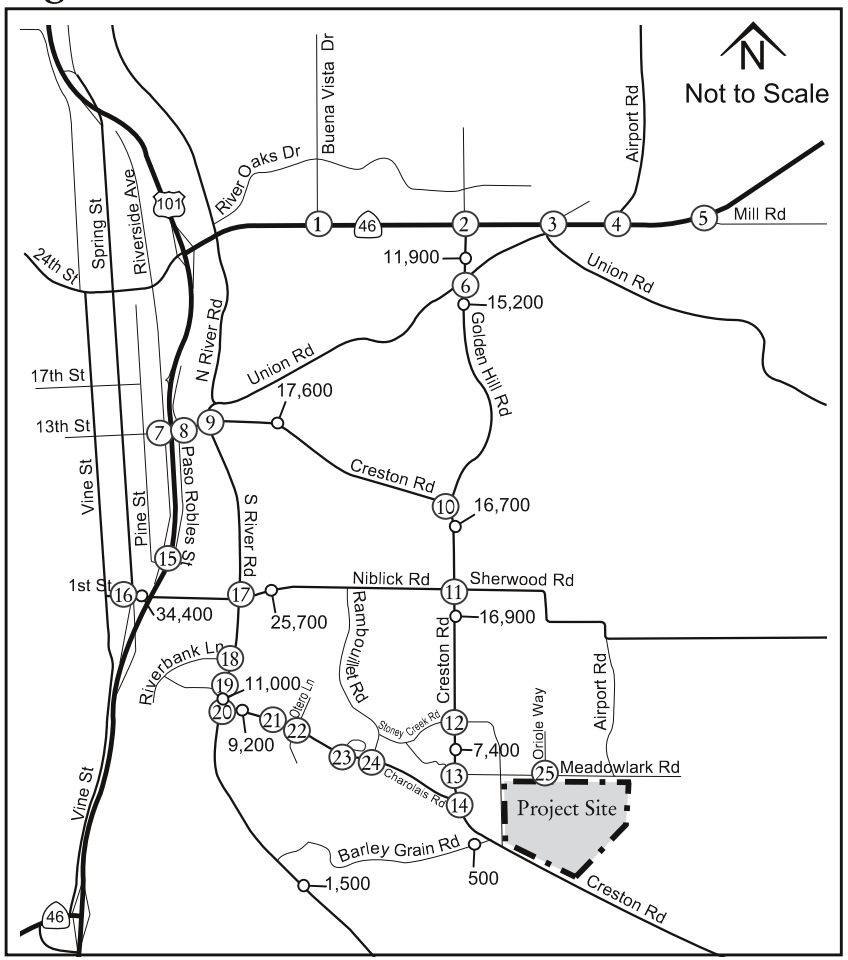
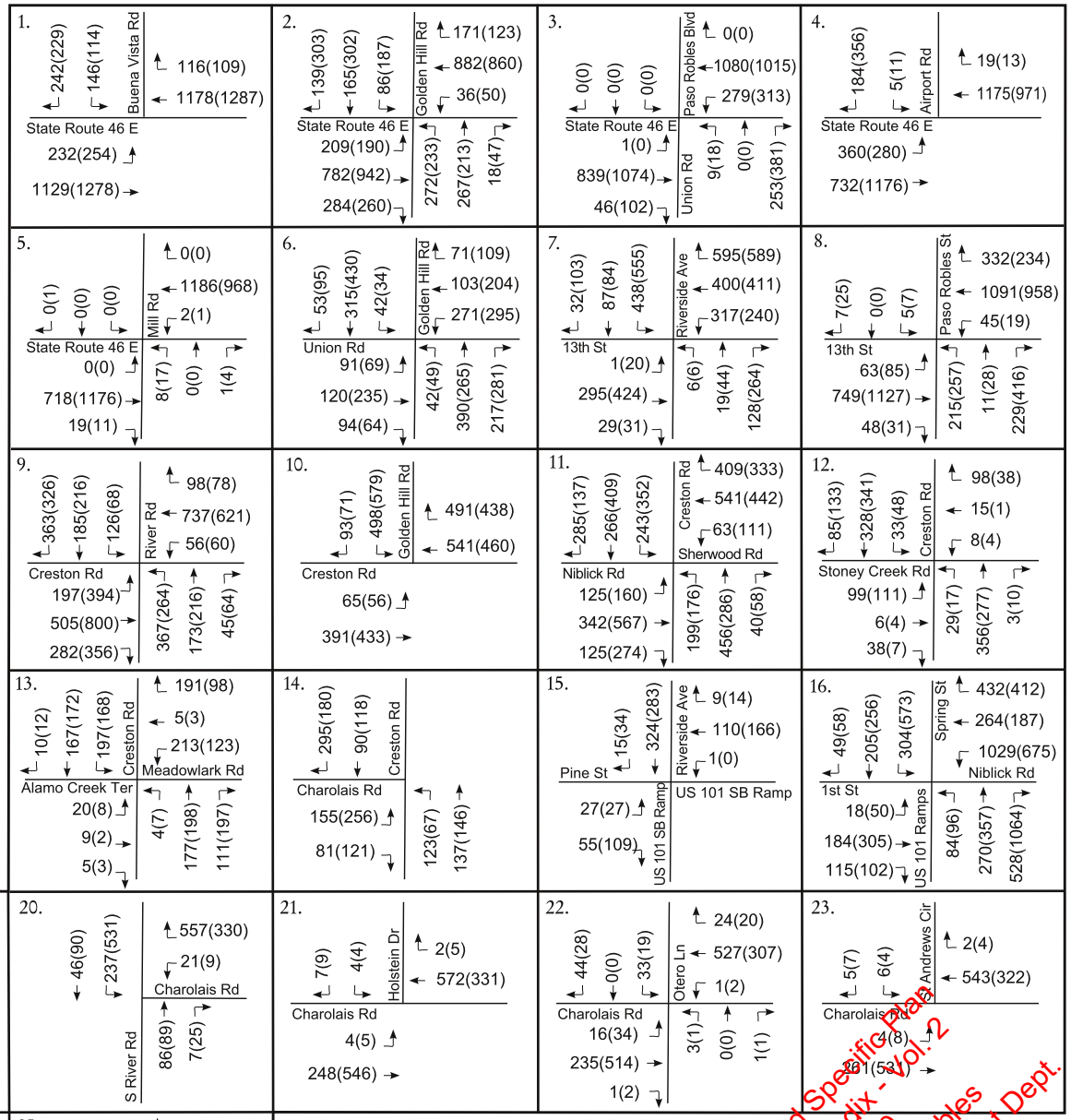
Figure 8: Near Term Traffic Volumes





Legend:

(x) - Study Intersection

xx(yy) - AM (PM) Peak Hour Traffic Volumes

o— - Average Daily Traffic Volumes

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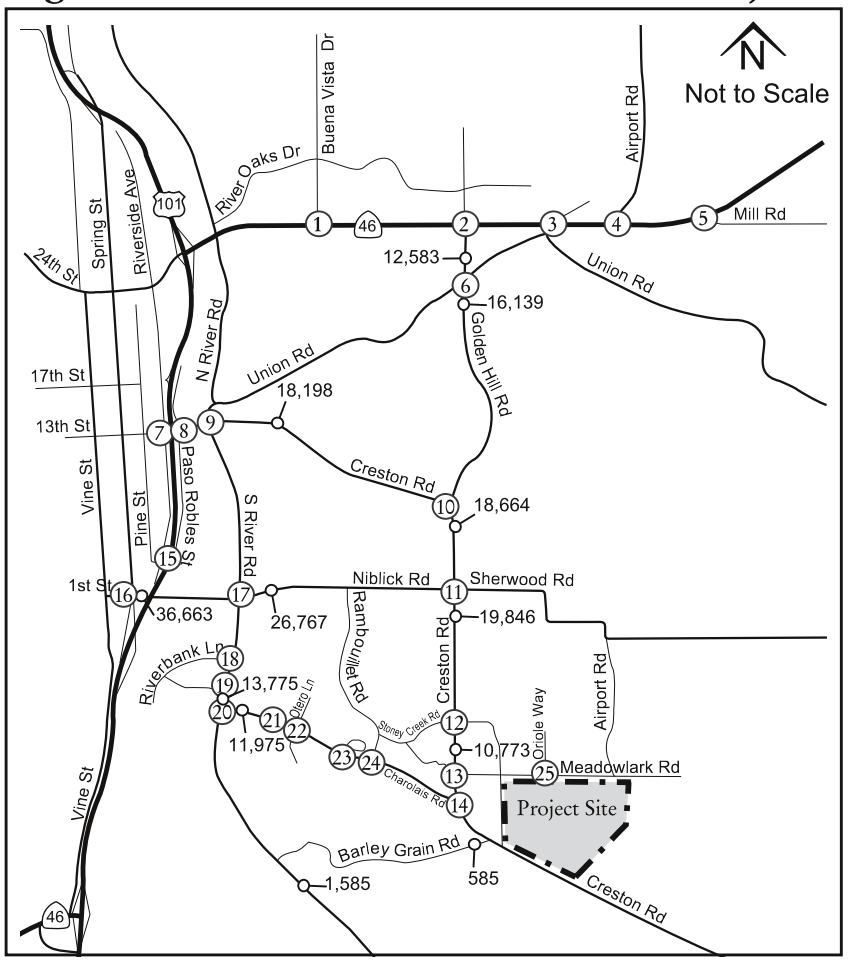
Figure 9a: Near Term Plus 674-Unit Project Traffic Volumes



1.
242(229) 150(123) Buena Vista Rd 124(115) 1178(1287)
State Route 46 E
232(254) 1129(1278)

2.
139(303) 173(320) 86(187) Golden Hill Rd 171(123) 882(860) 36(50)
State Route 46 E
209(190) 782(942) 288(269)
280(239) 283(225) 18(47)

3.
0(0) 0(0) 0(0) Paso Robles Blvd 0(0) 1080(1015) 283(322)
State Route 46 E
1(0) 839(1074) 46(102)
Union Rd
9(18) 0(0) 261(387)

4.
186(360) 5(11) Airport Rd 19(13) 1177(975)
State Route 46 E
364(283) 736(1179)

5.
0(1) 0(0) 0(0) Mill Rd 0(0) 1188(972) 2(1)
State Route 46 E
0(0) 722(1179) 19(11)
8(17) 0(0) 1(4)

6.
53(95) 332(466) 42(34) Golden Hill Rd 71(109) 103(204) 277(308)
Union Rd
91(69) 120(235) 94(64)
42(49) 421(290) 229(290)

7.
32(103) 87(84) 451(582) Riverside Ave 618(608) 423(430) 317(240)
13th St
1(20) 308(451) 29(31)
6(6) 19(44) 128(264)

8.
7(25) 0(0) 5(7) Paso Robles St 344(243) 1138(995) 45(19)
13th St
63(85) 774(1181) 48(31)
215(257) 11(28) 229(416)

9.
363(326) 187(220) 126(68) River Rd 98(78) 768(646) 56(60)
Creston Rd
197(394) 518(827) 295(383)
394(286) 177(219) 45(64)

10.
93(71) 523(633) Golden Hill Rd 538(475) 588(497)
Creston Rd
65(56) 412(478)

11.
285(137) 308(498) 251(370) Creston Rd 425(345) 553(451) 67(120)
Sherwood Rd
Niblick Rd
125(160) 348(580) 150(328)
242(210) 541(355) 48(64)

12.
85(133) 408(510) 33(48) Creston Rd 98(38) 15(1) 8(4)
Stoney Creek Rd
99(111) 6(4) 40(11)
33(20) 507(399) 3(10)

13.
10(12) 194(230) 252(284) Creston Rd 296(182) 5(3) 271(170)
Meadowlark Rd
Alamo Creek Ter
20(8) 9(2) 7(7)
8(10) 227(239) 143(264)

14.
353(227) 119(180) Creston Rd
Charolais Rd
187(323) 127(219)
204(133) 191(190)

15.
15(34) 324(283) Riverside Ave 9(14) 116(179) 1(0)
Pine St
US 101 SB Ramp
27(27) 55(109)
US 101 SB Ramp

16.
49(58) 205(256) 319(604) Spring St 448(424) 280(199) 1095(728)
Niblick Rd
1st St
18(50) 192(323) 115(102)
US 101 Ramps
84(96) 270(357) 564(1140)

17.
144(129) 270(398) 291(204) S River Rd 288(154) 1003(731) 119(115)
Niblick Rd
102(258) 641(1004) 266(614)
622(418) 311(265) 53(83)

18.
41(88) 377(845) S River Rd
Riverbank Ln
86(51) 1(2)
5(4) 888(546)

19.
19(53) 347(758) S River Rd
Bridgegate Ln
55(35) 8(13)
13(15) 757(501)

20.
46(90) 306(678) 681(430) 21(9)
Charolais Rd
S River Rd
86(89) 7(25)

21.
7(9) 4(4) Holstein Dr 2(5) 696(431)
Charolais Rd
4(5) 317(693)

22.
44(28) 0(0) 35(23) Otero Ln 28(23) 651(407) 1(2)
Charolais Rd
16(34) 304(661) 1(2)
3(1) 0(0) 1(1)

23.
5(7) 6(4) Andrews Cir 2(4) 671(425)
Charolais Rd
4(8) 832(683)

24.
135(83) 25(28) Rambouillet Rd 47(26) 538(346)
Charolais Rd
56(153) 282(534)

25.
164(103) 2(4) 0(2) Oriole Way 1(0) 287(178) 2(4)
Meadowlark Rd
41(60) 137(259) 23(49)
47(37) 4(3) 4(3)

Legend:

(x) - Study Intersection

o— - Average Daily Traffic Volumes

xx(yy) - AM (PM) Peak Hour Traffic Volumes

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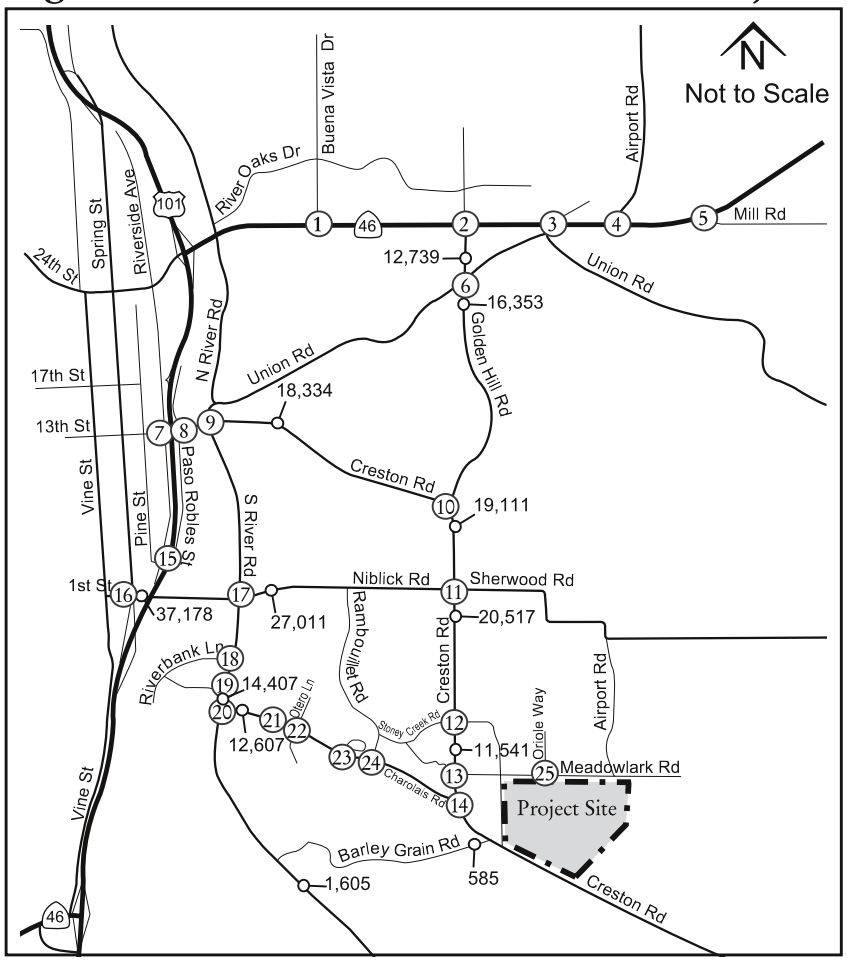
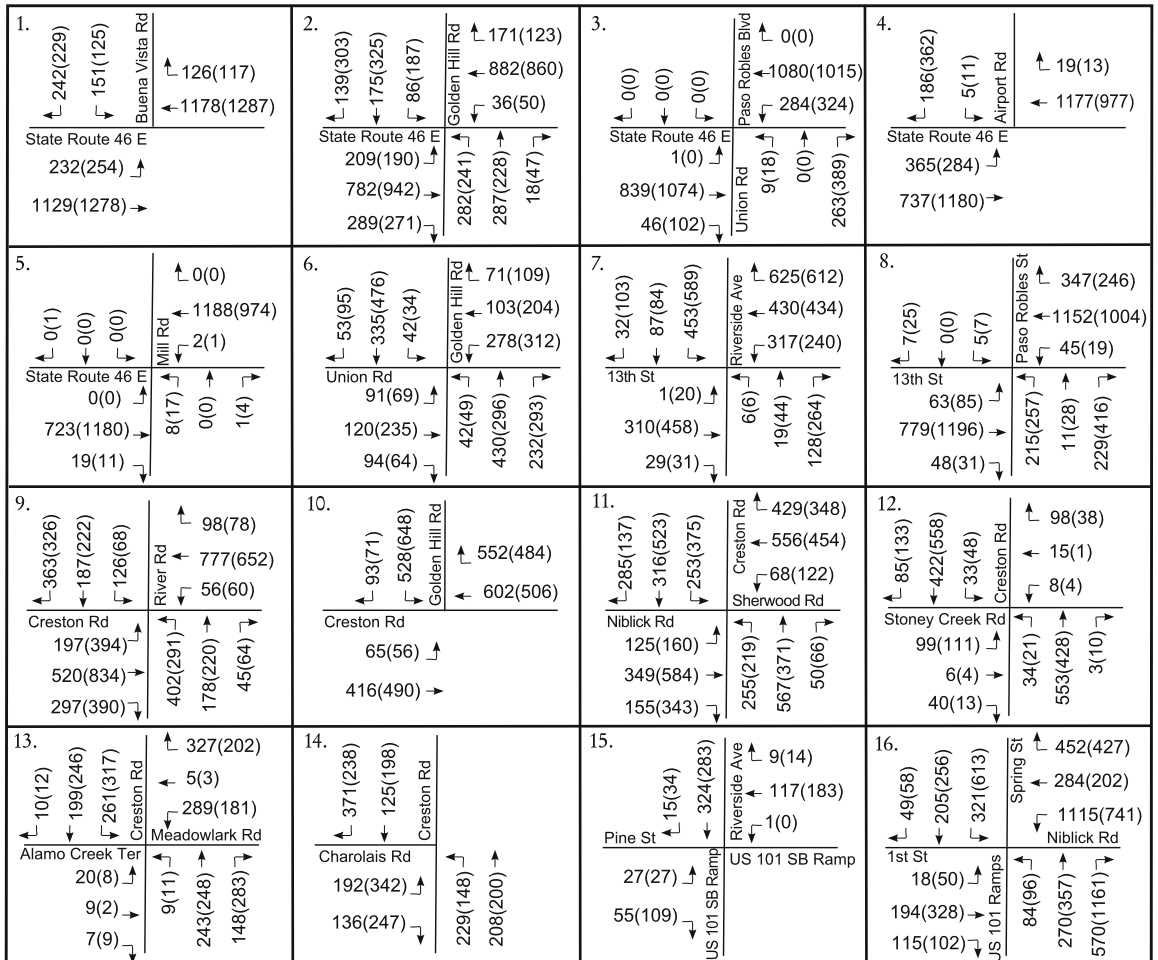
Figure 9b: Near Term Plus 911-Unit Project Traffic Volumes





Legend:

- (x) - Study Intersection
- o— - Average Daily Traffic Volumes
- xx(yy) - AM (PM) Peak Hour Traffic Volumes

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Central Coast Transportation Consulting
Traffic Engineering & Transportation Planning

NEAR TERM PLUS PROJECT IMPACT ANALYSIS

1. Intersection Operations

Figures 9a and 9b show the traffic volumes for the study intersections during the weekday peak hours and ADT on the study segments under Near Term Plus Project conditions.

Table 18 summarizes the intersection operating conditions under Near Term and Near Term Plus Project conditions with detailed calculation sheets in **Appendix B** and warrant analysis sheets in **Appendix D**.

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Table 18: Near Term and Near Term Plus Project Intersection Auto Levels of Service

Intersection	Peak Hour	Near Term Delay[1]	Near Term LOS	Near Term + 674 Delay[1]	Near Term + 674 LOS	Near Term + 911 Delay[1]	Near Term + 911 LOS
1. State Route 46 E/Buena Vista Drive	AM	19.4	B	19.6	B	19.6	B
	PM	16.9	B	17.2	B	17.3	B
2. State Route 46 E/Golden Hill Road	AM	26.1	C	26.6	C	26.8	C
	PM	30.3	C	30.6	C	30.7	C
3. State Route 46 E/Union Road	AM	**5.2 (33.4)**	**- (D)**	**5.3 (33.6)**	**- (D)**	**5.5 (34.8)**	**- (D)**
	PM	**17.7 (112.7)**	**- (F)**	**18.3 (114.6)**	**- (F)**	**18.4 (115.2)**	**- (F)**
4. State Route 46 E/Airport Road	AM	**7.1 (25.1)**	**- (D)**	**7.3 (25.4)**	**- (D)**	**7.4 (25.5)**	**- (D)**
	PM	**6.1 (34.6)**	**- (D)**	**6.4 (35.9)**	**- (E)**	**6.4 (36.3)**	**- (E)**
5. State Route 46 E/Mill Road	AM	0.1 (18.8)	- (C)	0.1 (18.8)	- (C)	0.1 (18.8)	- (C)
	PM	**0.3 (26.8)**	**- (D)**	**0.3 (27.0)**	**- (D)**	**0.3 (27.0)**	**- (D)**
6. Golden Hill Road/Union Road	AM	14.6	B	16.1	C	16.5	C
	PM	19.7	C	23.3	C	24.5	C
7. 13th Street/Riverside Avenue	AM	28.4	C	30.1	C	30.5	C
	PM	47.7	D	50.8	D	51.5	D
8. 13th Street/Paso Robles Street	AM	14.3	B	14.6	B	14.7	B
	PM	19.6	B	20.5	C	20.8	C
9. River Road/Creston Road	AM	22.1	C	22.8	C	23.0	C
	PM	21.0	C	21.6	C	21.8	C
10. Creston Road/Golden Hill Road	AM	22.3	C	24.0	C	24.6	C
	PM	19.6	B	21.9	C	22.4	C
11. Creston Road/Niblick Road	AM	64.2	E	76.9	E	80.5	F
	PM	44.4	D	52.8	D	56.1	E
12. Creston Road/Stoney Creek Road	AM	8.6 (49.5)	- (E)	**19.5 (158.4)**	**- (F)**	**24.9 (>200)**	**- (F)**
	PM	4.2 (26.3)	- (D)	6.8 (60.3)	- (F)	8.4 (80.8)	- (F)
13. Creston Road/Meadowlark Road	AM	17.7	C	**52.8**	**F**	**73.7**	**F**
	PM	11.9	B	24.2	C	34.2	D
14. Creston Road/Charolais Road	AM	4.9 (13.7)	- (B)	8.2 (24.7)	- (C)	10.5 (33.5)	- (D)
	PM	6.3 (13.4)	- (B)	12.7 (27.7)	- (D)	**18.5 (41.0)**	**- (E)**
15. Riverside Ave/Pine St/US 101 SB Ramp	AM	4.7 (12.8)	- (B)	4.8 (12.9)	- (B)	4.9 (13.0)	- (B)
	PM	6.5 (13.6)	- (B)	6.8 (13.9)	- (B)	6.9 (14.0)	- (B)
16. 1st Street-Niblick Road/Spring Street	AM	30.8	C	33.4	C	34.0	C
	PM	39.5	D	42.4	D	43.3	D
17. Niblick Road/South River Road	AM	43.0	D	50.2	D	52.6	D
	PM	30.4	C	40.2	D	43.9	D
18. South River Road/Riverbank Lane	AM	2.8 (37.6)	- (E)	3.9 (62.2)	- (F)	4.3 (71.3)	- (F)
	PM	1.3 (31.1)	- (D)	1.7 (48.5)	- (E)	1.9 (55.5)	- (F)
19. South River Road/Bridgegate Lane	AM	0.9 (14.4)	- (B)	0.9 (16.2)	- (C)	0.9 (16.8)	- (C)
	PM	0.7 (14.9)	- (B)	0.7 (17.5)	- (C)	0.7 (18.3)	- (C)
20. South River Road/Charolais Road	AM	19.6	C	**46.3**	**E**	**61.3**	**F**
	PM	**40.6**	**E**	**113.6**	**F**	**138.5**	**F**
21. Charolais Road/Holstein Drive	AM	0.2 (14.4)	- (B)	0.2 (17.0)	- (C)	0.2 (17.8)	- (C)
	PM	0.3 (13.1)	- (B)	0.2 (15.7)	- (C)	0.2 (16.5)	- (C)
22. Charolais Road/Otero Lane	AM	1.8 (18.1)	- (C)	2.0 (24.5)	- (C)	2.1 (26.9)	- (D)
	PM	1.2 (16.7)	- (C)	1.3 (23.0)	- (C)	1.4 (26.4)	- (D)
23. Charolais Road/St Andrews Circle	AM	0.2 (15.1)	- (C)	0.2 (18.2)	- (C)	0.2 (19.2)	- (C)
	PM	0.2 (13.3)	- (B)	0.2 (16.1)	- (C)	0.2 (17.1)	- (C)
24. Charolais Road/Rambouillet Road	AM	3.2 (14.8)	- (B)	3.4 (19.7)	- (C)	3.5 (21.6)	- (C)
	PM	2.9 (12.9)	- (B)	3.0 (20.1)	- (C)	3.3 (23.8)	- (C)
25. Meadowlark Road/Oriole Way	AM	3.8 (11.2)	- (B)	4.8	A	5.0	A
	PM	2.8 (9.6)	- (A)	4.7	A	4.9	A

1. HCM 6th average control delay in seconds per vehicle (HCM 2000 used for Intersections 1, 10 and 15). For side-street-stop controlled intersections the worst approach's delay is reported in parentheses next to the overall intersection delay.
Note: Unacceptable operations shown in **bold** text.

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The following Caltrans intersections operate below the LOS C threshold:

- SR 46 E/Union Road (#3): the addition of traffic from either project would increase unacceptable delay on the side street approach during the PM peak hour. Restricting the northbound lefts at the intersection would improve operations to at least Near Term conditions and reduce conflict points at the intersection. The restriction would impact 9 and 18 vehicles in the AM and PM peak hour, respectively. Restricting westbound left turns is not required or recommended and could impact operations at SR 46 E/Golden Hill Road. A Project Study Report has been prepared for this area which will ultimately construct an overcrossing and restrict left turns on SR 46 E. This improvement is consistent with the City's Circulation Element; however, the improvements are in the Caltrans right-of-way and subject to approval.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents.

- State Route 46 E/Airport Road (#4): the intersection would operate with unacceptable delay under Near Term conditions. Restricting the southbound lefts at the intersection would improve operations and reduce conflict points at the intersection. The restriction would impact 5 and 11 vehicles in the AM and PM peak hour, respectively. These vehicles could U-turn at Union Road. Restricting eastbound left turns is not recommended. Adding a southbound right turn lane would not improve LOS and is not recommended. A Project Study Report has been prepared for this area which will ultimately construct an overcrossing at Union Road and restrict left turns on SR 46 E at Union Road and Airport Road. This improvement is consistent with the City's Circulation Element; however, the improvements are in the Caltrans right-of-way and subject to approval.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents.

- State Route 46 E/Mill Road (#5): the intersection would operate at LOS D in the PM peak hour under Near Term conditions. Restricting the northbound lefts, a traffic signal, or grade separation at the intersection would return operations to at least Near Term conditions.

  Recommendation: None, traffic signal or grade separation not recommended. Secondary access is recommended if left turns are prohibited.

The following stop-controlled City intersections operate below LOS D:

- Creston Road/Stoney Creek Road (#12): the intersection would operate below LOS D in the AM peak hour under Near Term conditions and in the PM peak hour with the addition of traffic from either project. The intersection meets signal warrants. The City's Circulation Element includes a traffic signal at this location. The bulb-out on the northwest corner is not recommended. The existing dedicated left, through, and right southbound turn lanes are desired for signal operations. The eastbound approach should be restriped with a dedicated left-through and right turn lane consistent with the Circulation Element. The northbound left turn lane storage should be maximized.

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Recommendation: Project makes a fair share contribution through the City's impact fee program for installation of a traffic signal.

- Creston Road/Meadowlark Road (#13): the addition of traffic from either project would cause the intersection to operate at LOS F during the AM peak hour and meet signal warrants. A traffic signal and restriping at this location is consistent with the City's Circulation Element. Storage for the southbound left turn lane should be extended.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for installation of a traffic signal.

- Creston Road/Charolais Road (#14): the intersection would operate below LOS D in the PM peak hour under the 911-Unit Project Near Term conditions. The intersection would meet signal warrants; however, the intersection operates at LOS C or better with installation of all-way stop control. Where traffic signals are warranted, all-way stop control is an interim measure.

  Recommendation: Recommend installation of all-way stop control with 911-Unit project.

- South River Road/Riverbank Lane (#18): the intersection would operate below LOS D in the AM peak hour under Near Term conditions and in the PM peak hour with the addition of traffic from either project. However, the intersection would not meet signal warrants and therefore would operate acceptably.

  Recommendation: None. Signal warrant not met.

- South River Road/Charolais Road (#20): the intersection would operate below LOS D in the PM peak hour under Near Term conditions and in the AM peak hour with the addition of traffic from either project. The intersection would meet signal warrants. A roundabout is consistent with the City's Circulation Element.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for a roundabout at this intersection.

2. Queues

Table 19 summarizes the vehicular queuing under Near Term and Near Term Plus Project conditions.

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Table 19: Near Term and Near Term Plus Project Queues

Intersection	Movement	Storage Length (ft)	Peak Hour	95th Percentile Queues (ft)[1]		
				Near Term	Near Term + 674	Near Term + 911
1. State Route 46 E/Buena Vista Drive	EBL[2]	345	AM	**#354**	**#358**	**#359**
			PM	305	311	312
2. State Route 46 E/Golden Hill Road	NBL	160	AM	**185**	**192**	**195**
			PM	**164**	**169**	**170**
	SBL	140	AM	72	73	73
			PM	137	138	138
	EBL[2]	225	AM	147	149	149
			PM	139	139	139
	WBL[2]	125	AM	34	35	35
			PM	47	48	48
3. State Route 46 E/Union Road	WBL[2]	195	AM	60	63	63
			PM	95	103	103
4. State Route 46 E/Airport Road	EBL[2]	580	AM	188	193	195
			PM	65	68	68
5. State Route 46 E/Mill Road	WBL[2]	305	AM	0	0	0
			PM	0	0	0
6. Golden Hill Road/Union Road	Intersection is a roundabout under Near Term Conditions					
7. 13th Street/Riverside Avenue	WBL	125	AM	**328**	**329**	**332**
			PM	**268**	**268**	**268**
	WBT	295	AM	**326**	**349**	**355**
			PM	**372**	**393**	**398**
8. 13th Street/Paso Robles Street	NBL	130	AM	**216**	**216**	**216**
			PM	**233**	**233**	**233**
	NBR	110	AM	57	57	57
			PM	**286**	**289**	**290**
	EBL	120	AM	88	88	88
			PM	109	109	109
	EBT	295	AM	254	265	267
			PM	**438**	**470**	**479**
9. River Road/Creston Road	NBL	140	AM	**205**	**220**	**225**
			PM	**154**	**165**	**169**
10. Creston Road/Golden Hill Road	EBL	125	AM	103	103	103
			PM	88	88	88
11. Creston Road/Niblick Road	NBL	230	AM	#209	**#277**	**#296**
			PM	#179	**#231**	**#244**
	SBL	245	AM	**#289**	**#302**	**#305**
			PM	**#414**	**#440**	**#448**
	EBL	150	AM	131	131	131
			PM	**154**	**154**	**154**
	WBL	170	AM	#87	#96	#97
			PM	118	#136	#140
16. 1st Street-Niblick Road/Spring Street	NBL	165	AM	#158	#158	#158
			PM	154	154	154
	NBR	290	AM	65	77	79
			PM	**307**	**378**	**400**
	SBL	305	AM	208	218	219
			PM	**337**	**357**	**363**
17. Niblick Road/South River Road	NBL	150	AM	**292**	**#378**	**#400**
			PM	**196**	**226**	**#245**
	SBL	110	AM	**#371**	**#382**	**#385**
			PM	**#233**	**#266**	**#274**
	EBL	140	AM	74	74	74
			PM	**148**	**148**	**148**
	WBL	80	AM	**#171**	**#171**	**#171**
			PM	**153**	**153**	**153**

1. Queue length that would not be exceeded 95 percent of the time.
2. Deceleration length of 530 feet has been subtracted from the storage length per the HDM for 60 mph design speed.
# indicates that 95th percentile volume exceeds capacity, queue may be longer.
Bold indicates queue length longer than storage length.

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The following queue deficiencies at City intersections are noted:

- 13th Street/Riverside Avenue (#7): the westbound left turn and through movement queue lengths would further exceed storage length during both peak hours with the addition of traffic from either project. Bridge widening at this location in not included in the City's Circulation Element and any widening in this location is unlikely; signal timing should be reviewed, coordinated, and optimized. With coordination and overlaps, queues would improve to no project levels. The City's Circulation Element accepts that this location will reach capacity.

  Recommendation: Review, coordinate, and optimize corridor operations. Add westbound right and northbound right turn overlap phases.

- 13th Street/Paso Robles Street (#8): the northbound left and right turn and eastbound through queue lengths would further exceed storage length during at least one peak hour with the addition of traffic from either project. Bridge widening at this location in not included in the City's Circulation Element and any widening in this location is unlikely; signal timing will need to be reviewed, coordinated and optimized. If parking is removed on the east side of Paso Robles Street north of 12th Street the northbound right turn lane could be extended. With coordination, queues would improve to no project levels. The City's Circulation Element accepts that this location will reach capacity.

  Recommendation: Review, coordinate, and optimize corridor operations.

- River Road/Creston Road (#9): the northbound left turn queue length would further exceed storage length during at least one peak hour with the addition of traffic from either project. Additional storage is available in the striped median. Coordination with the adjacent 13th Street intersections could also improve the queue lengths.

  Recommendation: None. Additional storage is available in the striped median.

- Creston Road/Niblick Road (#11): the northbound, southbound, and eastbound left turn queue lengths exceed storage in at least one peak hour under Near Term conditions. The City's Circulation Element includes the addition of a second southbound left turn lane and a southbound, eastbound, and westbound right turn lane, allowing for two through lanes. With these improvements, the left turn queues could be accommodated in available two-way left turn lane and bay taper storage.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for improvements at this intersection.

- 1st Street-Niblick Road/Spring Street (#16): the southbound left turn and northbound right turn queue lengths would exceed the storage length during the PM peak hour under Near Term conditions. No feasible mitigation has been identified to return queues to no project levels. The City's Circulation Element includes corridor improvements on Niblick Road and Spring Street.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for improvements at this intersection.

- Niblick Road/South River Road (#17): all left turn queue lengths would further exceed the storage length during one or more peak hours with the addition of traffic from either project. No feasible mitigation has been identified to return queues to no project levels. The City's

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Circulation Element includes widening at this intersection and corridor improvements. Intersection would benefit from additional westbound left turn lane storage; additional right turn lanes and right turn overlap phasing.

Recommendation: Project makes a fair share contribution through the City's impact fee program for improvements at this intersection.

Summary of Intersection Mitigations

In addition to the 674-Unit project and 911-Unit project analysis, intersections requiring mitigation measures under either project condition were evaluated under the 554-Unit (Phase 1) conditions as shown in **Table 20**.

Table 20: Near Term Mitigations

Intersection	Impact	Mitigation	No Project	Total Units 554	674	911	Cir. Elem. and TIF[1]	Responsible Agency
3. SR 46 E/Union Rd[2]	LOS	Prohibit NB lefts, RTP improvements	X	X	X	X	Yes	Caltrans
4. SR 46 E/Airport Rd[2]	LOS	RTP improvements	X	X	X	X	Yes	Caltrans
7. 13th St/Riverside Ave	Queue	Optimize corridor operations, WBR and NBR overlap	X	X	X	X	No	City
8. 13th St/Paso Robles St	Queue	Optimize corridor operations	X	X	X	X	No	City
11. Creston Rd/Niblick Rd	Queue	Add additional SBL, SBR, EBT, and WBR	X	X	X	X	Yes	City
12. Creston Rd/Stoney Creek Rd	LOS	Install traffic signal	-	X	X	X	Yes	City
13. Creston Rd/Meadowlark Rd	LOS	Install traffic signal	-	X	X	X	Yes	City
14. Creston Rd/Charolais Rd	LOS	Install all-way stop	-	-	-	X	No	City
16. 1st St-Niblick Rd/Spring St	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City
17. Niblick Rd/South River Rd	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City
20. South River Rd/Charolais Rd	LOS	Install single lane roundabout	X	X	X	X	Yes	City

X - Mitigation required.
1. Intersection improvements are included in the Paso Robles Circulation Element and Traffic Impact Fee (TIF).
2. The Paso Robles Circulation Element includes improvements on State Route 46 East and in the vicinity between Buena Vista Drive and Dry Creek Road. Recommend project make a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents. Ultimate improvements will be determined in the project documents.

3. Roadway Segment Operations

Table 21 shows the Near Term and Near Term Plus Project capacity utilization and LOS for the roadway study segments.

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Table 21: Near Term and Near Term Plus Project Roadway Segment Operations

Street	ID	Segment	Facility Type	Lanes	Near Term ADT	Near Term LOS	Near Term Capacity Utilization	Near Term + 674 ADT	Near Term + 674 LOS	Near Term + 674 Capacity Utilization	Near Term + 911 ADT	Near Term + 911 LOS	Near Term + 911 Capacity Utilization
Creston Road	1	East of Ferro Lane	Arterial	2*	17,600	D	81%	18,198	D	84%	18,334	D	84%
	2	East of Golden Hill Road	Arterial	4	16,700	A	45%	18,664	A	50%	19,111	A	51%
	3	South of Niblick Road	Arterial	4	16,900	A	45%	19,846	A	53%	20,517	A	55%
	4	North of Meadowlark	Arterial	4	7,400	A	20%	10,773	A	29%	11,541	A	31%
Golden Hill Road	5	South of Union Road	Arterial	3	15,200	D	70%	16,139	D	74%	16,353	D	75%
	6	North of Union Road	Arterial	3	11,900	C	55%	12,583	C	58%	12,739	C	59%
Niblick Road	7	East of Spring Street	Arterial	4	34,400	D	92%	36,663	E	98%	37,178	E	99%
	8	East of Quarterhorse	Arterial	4	25,700	C	69%	26,767	C	72%	27,011	C	72%
Charolais Road	9	East of South River Road	Arterial	2*	9,200	C	42%	11,975	C	55%	12,607	C	58%
South River Road	10	South of Spanish Camp Road South	Local	2	1,500	A	16%	1,585	A	17%	1,605	A	17%
	11	North of Charolais Road	Arterial	2*	11,000	C	51%	13,775	D	63%	14,407	D	66%
Barley Grain Road	12	South of Creston Road	Local	2	500	A	5%	585	A	6%	605	A	6%

* Note that an asterisk (*) indicates the prescence of a raised median or two-way left-turn lane on a two-lane arterial.
Source: City of Paso Robles General Plan Circulation Element, 2011; CCTC, 2019.

The following roadway segments operate above 90% capacity utilization:

- Niblick Road (east of Spring Street): This segment operates at 92% capacity under Near Term conditions. With the addition of traffic from either project, the capacity utilization would increase but remain below 100%. The projected capacity utilization of 99% on Niblick Road does not justify the widening of this roadway. Widening the bridge to a six-lane arterial would result in a capacity utilization below 70%, which would reduce vehicle delays, but would also support higher vehicle speeds and would conflict with the City's multimodal goals and desire to maintain its small-town character.

  Recommendation: None. Maximize signal operations along corridor and implement TDM measures.

4. *Freeway Segment Operations*

Table 22 shows the Near Term and Near Term Plus Project peak hour volumes at the freeway mainline and ramp locations and **Table 23** shows the LOS, with calculation sheets in **Appendix C**.

Table 22: US 101 Near Term and Near Term Plus Project Peak Hour Volumes

Direction	Segment ID	Location		Near Term	Near Term + 674	Near Term + 911
US 101 NB	1	SR 46W Off Ramp		250 (232)	250 (232)	250 (232)
	2	SR 46W On Ramp		467 (864)	475 (882)	477 (887)
	3	Mainline North of SR 46W		2528 (3705)	2564 (3781)	2570 (3802)
	4	Spring St. Off Ramp		882 (1517)	918 (1593)	924 (1614)
	5	Paso Robles St. Off Ramp		342 (578)	342 (578)	342 (578)
	6	Paso Robles St. On Ramp		406 (347)	418 (356)	421 (359)
	7	Mainline South of SR 46E		1710 (1957)	1722 (1966)	1725 (1969)
	8	SR 46E Off Ramp		1017 (1140)	1017 (1140)	1017 (1140)
	9	SR 46E On Ramp		311 (287)	311 (287)	311 (287)
	10	Mainline North of SR 46E		1004 (1104)	1016 (1113)	1019 (1116)
US 101 SB	11	Mainline North of SR 46E		929 (1492)	935 (1505)	936 (1509)
	12	SR 46E Off Ramp		284 (383)	284 (383)	284 (383)
	13	SR 46E to Riverside/17th St. Weave	On	1104 (1150)	1104 (1150)	1104 (1150)
	14		Off	218 (303)	218 (303)	218 (303)
	15	Mainline South of SR 46E		1531 (1956)	1537 (1969)	1538 (1973)
	16	Riverside/17th St. On Ramp		298 (205)	298 (205)	298 (205)
	17	Riverside/Pine St. Off Ramp		120 (180)	126 (193)	127 (197)
	18	Spring St. On Ramp		1349 (1033)	1415 (1086)	1435 (1099)
	19	Mainline North of SR 46W		3438 (3406)	3504 (3459)	3524 (3453)
	20	SR 46W Off Ramp		651 (646)	667 (658)	671 (661)
	21	SR 46W On Ramp		139 (211)	139 (211)	139 (211)

AM (PM) Peak Hour Volumes

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Table 23: Near Term and Near Term Plus Project Freeway Operations

Direction	Location	Segment Type	Peak Hour	Near Term Density[1]	Near Term LOS	Near Term + 674 Density[1]	Near Term + 674 LOS	Near Term + 911 Density[1]	Near Term + 911 LOS
US 101 NB	SR 46W Off Ramp	Diverge	AM	25.0	C	25.2	C	25.3	C
			PM	**30.2**	**D**	**30.7**	**D**	**30.8**	**D**
	SR 46W On Ramp	Merge	AM	25.7	C	26.0	C	26.1	C
			PM	**33.7**	**D**	**34.3**	**D**	**34.5**	**D**
	North of SR 46W	Mainline	AM	21.9	C	22.3	C	22.4	C
			PM	**34.2**	**D**	**35.6**	**E**	**36.0**	**E**
	Spring St. Off Ramp	Diverge	AM	**29.3**	**D**	**29.7**	**D**	**29.8**	**D**
			PM	**37.6**	**E**	**38.3**	**E**	**38.5**	**E**
	Paso Robles St. Off Ramp	Diverge	AM	18.1	B	18.1	B	18.1	B
			PM	21.8	C	21.8	C	21.8	C
	Paso Robles St. On Ramp	Merge	AM	17.9	B	18.0	B	18.0	B
			PM	19.0	B	19.1	B	19.1	B
	South of SR 46E	Mainline	AM	14.5	B	14.6	B	14.6	B
			PM	15.3	B	15.4	B	15.4	B
	SR 46E Off Ramp	Diverge	AM	19.1	B	19.2	B	19.3	B
			PM	20.1	C	20.2	C	20.2	C
	SR 46E On Ramp	Merge	AM	12.7	B	12.8	B	12.8	B
			PM	13.1	B	13.2	B	13.2	B
	North of SR 46E	Mainline	AM	9.3	A	9.4	A	9.5	A
			PM	9.7	A	9.8	A	9.8	A
US 101 SB	North of SR 46E	Mainline	AM	8.8	A	8.8	A	8.8	A
			PM	14.4	B	14.5	B	14.5	B
	SR 46E Off Ramp	Diverge	AM	13.0	B	13.0	B	13.0	B
			PM	19.4	B	19.5	B	19.6	B
	SR 46E to Riverside/17th St.[2]	Weave	AM	-	A	-	A	-	B
			PM	-	B	-	B	-	B
	South of SR 46E	Mainline	AM	13.2	B	13.2	B	13.2	B
			PM	16.5	B	16.6	B	16.6	B
	Riverside/17th St. On Ramp	Merge	AM	19.8	B	19.8	B	19.8	B
			PM	22.5	C	22.6	C	22.6	C
	Riverside/Pine St. Off Ramp	Diverge	AM	20.6	C	20.7	C	20.7	C
			PM	23.5	C	23.6	C	23.7	C
	Spring St. On Ramp	Merge	AM	26.7	C	27.2	C	27.4	C
			PM	26.2	C	26.7	C	26.8	C
	North of SR 46W	Mainline	AM	**34.8**	**D**	**36.1**	**E**	**36.5**	**E**
			PM	**33.1**	**D**	**34.0**	**D**	**34.3**	**D**
	SR 46W Off Ramp	Diverge	AM	**36.3**	**E**	**37.0**	**E**	**37.2**	**E**
			PM	**35.4**	**E**	**35.9**	**E**	**36.0**	**E**
	SR 46W On Ramp	Merge	AM	**29.7**	**D**	**30.1**	**D**	**30.3**	**D**
			PM	**29.6**	**D**	**29.9**	**D**	**30.0**	**D**

1. HCM 6 density (passenger cars per mile per lane).
2. The Leisch method used for weave section analysis does not report density.
Note: Unacceptable operations shown in **bold** text.

The addition of traffic from either project would increase the density at the seven freeway segments operating at unacceptable LOS. No additional freeway segments would operate unacceptably. The addition of project traffic increases density by less than two passenger cars per mile per lane at the unacceptable locations.

Recommendation: Development of mitigation measures and recommendations will require Caltrans coordination. The freeway facility operations and recommendations are discussed in detail under Cumulative conditions.

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5. San Luis Obispo County Facilities

Under Near Term conditions, three percent of project traffic is estimated to travel south of the City of Paso Robles via Creston Road or River Road. One percent of project traffic is estimated to enter the Templeton Road Improvement Fee Area and Urban Reserve Line (URL) via El Pomar Drive. Two percent of project traffic is estimated to travel to State Route 41 via Creston Road. These trips may travel through the fee area via South El Pomar Road.

The 674-Unit and 911-Unit project would generate 8 and 10 PM peak hour trips into the Templeton Road Improvement Fee Area, respectively.

Qualitative operations on County roadways and intersections are discussed under Cumulative conditions.

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Cumulative Conditions

Cumulative conditions represent build-out of the land uses in the region.

METHODOLOGY

Cumulative conditions for 2045 were developed using the City and SLOCOG TDMs, which include planned network and land use changes expected upon buildout of the City's General Plan. As with Near Term conditions, the Olsen-Chandler Specific Plan, including a new elementary school, was assumed to be in place. **Figure 10** shows the Cumulative weekday peak hour traffic volumes at the study intersections and the Cumulative ADT on the study segments. **Figures 11a and 11b** display the trip assignment for the project under Cumulative conditions.

As with Near Term conditions, under Cumulative conditions a PHF of 0.92 was used for the intersection analysis and a PHF of 0.94 was used for the freeway analysis. However, if the existing PHF exceeded these respective values the higher PHF was used.

Transportation Network

In addition to the changes for the Near Term network, the following roadways improvements were assumed to be in place under Cumulative conditions. Alternative 1 of the on-going Union Road/SR 46 E PA/ED was assumed to be in place under Cumulative conditions.

- SR 46 E/Buena Vista Drive (#1): Second eastbound left turn lane
- SR 46 E/Union Road (#3): Intersection closed, eastbound on and off ramps constructed
- SR 46 E/Airport Road (#4): Turns restricted to right-in-right-out
- Golden Hill Road/Union Road (#6): Multi-lane roundabout
- Creston Road/Niblick Road (#11): Second eastbound through lane, second southbound left turn lane, dedicated southbound right turn lane, dedicated westbound right turn lane
- Riverside Avenue/Pine Street/US 101 SB Ramp (#15): Pine Street converted to one-way westbound
- South River Road/Charolais Road (#20): Single-lane roundabout
- Golden Hill Road widened to 4-lane arterial from SR 46 E to Rolling Hills Road
- Airport Road Extension from Olsen-Chandler site to Union Road
- Gilead Lane extended east to Airport Road
- Paso Robles Boulevard overcrossing of SR 46 E and northeasterly extension to Airport Road
- US 101/SR 46 W interchange: Roundabouts at northbound and southbound ramps, Vine Street realigned with Theatre Drive

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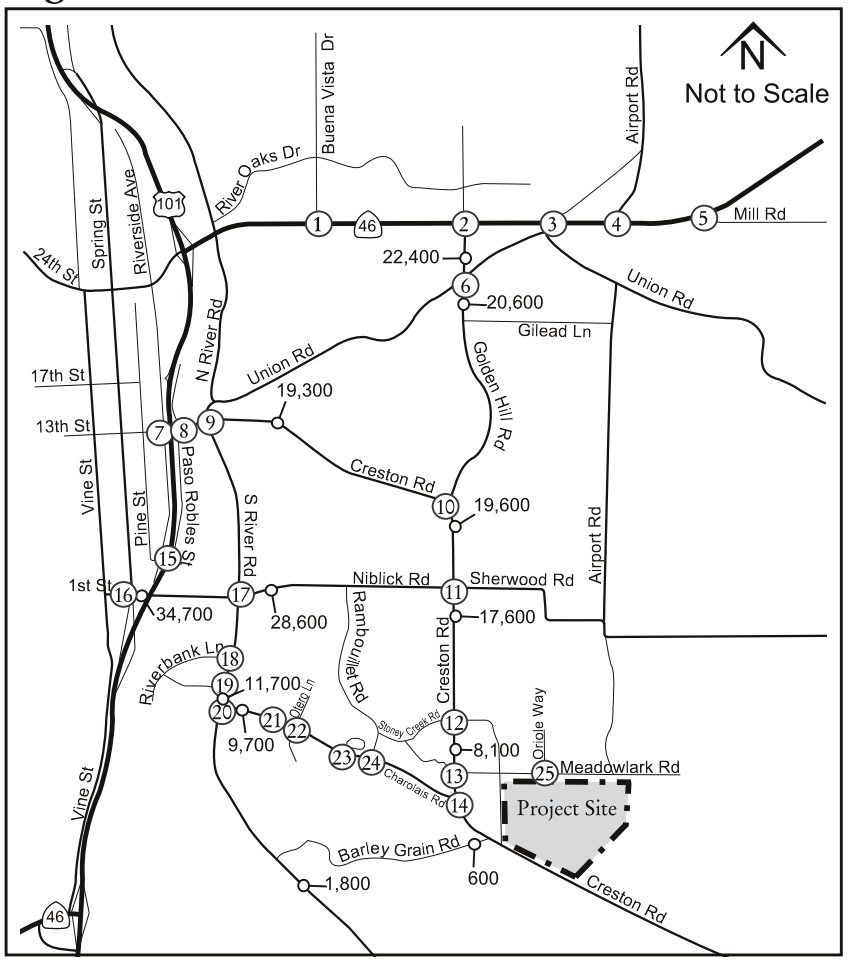
Figure 10: Cumulative Traffic Volumes



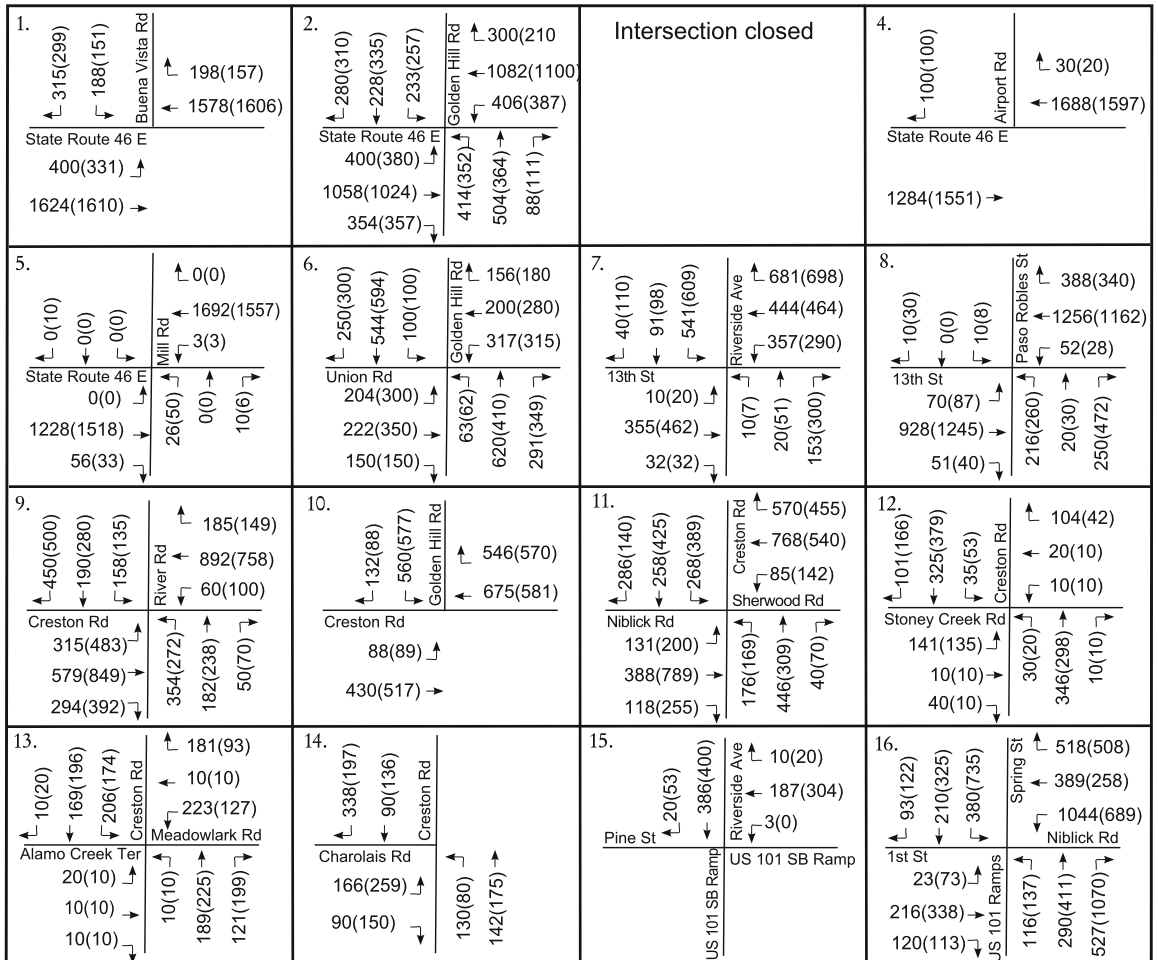


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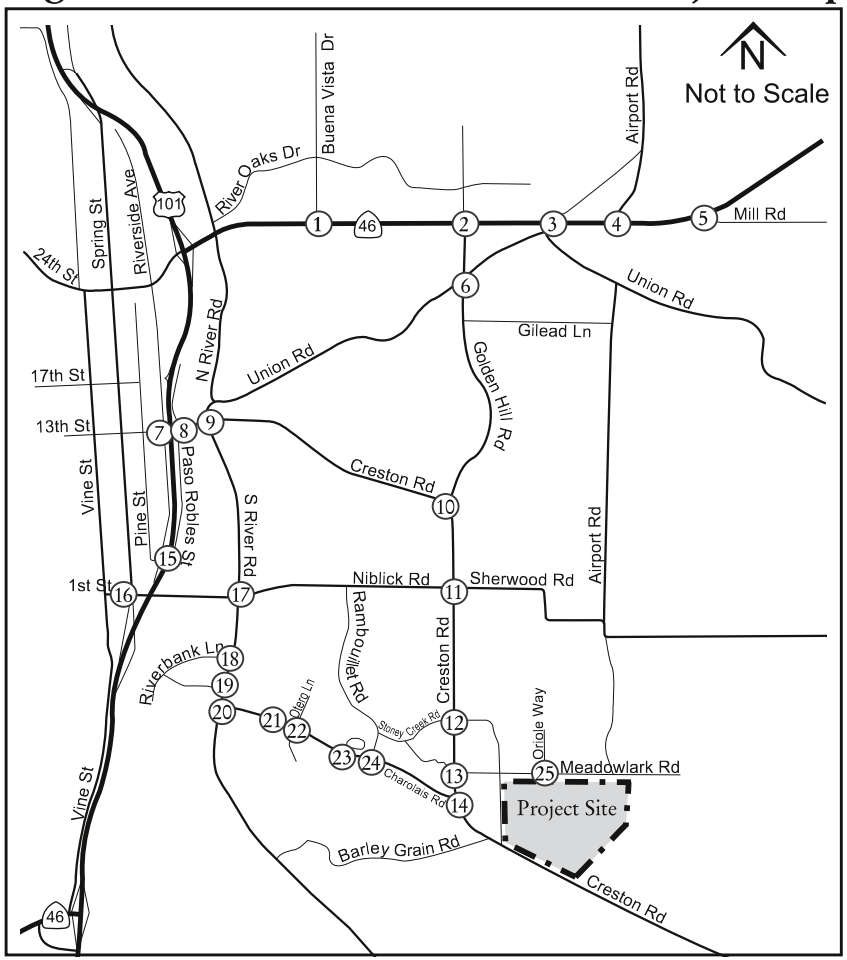
Figure 11a: Cumulative 674-Unit Project Trip Assignment



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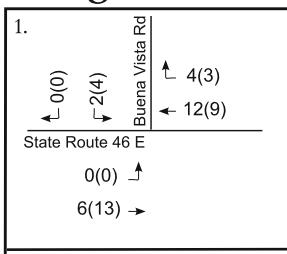

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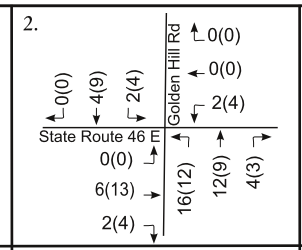

Intersection closed

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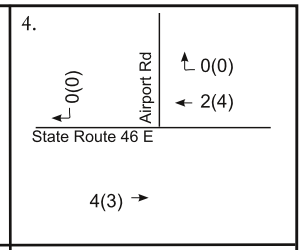

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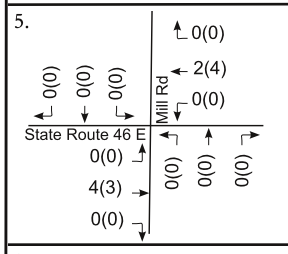

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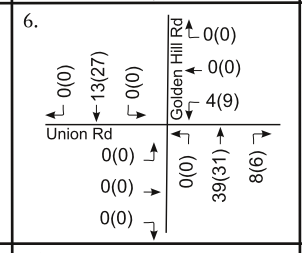

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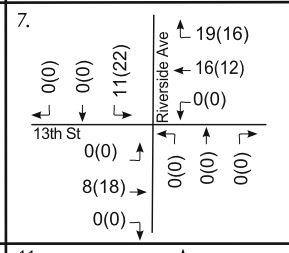

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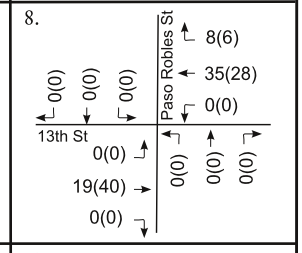

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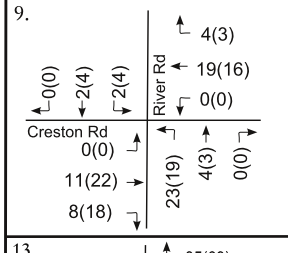

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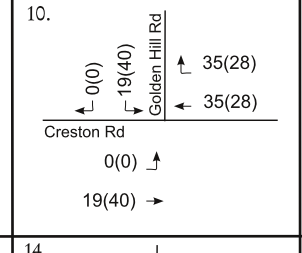

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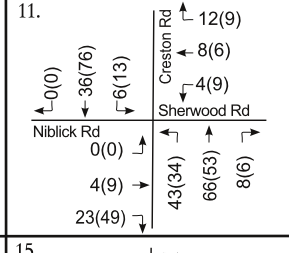

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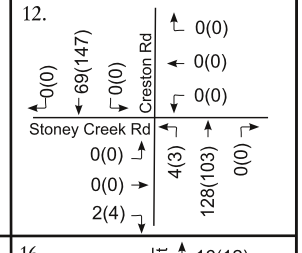

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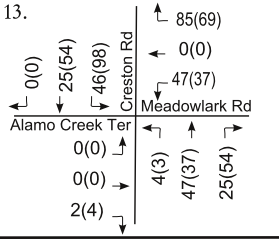

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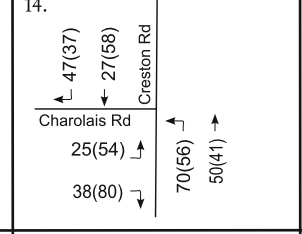

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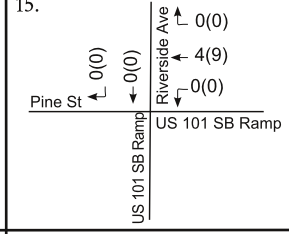

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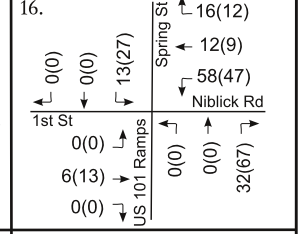

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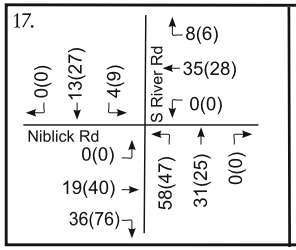

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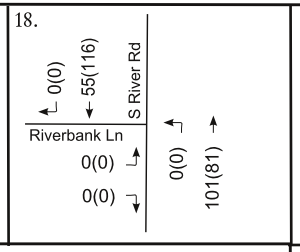

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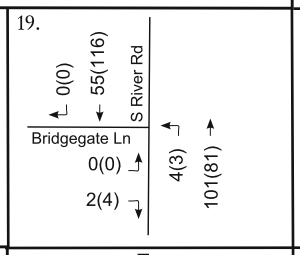

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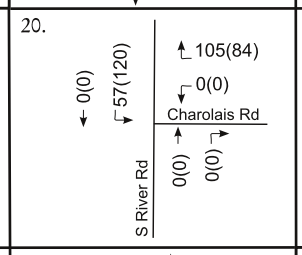

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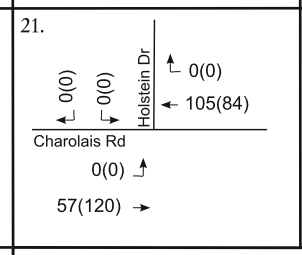

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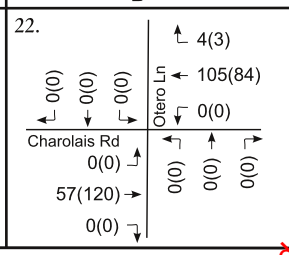

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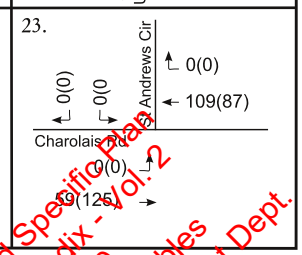

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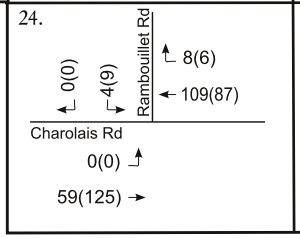

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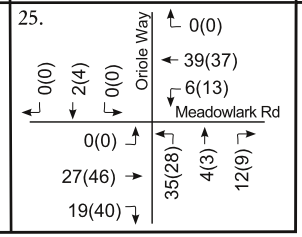

Legend:

(x) - Study Intersection

xx(yy) - AM (PM) Peak Hour Traffic Volumes

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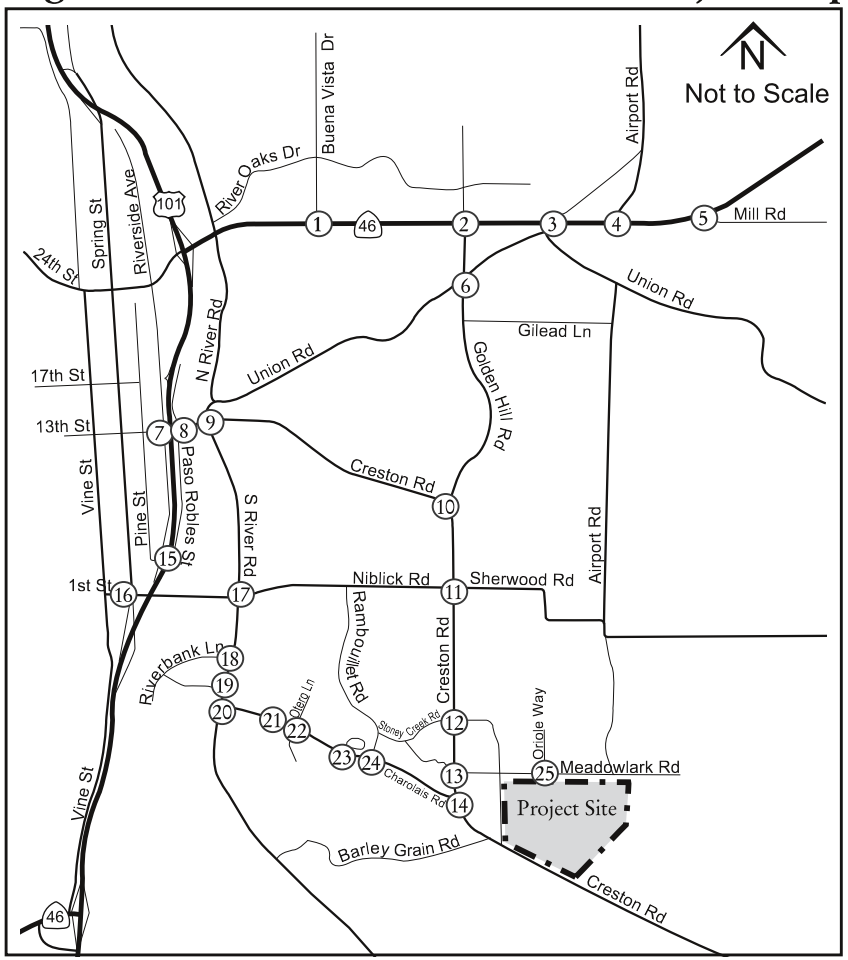
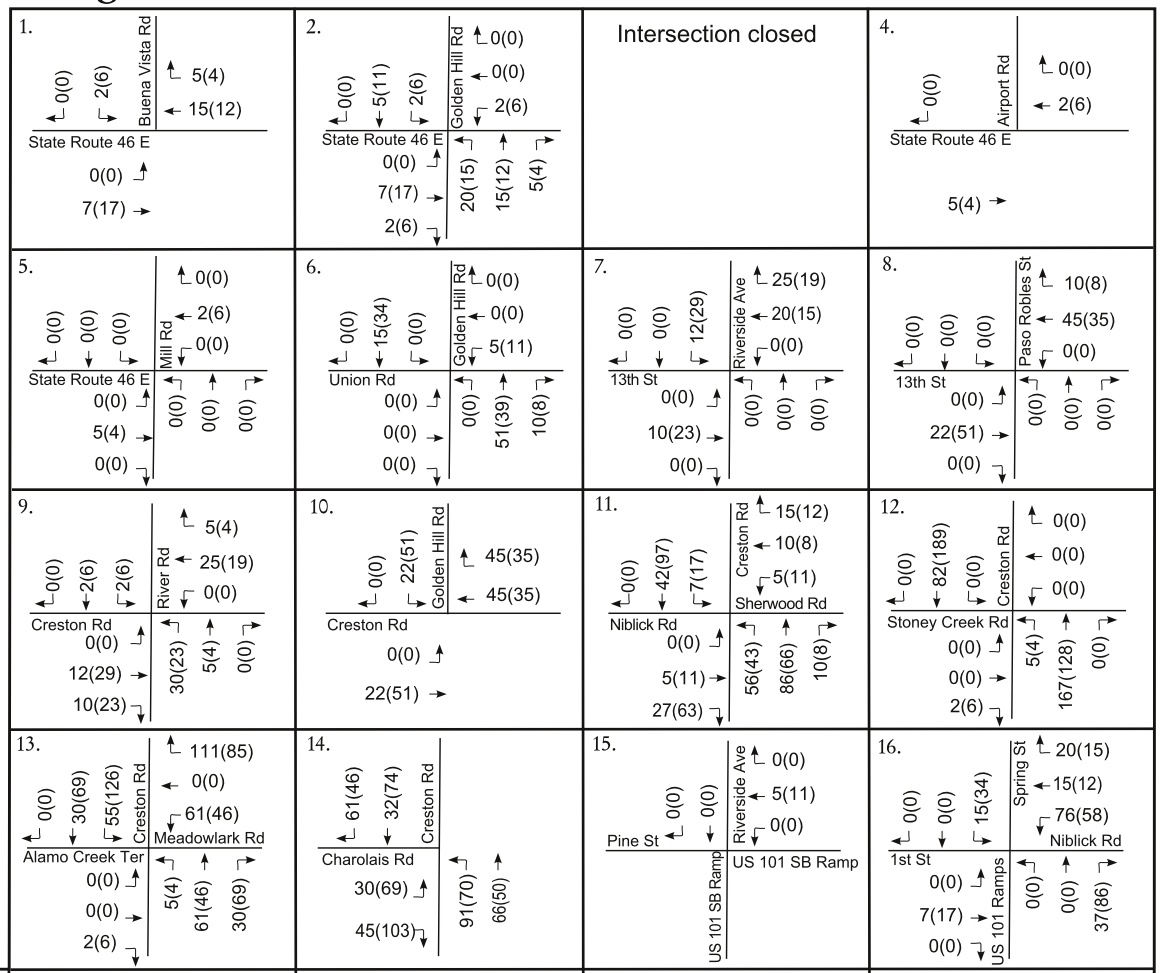
Figure 11b: Cumulative 911-Unit Project Trip Assignment





Legend:

(x) - Study Intersection

xx(yy) - AM (PM) Peak Hour Traffic Volumes

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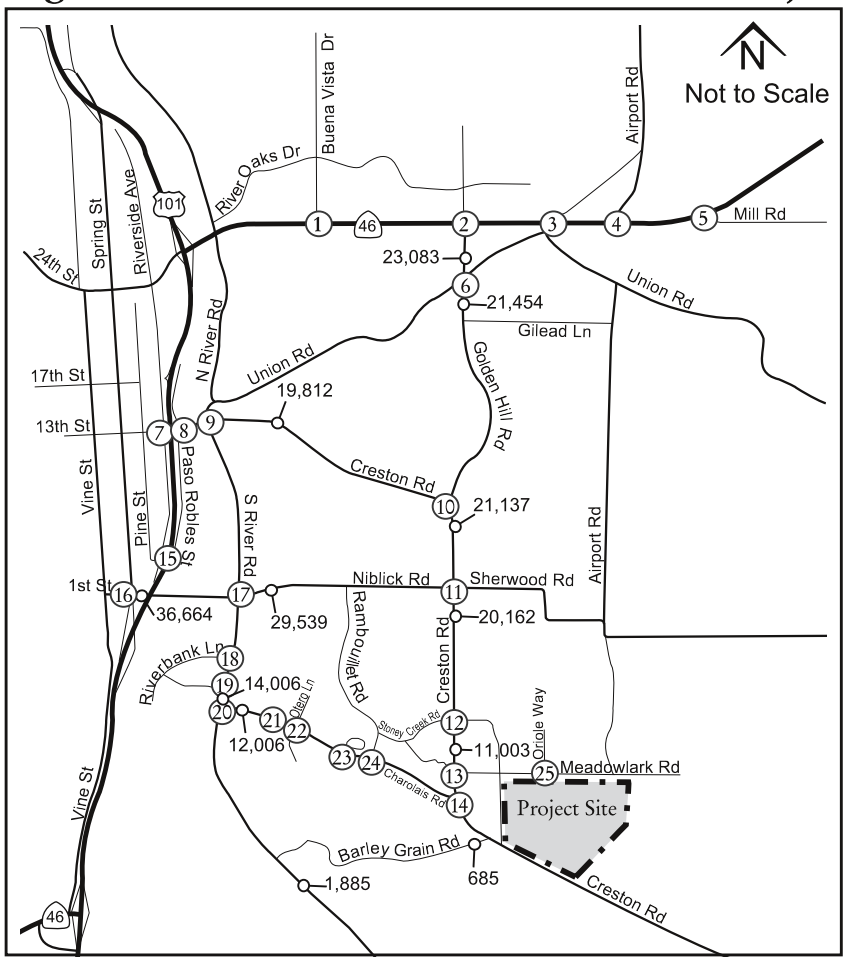
Central Coast Transportation Consulting
Traffic Engineering & Transportation Planning

Figure 12a: Cumulative Plus 674-Unit Project Traffic Volumes



1.
315(299) 190(155) Buena Vista Rd: 202(160) 1590(1615)
State Route 46 E: 400(331) 1630(1623)

2.
280(310) 232(344) 235(261) Golden Hill Rd: 300(210) 1082(1100) 408(391)
State Route 46 E: 400(380) 1064(1037) 356(361)
430(364) 516(373) 92(114)

Intersection closed

4.
100(100) Airport Rd: 30(20) 1690(1601)
State Route 46 E: 1288(1554)

5.
0(10) 0(0) 0(0) Mill Rd: 0(0) 1694(1561) 3(3)
State Route 46 E: 0(0) 1232(1521) 56(33)
26(50) 0(0) 10(6)

6.
250(300) 557(621) 100(100) Golden Hill Rd: 156(180 200(280) 321(324)
Union Rd: 204(300) 222(350) 150(150)
63(62) 659(441) 299(355)

7.
40(110) 91(98) 552(631) Riverside Ave: 700(714) 460(476) 357(290)
13th St: 10(20) 363(480) 32(32)
10(7) 20(51) 153(300)

8.
10(30) 0(0) 10(8) Paso Robles St: 396(346) 1291(1190) 52(28)
13th St: 70(87) 947(1285) 51(40)
216(260) 20(30) 250(472)

9.
450(500) 192(284) 160(139) River Rd: 189(152) 911(774) 60(100)
Creston Rd: 315(483) 590(871) 302(410)
377(291) 186(241) 50(70)

10.
132(88) 579(617) Golden Hill Rd: 581(598) 710(609)
Creston Rd: 88(89) 449(557)

11.
286(140) 294(501) 274(402) Creston Rd: 582(464) 776(546) 89(151)
Sherwood Rd
Niblick Rd: 131(200) 392(798) 141(304)
219(203) 512(362) 48(76)

12.
101(166) 394(526) 35(53) Creston Rd: 104(42) 20(10) 10(10)
Stoney Creek Rd: 141(135) 10(10) 42(14)
34(23) 474(401) 10(10)

13.
10(20) 194(250) 252(272) Creston Rd: 266(162) 10(10) 270(164)
Meadowlark Rd
Alamo Creek Ter: 20(10) 10(10) 12(14)
14(13) 236(262) 146(253)

14.
385(234) 117(194) Creston Rd
Charolais Rd: 191(313) 128(230)
200(136) 192(216)

15.
20(53) 386(400) Riverside Ave: 10(20) 191(313) 3(0)
Pine St
US 101 SB Ramp
US 101 SB Ramp

16.
93(122) 210(325) 393(762) Spring St: 534(520) 401(267) 1102(736)
Niblick Rd
1st St: 23(73) 222(351) 120(113)
US 101 Ramps
116(137) 290(411) 559(1137)

17.
200(130) 267(399) 284(206) S River Rd: 277(159) 1108(830) 125(134)
Niblick Rd: 110(270) 757(1110) 269(635)
609(415) 299(270) 54(92)

18.
48(105) 389(850) S River Rd
Riverbank Ln: 94(57) 10(10)
10(10) 908(549)

19.
20(54) 369(760) S River Rd
Bridgegate Ln: 60(40) 12(14)
14(23) 778(509)

20.
60(107) 321(664) S River Rd: 692(442) 25(10)
Charolais Rd
106(100) 10(30)

21.
10(10) 10(10) Holstein Dr: 10(10) 697(442)
Charolais Rd: 10(10) 331(684)

22.
50(30) 0(0) 45(31) Otero Ln: 32(28) 647(412) 10(10)
Charolais Rd: 20(40) 311(644) 10(10)
10(10) 0(0) 10(10)

23.
10(10) 10(10) Andrews Cir: 10(10) 679(439)
Charolais Rd: 10(10) 362(677)

24.
150(90) 28(26) Rambouillet Rd: 66(31) 539(359)
Charolais Rd: 70(175) 292(512)

25.
170(110) 2(4) 0(10) Oriole Way: 10(0) 293(192) 6(13)
Meadowlark Rd
50(70) 164(294) 19(40)
35(28) 4(3) 12(9)

Legend:

(x) - Study Intersection

xx(yy) - AM (PM) Peak Hour Traffic Volumes

o— - Average Daily Traffic Volumes

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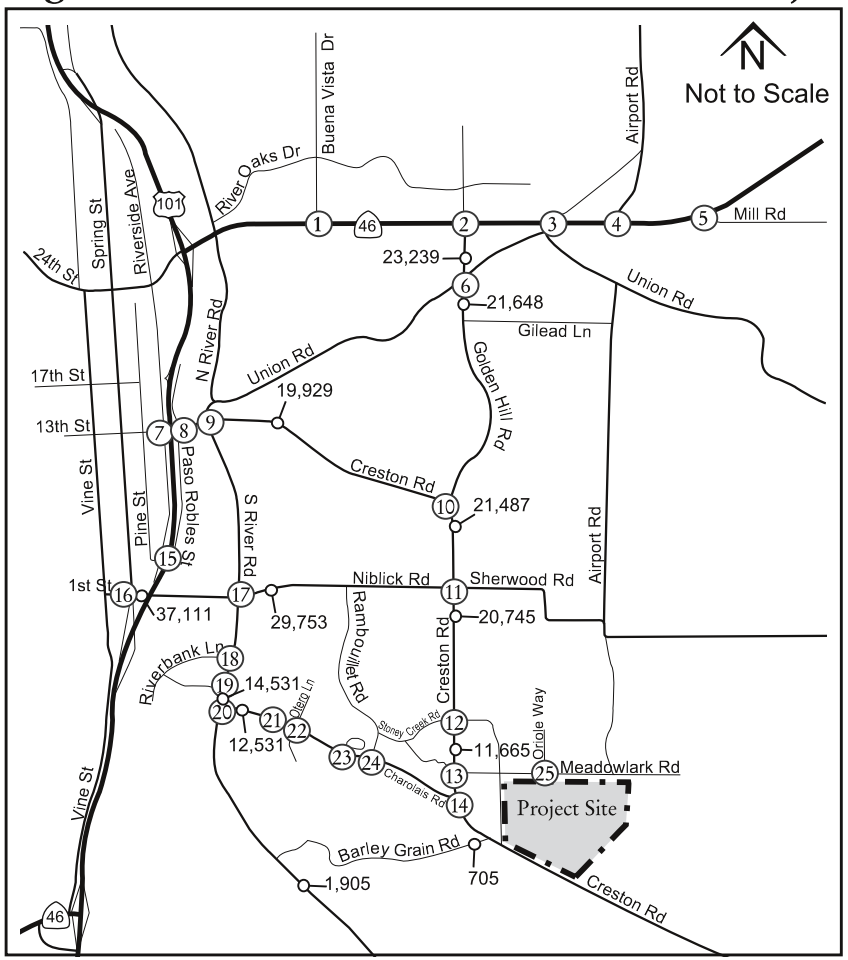
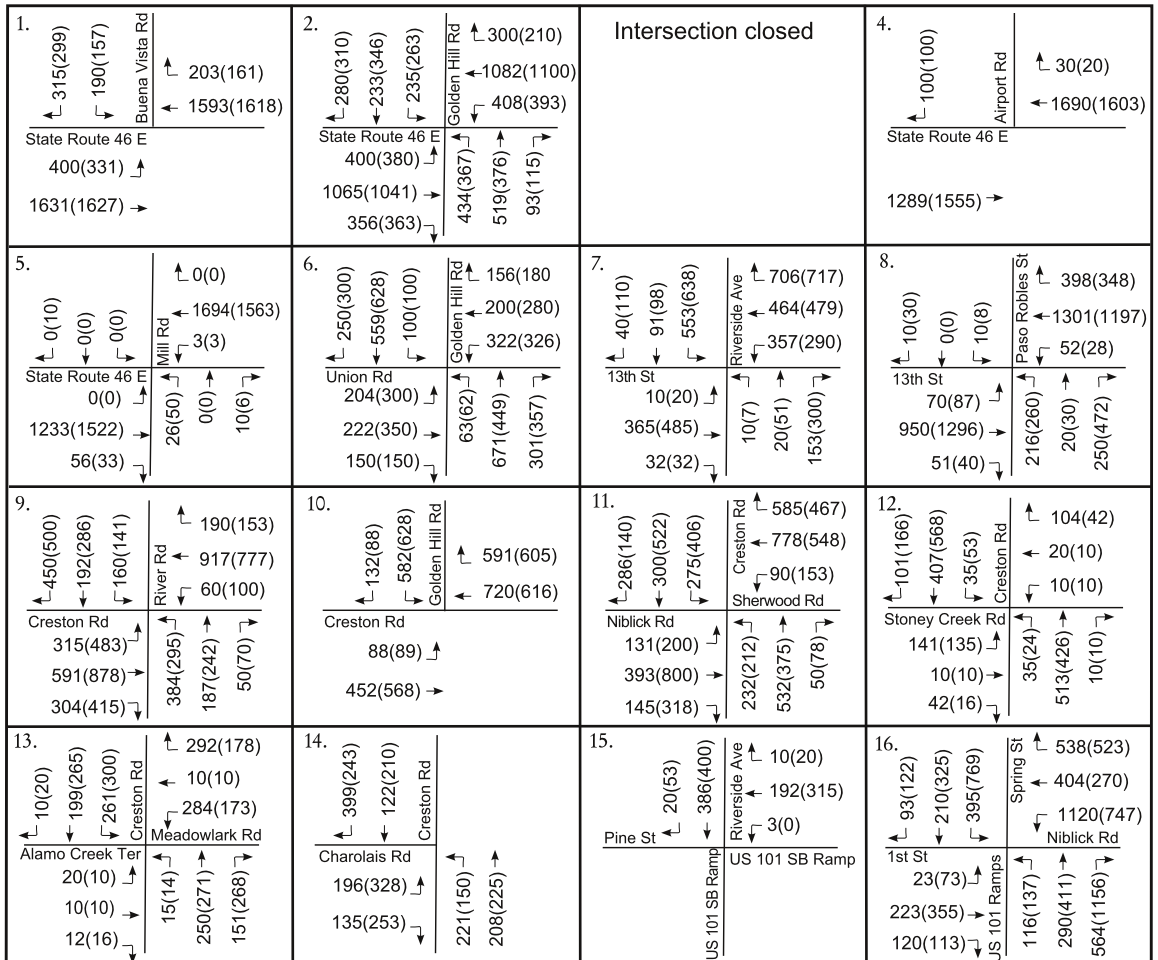
Figure 12b: Cumulative Plus 911-Unit Project Traffic Volumes





Legend:

- (x) - Study Intersection
- o— - Average Daily Traffic Volumes
- xx(yy) - AM (PM) Peak Hour Traffic Volumes

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CUMULATIVE PLUS PROJECT IMPACT ANALYSIS

1. Intersection Operations

Figures 12a and 12b show the traffic volumes for the study intersections during the weekday peak hours and ADT on the study segments under Cumulative Plus Project conditions.

Table 24 summarizes the intersection operating conditions under Cumulative and Cumulative Plus Project conditions with detailed calculation sheets in **Appendix B** and warrant analysis sheets in **Appendix D**.

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Table 24: Cumulative and Cumulative Plus Project Intersection Auto Levels of Service

Intersection	Peak Hour	Cumulative		Cumulative + 674		Cumulative + 911	
		Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS
1. State Route 46 E/Buena Vista Drive	AM	28.6	C	29.1	C	29.2	C
	PM	19.9	B	20.2	C	20.3	C
2. State Route 46 E/Golden Hill Road	AM	**81.5**	**F**	**83.9**	**F**	**84.4**	**F**
	PM	**59.5**	**E**	**61.7**	**E**	**62.3**	**E**
3. State Route 46 E/Union Road	AM	Intersection closed					
	PM						
4. State Route 46 E/Airport Road	AM	**0.9 (28.6)**	**- (D)**	**0.9 (28.6)**	**- (D)**	**0.9 (28.6)**	**- (D)**
	PM	0.8 (24.6)	- (C)	0.8 (24.7)	- (C)	0.8 (24.7)	- (C)
5. State Route 46 E/Mill Road	AM	**0.4 (35.6)**	**- (E)**	**0.4 (35.6)**	**- (E)**	**0.4 (35.6)**	**- (E)**
	PM	**1.4 (75.3)**	**- (F)**	**1.4 (75.3)**	**- (F)**	**1.4 (75.3)**	**- (F)**
6. Golden Hill Road/Union Road	AM	29.4	D	34.4	D	36.2	E
	PM	31.7	D	37.4	E	39.1	E
7. 13th Street/Riverside Avenue	AM	45.4	D	47.9	D	48.6	D
	PM	70.6	E	74.5	E	75.5	E
8. 13th Street/Paso Robles Street	AM	16.1	B	16.3	B	16.4	B
	PM	27.5	C	28.5	C	28.8	C
9. River Road/Creston Road	AM	28.0	C	29.3	C	29.8	C
	PM	27.1	C	28.0	C	28.3	C
10. Creston Road/Golden Hill Road	AM	27.5	C	29.2	C	29.7	C
	PM	23.9	C	25.4	C	25.8	C
11. Creston Road/Niblick Road	AM	47.0	D	53.2	D	55.0	E
	PM	32.4	C	36.1	D	37.6	D
12. Creston Road/Stoney Creek Road	AM	**19.3 (104.0)**	**- (F)**	**45.6 (>200)**	**- (F)**	**55.0 (>200)**	**- (F)**
	PM	7.0 (41.8)	- (E)	**15.1 (120.8)**	**- (F)**	**19.6 (166.4)**	**- (F)**
13. Creston Road/Meadowlark Road	AM	19.6	C	**49.8**	**E**	**63.3**	**F**
	PM	12.9	B	24.2	C	32.2	D
14. Creston Road/Charolais Road	AM	5.1 (14.4)	- (B)	8.1 (24.9)	- (C)	10.0 (32.4)	- (D)
	PM	6.6 (14.5)	- (B)	12.9 (29.4)	- (D)	**18.2 (41.8)**	**- (E)**
15. Riverside Ave/Pine St/US 101 SB Ramp	AM	5.4 (16.4)	- (C)	5.5 (16.6)	- (C)	5.6 (16.6)	- (C)
	PM	**11.5 (27.6)**	**- (D)**	**12.3 (29.0)**	**- (D)**	**12.5 (29.3)**	**- (D)**
16. 1st Street-Niblick Road/Spring Street	AM	36.4	D	39.1	D	39.8	D
	PM	46.6	D	49.7	D	50.7	D
17. Niblick Road/South River Road	AM	50.8	D	57.3	E	59.5	E
	PM	35.0	D	43.8	D	46.7	D
18. South River Road/Riverbank Lane	AM	3.9 (48.5)	- (E)	5.7 (79.5)	- (F)	6.4 (91.8)	- (F)
	PM	1.8 (36.3)	- (E)	2.4 (55.8)	- (F)	2.6 (62.6)	- (F)
19. South River Road/Bridgegate Lane	AM	1.0 (15.1)	- (C)	1.0 (16.8)	- (C)	1.1 (17.2)	- (C)
	PM	0.8 (15.8)	- (C)	0.9 (18.1)	- (C)	0.9 (18.9)	- (C)
20. South River Road/Charolais Road	AM	7.6	A	9.1	A	9.7	A
	PM	7.3	A	8.8	A	9.3	A
21. Charolais Road/Holstein Drive	AM	0.5 (16.2)	- (C)	0.5 (19.0)	- (C)	0.5 (19.9)	- (C)
	PM	0.4 (15.8)	- (C)	0.4 (19.3)	- (C)	0.4 (20.4)	- (C)
22. Charolais Road/Otero Lane	AM	2.6 (21.6)	- (C)	3.0 (29.7)	- (D)	3.2 (32.6)	- (D)
	PM	1.9 (19.4)	- (C)	2.2 (28.1)	- (D)	2.3 (32.1)	- (D)
23. Charolais Road/St Andrews Circle	AM	0.5 (16.1)	- (C)	0.5 (19.1)	- (C)	0.5 (20.0)	- (C)
	PM	0.4 (15.4)	- (C)	0.4 (18.8)	- (C)	0.4 (20.0)	- (C)
24. Charolais Road/Rambouillet Road	AM	3.6 (16.7)	- (C)	4.0 (22.1)	- (C)	4.2 (24.2)	- (C)
	PM	3.1 (14.2)	- (B)	3.3 (20.6)	- (C)	3.5 (23.2)	- (C)
25. Meadowlark Road/Oriole Way	AM	3.8 (11.4)	- (B)	5.0	A	5.1	A
	PM	3.0 (10.2)	- (B)	5.0	A	5.2	A

1. HCM 6th average control delay in seconds per vehicle (HCM 2000 used for Intersections 1, 10 and 15). For side-street-stop controlled intersections the worst approach's delay is reported in parentheses next to the overall intersection delay.
Note: Unacceptable operations shown in **bold** text.

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The following Caltrans intersections operate below the LOS C threshold:

- State Route 46 E/Golden Hill Road (#2): the addition of traffic from either project would increase unacceptable delay at the intersection during the AM and PM peak hours. Installation of a southbound right turn overlap phase and time of day operations would improve intersection operations to at least Cumulative conditions. Eastbound U-turns would need to be prohibited with implementation of a southbound right turn overlap. 285 vehicles make a southbound right turn under existing PM peak hour conditions and intersections operations will benefit. Northbound U-turns are allowed at Golden Hill Road and the commercial project driveway north of Highway 46. A Project Study Report has been prepared for this area which will ultimately construct an overcrossing east of this location. The full interchange alternative is needed to improve operations at this location which would restrict access at this intersection to right-in, right-out. This improvement is consistent with the City's Circulation Element; however, the improvements are in the Caltrans right-of-way and subject to approval.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents.

- State Route 46 E/Airport Road (#4): the intersection would operate with unacceptable delay in the AM peak hour under Cumulative conditions with right-in-right-out operations. The addition of project traffic does not degrade the intersection operations during the AM peak hour. A Project Study Report has been prepared for this area which will ultimately construct an overcrossing at Union Road and restrict left turns on SR 46 E at Union Road and Airport Road. The full interchange alternative is needed to improve operations at this location which would close the intersection. This improvement is consistent with the City's Circulation Element.

  Recommendation: None.

- State Route 46 E/Mill Road (#5): the intersection would operate with unacceptable delay in both peak hours under Cumulative conditions. The addition of project traffic does not degrade the intersection operations. A traffic signal or grade separation is not recommended at this location. Secondary access is recommended if left turns are prohibited.

  Recommendation: None.

- Riverside Avenue/Pine Street/US 101 Southbound Ramps (#15): the intersection would operate at LOS D in the PM peak hour under Cumulative conditions with Pine Street west of Riverside Avenue one-way westbound. Although the typical all-way stop control and traffic signal warrants would not be met, the intersection has two legs with equal volumes and would operate at LOS C or better with all-way (southbound and westbound) stop control.

  Recommendation: Install all-way stop control.

The following stop-controlled City intersections operate below LOS D:

- Golden Hill Road/Union Road (#6): the intersection would operate at LOS E during the PM peak hour with the addition of traffic from either project under Cumulative conditions. Cumulative conditions assumes the multi-lane roundabout in the City's Circulation Element.

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The ultimate lane configuration of the roundabout will depend on access to SR 46 E at Golden Hill Road and Union Road.

Recommendation: Project makes a fair share contribution through the City's impact fee program for a roundabout at this intersection.

- Creston Road/Stoney Creek Road (#12): the intersection would operate below LOS D in both peak hours under Cumulative conditions. The intersection meets signal warrants. The City's Circulation Element includes a traffic signal at this location. The bulb-out on the northwest corner is not recommended. The existing dedicated left, through, and right southbound turn lanes are desired for signal operations. The eastbound approach should be restriped with a dedicated left-through and right turn lane consistent with the Circulation Element. The northbound left turn lane storage should be maximized.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for installation of a traffic signal.

- Creston Road/Meadowlark Road (#13): the intersection would operate below LOS D in the AM peak hour with the addition of traffic from either project and would meet signal warrants. A traffic signal and restriping at this location are consistent with the City's Circulation Element. Storage for the southbound left turn lane should be extended.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for installation of a traffic signal.

- Creston Road/Charolais Road (#14): the intersection would operate at LOS E in the PM peak with the 911-Unit Project under Cumulative conditions. The intersection would meet signal warrants; however, the intersection operates at LOS C with installation of all-way stop control. Where traffic signals are warranted, all-way stop control is an interim measure.

  Recommendation: Install all-way stop control with the 911-Unit project.

- South River Road/Riverbank Lane (#18): the intersection would operate below LOS D in both peak hours under Cumulative conditions. However, the intersection would not meet signal warrants and therefore would operate acceptably.

  Recommendation: None. Signal warrant not met.

2. Queues

Table 25 summarizes the vehicular queuing under Cumulative and Cumulative Plus Project conditions.

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Table 25: Cumulative and Cumulative Plus Project Queues

Intersection	Movement	Storage Length (ft)	Peak Hour	95th Percentile Queues (ft)[1]		
				Cumulative	Cumulative + 674	Cumulative + 911
1. State Route 46 E/Buena Vista Drive	EBL[2]	345	AM	298	298	298
			PM	224	224	224
2. State Route 46 E/Golden Hill Road	NBL	160	AM	**#431**	**#453**	**#458**
			PM	**#311**	**#328**	**#331**
	SBL	140	AM	**193**	**194**	**194**
			PM	**201**	**204**	**205**
	EBL[2]	225	AM	**#434**	**#434**	**#434**
			PM	**#372**	**#372**	**#372**
	WBL[2]	125	AM	**#441**	**#445**	**#445**
			PM	**#373**	**#384**	**#388**
3. State Route 46 E/Union Road	Intersection closed					
4. State Route 46 E/Airport Road	Intersection is right-in-right-out under Cumulative Conditions					
5. State Route 46 E/Mill Road	WBL[2]	305	AM	0	0	0
			PM	0	0	0
6. Golden Hill Road/Union Road	Intersection is a roundabout under Cumulative Conditions					
7. 13th Street/Riverside Avenue	WBL	125	AM	**#419**	**#419**	**#419**
			PM	**#358**	**#358**	**#358**
	WBT	295	AM	**381**	**398**	**403**
			PM	**445**	**457**	**463**
8. 13th Street/Paso Robles Street	NBL	130	AM	**228**	**228**	**228**
			PM	**246**	**246**	**246**
	NBR	110	AM	95	98	99
			PM	**#415**	**#417**	**#418**
	EBL	120	AM	98	98	98
			PM	**#122**	**#122**	**#122**
	EBT	295	AM	**308**	**316**	**318**
			PM	**491**	**516**	**523**
9. River Road/Creston Road	NBL	140	AM	**#224**	**#246**	**#253**
			PM	**#161**	**#185**	**#189**
	SBL	225	AM	**#235**	**#240**	**#240**
			PM	#194	#204	#207
10. Creston Road/Golden Hill Road	EBL	125	AM	**#183**	**#183**	**#183**
			PM	**#168**	**#168**	**#168**
11. Creston Road/Niblick Road	NBL	230	AM	216	**#287**	**#314**
			PM	199	**237**	**248**
	SBL	245	AM	#169	#176	#177
			PM	205	212	214
	EBL	150	AM	**#193**	**#194**	**#194**
			PM	**236**	**236**	**236**
	WBL	170	AM	123	129	130
			PM	**179**	**189**	**191**
16. 1st Street-Niblick Road/Spring Street	NBL	165	AM	**189**	**189**	**189**
			PM	**207**	**207**	**207**
	NBR	290	AM	84	92	94
			PM	**345**	**411**	**431**
	SBL	305	AM	259	269	270
			PM	**447**	**#489**	**#496**
17. Niblick Road/South River Road	NBL	150	AM	**#354**	**#413**	**#429**
			PM	**201**	**#240**	**#252**
	SBL	110	AM	**#400**	**#412**	**#415**
			PM	**#261**	**#278**	**#283**
	EBL	140	AM	#103	#104	#104
			PM	**#170**	**#170**	**#170**
	WBL	80	AM	**#195**	**#196**	**#196**
			PM	**#208**	**#208**	**#208**

1. Queue length that would not be exceeded 95 percent of the time.
2. Deceleration length of 530 feet has been subtracted from the storage length per the HDM for 60 mph design speed.
# indicates that 95th percentile volume exceeds capacity, queue may be longer.
Bold indicates queue length longer than storage length.

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The following queue deficiencies at City intersections are noted:

- 13th Street/Riverside Avenue (#7): the westbound left turn and through movement queue lengths would further exceed storage during both peak hours with the addition of traffic from either project. Bridge widening at this location in not included in the City's Circulation Element and any widening in this location is unlikely; signal timing should be reviewed, coordinated and optimized. With coordination and overlaps, queues would improve to no project levels. The City's Circulation Element accepts that this location will reach capacity.

  Recommendation: Review, coordinate, and optimize corridor operations. Add westbound right and northbound right turn overlap phases.

- 13th Street/Paso Robles Street (#8): the northbound and eastbound queue lengths would further exceed storage length during at least one peak hour with the addition of traffic from either project. Bridge widening at this location in not included in the City's Circulation Element and any widening in this location is unlikely; signal timing should be reviewed, coordinated and optimized. If parking is removed on the east side of Paso Robles Street north of 12th Street the northbound right turn lane could be extended. With coordination and overlaps, queues would improve to no project levels. The City's Circulation Element accepts that this location will reach capacity.

  Recommendation: Review, coordinate, and optimize corridor operations.

- River Road/Creston Road (#9): the northbound and southbound left turn queue lengths would further exceed storage during both peak hours with the addition of traffic from either project. Bridge widening at this location in not included in the City's Circulation Element; signal timing should be reviewed, coordinated and optimized. In addition to coordinated signal timing, the intersection would benefit from restriping of the southbound lanes to a dedicated left, through, and right turn lane. With these modifications, queues could be accommodated in the existing bay taper. The City's Circulation Element accepts that this location will reach capacity.

  Recommendation: Review, coordinate, and optimize corridor operations..

- Creston Road/Golden Hill Road (#10): the eastbound left turn queue length exceeds storage under Cumulative conditions. The addition of project traffic does not degrade the intersection operations. The intersection would benefit from a dedicated westbound right turn lane.

  Recommendation: None.

- Creston Road/Niblick Road (#11): the northbound, westbound, and eastbound left turn queue lengths exceed storage in at least one peak hour under Near Term conditions with the proposed widening included in the City's Circulation Element. The left turn queues could be accommodated in available two-way left turn lane and bay taper storage.

  Recommendation: None.

- 1st Street-Niblick Road/Spring Street (#16): the southbound left turn and northbound left and right turn queue lengths would further exceed the storage length during the PM peak hour under Cumulative conditions. No feasible mitigation has been identified to return queues to no project levels. The City's Circulation Element includes corridor improvements on Niblick Road and Spring Street.

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Recommendation: Project makes a fair share contribution through the City's impact fee program for improvements at this intersection.

- Niblick Road/South River Road (#17): all left turn lengths would exceed storage in one or more peak hours under Cumulative conditions. No mitigation has been identified to return queues to no project levels. The City's Circulation Element includes widening at this intersection and corridor improvements. The intersection would benefit from additional westbound left turn lane storage, additional right turn lanes and right turn overlap phasing.

  Recommendation: Project makes a fair share contribution through the City's impact fee program for improvements at this intersection.

Summary of Intersection Mitigations

In addition to the 674-Unit project and 911-Unit project analysis, intersections requiring mitigation measures under either project condition were evaluated under the 554-Unit (Phase 1) conditions as shown in **Table 26**.

Table 26: Cumulative Mitigations

Intersection	Impact	Mitigation	No Project	Total Units 554	674	911	Cir. Elem. and TIF[1]	Responsible Agency
2. SR 46 E/Golden Hill Rd[2]	LOS	Optimize traffic signal, SBR overlap	X	X	X	X	Yes	Caltrans
6. Golden Hill Rd/Union Rd	LOS, Queue	Install multi-lane roundabout	X	X	X	X	Yes	City
7. 13th St/Riverside Ave	Queue	Optimize corridor operations, WBR and NBR overlap	X	X	X	X	No	City
8. 13th St/Paso Robles St	Queue	Optimize corridor operations	X	X	X	X	No	City
9. River Rd/Creston Rd	Queue	Optimize corridor operations	X	X	X	X	No	City
12. Creston Rd/Stoney Creek Rd	LOS	Install traffic signal	X	X	X	X	Yes	City
13. Creston Rd/Meadowlark Rd	LOS	Install traffic signal	-	X	X	X	Yes	City
14. Creston Rd/Charolais Rd	LOS	Install all-way stop	-	-	-	X	No	City
15. Riverside Ave/Pine St/ US 101 SB Ramp	LOS	Install all-way stop	X	X	X	X	No	Caltrans
16. 1st St-Niblick Rd/Spring St	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City
17. Niblick Rd/South River Rd	Queue	Optimize corridor operations, corridor improvements	X	X	X	X	Yes	City

X - Mitigation required.
1. Intersection improvements are included in the Paso Robles Circulation Element and Traffic Impact Fee (TIF).
2. The Paso Robles Circulation Element includes improvements on State Route 46 East and in the vicinity between Buena Vista Drive and Dry Creek Road. Recommend project make a fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents. Ultimate improvements will be determined in the project documents.

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3. Roadway Segment Operations

Table 27 shows the Cumulative and Cumulative Plus Project capacity utilization and LOS for the roadway study segments.

Table 27: Cumulative and Cumulative Plus Project Roadway Segment Operations

					Cumulative			Cumulative + 674			Cumulative + 911		
Street	ID	Segment	Facility Type	Lanes	ADT	LOS	Capacity Utilization	ADT	LOS	Capacity Utilization	ADT	LOS	Capacity Utilization
Creston Road	1	East of Ferro Lane	Arterial	2*	19,300	D	89%	19,812	D	91%	19,929	D	92%
	2	East of Golden Hill Road	Arterial	4	19,600	A	52%	21,137	A	57%	21,487	A	57%
	3	South of Niblick Road	Arterial	4	17,600	A	47%	20,162	A	54%	20,745	A	55%
	4	North of Meadowlark	Arterial	4	8,100	A	22%	11,003	A	29%	11,665	A	31%
Golden Hill Road	5	South of Union Road	Arterial	4	20,600	A	55%	21,454	A	57%	21,648	A	58%
	6	North of Union Road	Arterial	4	22,400	B	60%	23,083	B	62%	23,239	B	62%
Niblick Road	7	East of Spring Street	Arterial	4	34,700	D	93%	36,664	E	98%	37,111	E	99%
	8	East of Quarterhorse	Arterial	4	28,600	C	76%	29,539	D	79%	29,753	D	80%
Charolais Road	9	East of South River Road	Arterial	2*	9,700	C	45%	12,006	C	55%	12,531	C	58%
South River Road	10	South of Spanish Camp Road South	Local	2	1,800	A	19%	1,885	A	20%	1,905	B	20%
	11	North of Charolais Road	Arterial	2*	11,700	C	54%	14,006	D	65%	14,531	D	67%
Barley Grain Road	12	South of Creston Road	Local	2	600	A	6%	685	A	7%	705	A	7%

* Note that an asterisk (*) indicates the prescence of a raised median or two-way left-turn lane on a two-lane arterial.
Source: City of Paso Robles General Plan Circulation Element, 2011; CCTC, 2019.

The following roadway segments operate above 90% capacity utilization:

- Niblick Road (east of Spring Street): This segment operates at 93% capacity under Cumulative conditions. With the addition of traffic from either project, the capacity utilization would increase but remain below 100%. The projected capacity utilization of 99% on Niblick Road does not justify the widening of this roadway. Widening the bridge to a six-lane arterial would result in a capacity utilization below 70%, which would reduce vehicle delays, but would also support higher vehicle speeds and would conflict with the City's multimodal goals and desire to maintain its small-town character.

  Recommendation: None. Maximize signal operations along corridor.

- Creston Road (east of Ferro Lane): This segment would operate at 89% capacity under Cumulative conditions. With the addition of traffic from either project, the capacity utilization would increase above 90% but remain below 100%. The project capacity utilization of 92% does not justify widening per the City's multimodal goals. Corridor improvements including a center left turn lane and bike lanes have been adopted by the City.

  Recommendation: None. Maximize signal operations along corridor.

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4. Freeway Segment Operations

Table 28 shows the Cumulative and Cumulative Plus Project peak hour volumes at the freeway mainline and ramp locations and **Table 29** shows the LOS, with calculation sheets in **Appendix C**.

Table 28: US 101 Cumulative and Cumulative Plus Project Peak Hour Volumes

Direction	Segment ID	Location		Cumulative	Cumulative + 674	Cumulative + 911
US 101 NB	1	SR 46W Off Ramp		300 (300)	300 (300)	300 (300)
	2	SR 46W On Ramp		579 (1025)	590 (1047)	591 (1054)
	3	Mainline North of SR 46W		2887 (4131)	2919 (4198)	2924 (4217)
	4	Spring St. Off Ramp		933 (1618)	965 (1685)	970 (1704)
	5	Paso Robles St. Off Ramp		423 (734)	423 (734)	423 (734)
	6	Paso Robles St. On Ramp		478 (457)	486 (463)	488 (465)
	7	Mainline South of SR 46E		2009 (2236)	2017 (2242)	2019 (2244)
	8	SR 46E Off Ramp		1164 (1239)	1164 (1239)	1164 (1239)
	9	SR 46E On Ramp		356 (335)	360 (338)	361 (339)
	10	Mainline North of SR 46E		1201 (1332)	1213 (1341)	1216 (1344)
US 101 SB	11	Mainline North of SR 46E		1120 (1796)	1126 (1809)	1127 (1813)
	12	SR 46E Off Ramp		332 (443)	334 (447)	334 (449)
	13	SR 46E to Riverside/17th St. Weave	On	1167 (1298)	1167 (1298)	1167 (1298)
	14		Off	285 (396)	285 (396)	285 (396)
	15	Mainline South of SR 46E		1670 (2255)	1674 (2264)	1675 (2266)
	16	Riverside/17th St. On Ramp		390 (268)	390 (268)	390 (268)
	17	Riverside/Pine St. Off Ramp		200 (324)	204 (333)	205 (335)
	18	Spring St. On Ramp		1374 (1127)	1432 (1174)	1450 (1185)
	19	Mainline North of SR 46W		3623 (3726)	3681 (3773)	3699 (3784)
	20	SR 46W Off Ramp		706 (707)	725 (723)	731 (726)
	21	SR 46W On Ramp		200 (300)	200 (300)	200 (300)

AM (PM) Peak Hour Volumes

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Table 29: Cumulative and Cumulative Plus Project Freeway Operations

Direction	Location	Segment Type	Peak Hour	Cumulative		Cumulative + 674		Cumulative + 911	
				Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
US 101 NB	SR 46W Off Ramp	Diverge	AM	27.9	C	**28.1**	**D**	**28.2**	**D**
			PM	**33.2**	**D**	**33.6**	**D**	**33.7**	**D**
	SR 46W On Ramp	Merge	AM	**28.9**	**D**	**29.1**	**D**	**29.2**	**D**
			PM	**37.2**	**E**	**v/c > 1**	**F**	**v/c > 1**	**F**
	North of SR 46W	Mainline	AM	**26.1**	**D**	**26.5**	**D**	**26.5**	**D**
			PM	**43.0**	**E**	**44.7**	**E**	**v/c > 1**	**F**
	Spring St. Off Ramp	Diverge	AM	**33.1**	**D**	**33.5**	**D**	**33.5**	**D**
			PM	**v/c > 1**	**F**	**v/c > 1**	**F**	**v/c > 1**	**F**
	Paso Robles St. Off Ramp	Diverge	AM	21.1	C	21.1	C	21.1	C
			PM	24.7	C	24.7	C	24.7	C
	Paso Robles St. On Ramp	Merge	AM	20.5	C	20.6	C	20.6	C
			PM	21.3	C	21.3	C	21.3	C
	South of SR 46E	Mainline	AM	17.0	B	17.1	B	17.1	B
			PM	17.5	B	17.6	B	17.6	B
	SR 46E Off Ramp	Diverge	AM	22.1	C	22.2	C	22.2	C
			PM	22.6	C	22.7	C	22.7	C
	SR 46E On Ramp	Merge	AM	14.6	B	14.7	B	14.7	B
			PM	15.2	B	15.3	B	15.3	B
	North of SR 46E	Mainline	AM	11.1	B	11.3	B	11.3	B
			PM	11.7	B	11.8	B	11.8	B
US 101 SB	North of SR 46E	Mainline	AM	10.6	A	10.7	A	10.7	A
			PM	17.3	B	17.4	B	17.5	B
	SR 46E Off Ramp	Diverge	AM	15.1	B	15.1	B	15.1	B
			PM	22.7	C	22.9	C	22.9	C
	SR 46E to Riverside/17th St.[2]	Weave	AM	-	B	-	B	-	B
			PM	-	C	-	C	-	C
	South of SR 46E	Mainline	AM	14.3	B	14.4	B	14.4	B
			PM	19.1	C	19.1	C	19.2	C
	Riverside/17th St. On Ramp	Merge	AM	21.7	C	21.8	C	21.8	C
			PM	25.6	C	25.7	C	25.7	C
	Riverside/Pine St. Off Ramp	Diverge	AM	22.9	C	22.9	C	22.9	C
			PM	27.0	C	27.1	C	27.1	C
	Spring St. On Ramp	Merge	AM	**28.3**	**D**	**28.8**	**D**	**28.9**	**D**
			PM	**29.0**	**D**	**29.3**	**D**	**29.4**	**D**
	North of SR 46W	Mainline	AM	**38.6**	**E**	**40.0**	**E**	**40.4**	**E**
			PM	**39.5**	**E**	**40.5**	**E**	**40.8**	**E**
	SR 46W Off Ramp	Diverge	AM	**38.2**	**E**	**38.7**	**E**	**38.9**	**E**
			PM	**38.5**	**E**	**39.0**	**E**	**39.1**	**E**
	SR 46W On Ramp	Merge	AM	**31.4**	**D**	**31.7**	**D**	**31.8**	**D**
			PM	**32.6**	**D**	**32.8**	**D**	**32.9**	**D**

1. HCM 6 density (passenger cars per mile per lane).
2. The Leisch method used for weave section analysis does not report density.
Note: Unacceptable operations shown in **bold** text.

The addition of traffic from either project would worsen operations at the eight freeway segments operating at unacceptable LOS. No additional freeway segments would operate unacceptably. The addition of project traffic increases density by less than two passenger cars per mile per lane at the unacceptable locations within capacity and increases the V/C by 0.02 or less at the unacceptable locations that exceed capacity.

Recommendation: Development of mitigation measures and recommendations will require Caltrans coordination. See below for additional discussion on the findings and recommendations.

Summary of Freeway Operations and Recommendations

The following freeway segments operate at LOS D or worse with or without the addition of traffic from either project as shown in **Table 30**.

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Table 30: Summary of Freeway Operations

Direction	Location	Segment Type	Peak Hour	Existing	Ex. + Proj.	Near Term	NT + Proj.	Cumu-lative	Cum. + Proj.
US 101 NB	SR 46W Off Ramp	Diverge	AM	-	-	-	-	-	D
			PM	-	-	D	D	D	D
	SR 46W On Ramp	Merge	AM	-	-	-	-	D	D
			PM	D	D	D	D	E	F
	North of SR 46W	Mainline	AM	-	-	-	-	D	D
			PM	D	D	D	E	E	E (674) F (911)
	Spring St. Off Ramp	Diverge	AM	-	-	D	D	D	D
			PM	D	D	E	E	F	F
US 101 SB	Spring St. On Ramp	Merge	AM	-	-	-	-	D	D
			PM	-	-	-	-	D	D
	North of SR 46W	Mainline	AM	D	D	D	E	E	E
			PM	D	D	D	D	E	E
	SR 46W Off Ramp	Diverge	AM	D	D	E	E	E	E
			PM	D	D	E	E	E	E
	SR 46W On Ramp	Merge	AM	-	-	D	D	D	D
			PM	-	-	D	D	D	D

Note: Segment operating acceptably are not shown in table.

Widening the mainline to a six-lane facility between Spring Street and Main Street would improve mainline and ramp operations to LOS C or better for all segments except the US 101 NB Spring Street off-ramp with or without the proposed project under Near Term or Cumulative conditions. An additional lane at the US 101 NB Spring Street off-ramp is needed under Near Term and Cumulative conditions for acceptable operations. However, widening to a six-lane facility has not been identified in SLOCOG or Caltrans studies.

The US 101 Corridor Mobility Study identified LOS D-E for the northbound segments and LOS D for the southbound off-ramp diverge under 2035 conditions; however, no improvements were identified.

The US 101 Transportation Concept Report for this segment found that in the year 2035 demand is projected to exceed capacity in both the northbound and southbound directions between the urbanized area of Atascadero and south of the Paso Robles urban boundary. The report identifies the following improvement options:

- Interchange improvements
- Parallel route development
- Ramp and auxiliary lane improvements
- Enhanced transit and rail service
- Transportation Demand Management (TDM)
- Transportation System Management (TSM)

The SLOCOG Regional Transportation Plan identifies a future SR 46 Urban Multi-Modal Corridor Study for this area.

Development of mitigation measures and recommendations will require Caltrans coordination. Ramp improvements or metering may be an alternative in addition to Transportation Demand Management (TDM) and Transportation System Management (TSM) strategies.

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5. San Luis Obispo County Facilities

Under Cumulative conditions, four percent of project traffic is estimated to travel south of the City of Paso Robles via Creston Road or River Road. One percent of project traffic is estimated to enter the Templeton Road Improvement Fee Area and Urban Reserve Line (URL) via El Pomar Drive. Three percent of project traffic is estimated to travel to State Route 41 via Creston Road. These trips may travel through the fee area via South El Pomar Road.

The Templeton Travel Demand Model and Circulation Study Update (2017) evaluated existing operations and forecast future traffic volumes on El Pomar Drive, Neal Springs Road, and Templeton Road. The annual growth rate ranged from 0.14-0.68 percent. These roadways operated at LOS A under Buildout conditions and would operate acceptably with the proposed project. The intersection of El Pomar Drive/Templeton Road is also forecast to operate acceptably at LOS B with the proposed project assuming a one percent annual growth rate.

The 674-Unit and 911-Unit project would generate 8 and 10 PM peak hour trips into the Templeton Road Improvement Fee Area, respectively.

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Appendix A: Traffic Counts

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Intersection Turning Movement Counts

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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

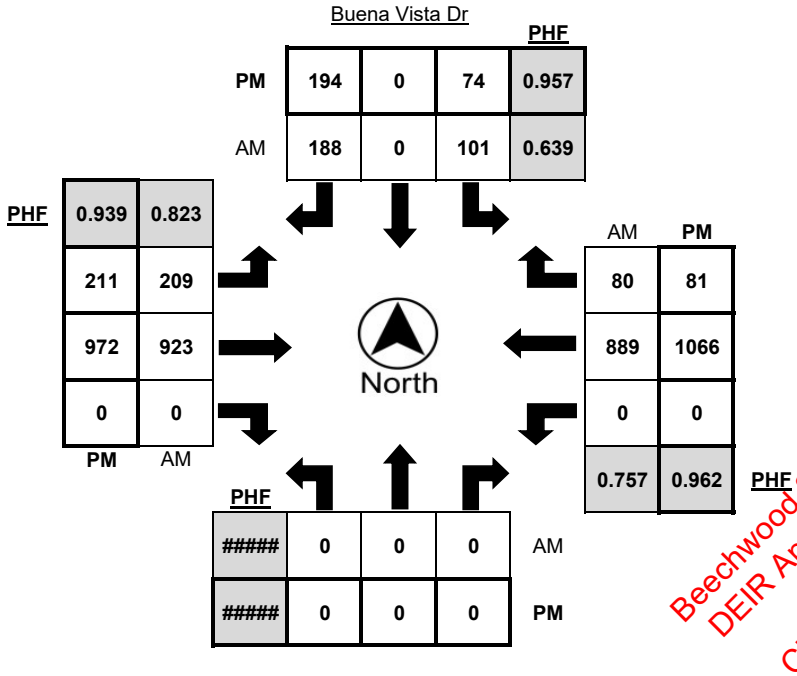
LOCATION SR46 @ Buena Vista Dr
LATITUDE 35.6446
COUNTY San Luis Obispo
LONGITUDE -120.6722
COLLECTION DATE Tuesday, October 23, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	5	0	22	0	18	147	0	21	0	178	7	26
7:15 AM - 7:30 AM	0	0	0	0	15	0	28	0	21	181	0	27	0	197	12	22
7:30 AM - 7:45 AM	0	0	0	0	15	0	27	1	34	171	0	26	0	215	19	23
7:45 AM - 8:00 AM	0	0	0	0	27	0	70	3	67	277	0	27	0	300	20	63
8:00 AM - 8:15 AM	0	0	0	0	53	0	60	4	62	243	0	41	0	191	24	34
8:15 AM - 8:30 AM	0	0	0	0	6	0	31	0	46	232	0	28	0	183	17	22
8:30 AM - 8:45 AM	0	0	0	0	13	0	33	1	38	200	0	30	0	170	11	33
8:45 AM - 9:00 AM	0	0	0	0	13	0	25	2	63	205	0	36	0	161	22	37
TOTAL	**0**	**0**	**0**	**0**	**147**	**0**	**296**	**11**	**349**	**1656**	**0**	**236**	**0**	**1595**	**132**	**260**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
2:00 PM - 2:15 PM	0	0	0	0	11	0	40	1	39	220	0	33	0	262	26	24
2:15 PM - 2:30 PM	0	0	0	0	7	0	32	0	42	197	0	26	0	243	34	25
2:30 PM - 2:45 PM	0	0	0	0	36	0	39	3	39	240	0	44	0	233	34	24
2:45 PM - 3:00 PM	0	0	0	0	38	0	64	2	35	241	0	29	0	230	11	16
3:00 PM - 3:15 PM	0	0	0	0	19	0	43	1	33	231	0	25	0	227	9	27
3:15 PM - 3:30 PM	0	0	0	0	18	0	46	1	34	249	0	39	0	258	13	36
3:30 PM - 3:45 PM	0	0	0	0	14	0	52	1	39	240	0	24	0	285	12	24
3:45 PM - 4:00 PM	0	0	0	0	17	0	46	2	35	256	0	33	0	256	16	12
4:00 PM - 4:15 PM	0	0	0	0	15	0	55	3	62	225	0	26	0	261	24	21
4:15 PM - 4:30 PM	0	0	0	0	20	0	43	1	44	238	0	35	0	279	19	25
4:30 PM - 4:45 PM	0	0	0	0	18	0	48	1	53	262	0	26	0	260	14	21
4:45 PM - 5:00 PM	0	0	0	0	21	0	48	0	52	247	0	27	0	266	24	23
5:00 PM - 5:15 PM	0	0	0	0	20	0	47	1	60	256	0	23	0	232	23	17
5:15 PM - 5:30 PM	0	0	0	0	19	0	44	1	49	222	0	30	0	265	28	15
5:30 PM - 5:45 PM	0	0	0	0	30	0	36	1	35	228	0	20	0	194	14	17
5:45 PM - 6:00 PM	0	0	0	0	7	0	39	0	31	232	0	19	0	188	18	9
TOTAL	**0**	**0**	**0**	**0**	**310**	**0**	**722**	**19**	**682**	**3784**	**0**	**459**	**0**	**3939**	**319**	**336**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	0	0	0	0	101	0	188	8	209	923	0	122	0	889	80	142
4:00 PM - 5:00 PM	0	0	0	0	74	0	194	5	211	972	0	114	0	1066	81	90

	PHF	Trucks
AM	0.785	11.4%
PM	0.987	8.0%



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Community Development Dept.

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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

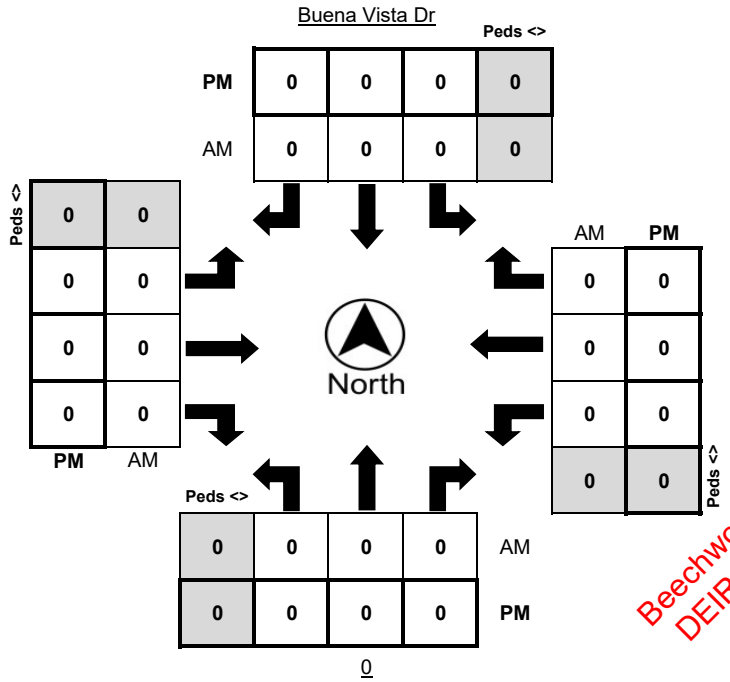
LOCATION SR46 @ Buena Vista Dr
LATITUDE 35.6446
COUNTY San Luis Obispo
LONGITUDE -120.6722
COLLECTION DATE Tuesday, October 23, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
2:00 PM - 2:15 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
2:15 PM - 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM - 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM - 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM - 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	0	0



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Prepared For:
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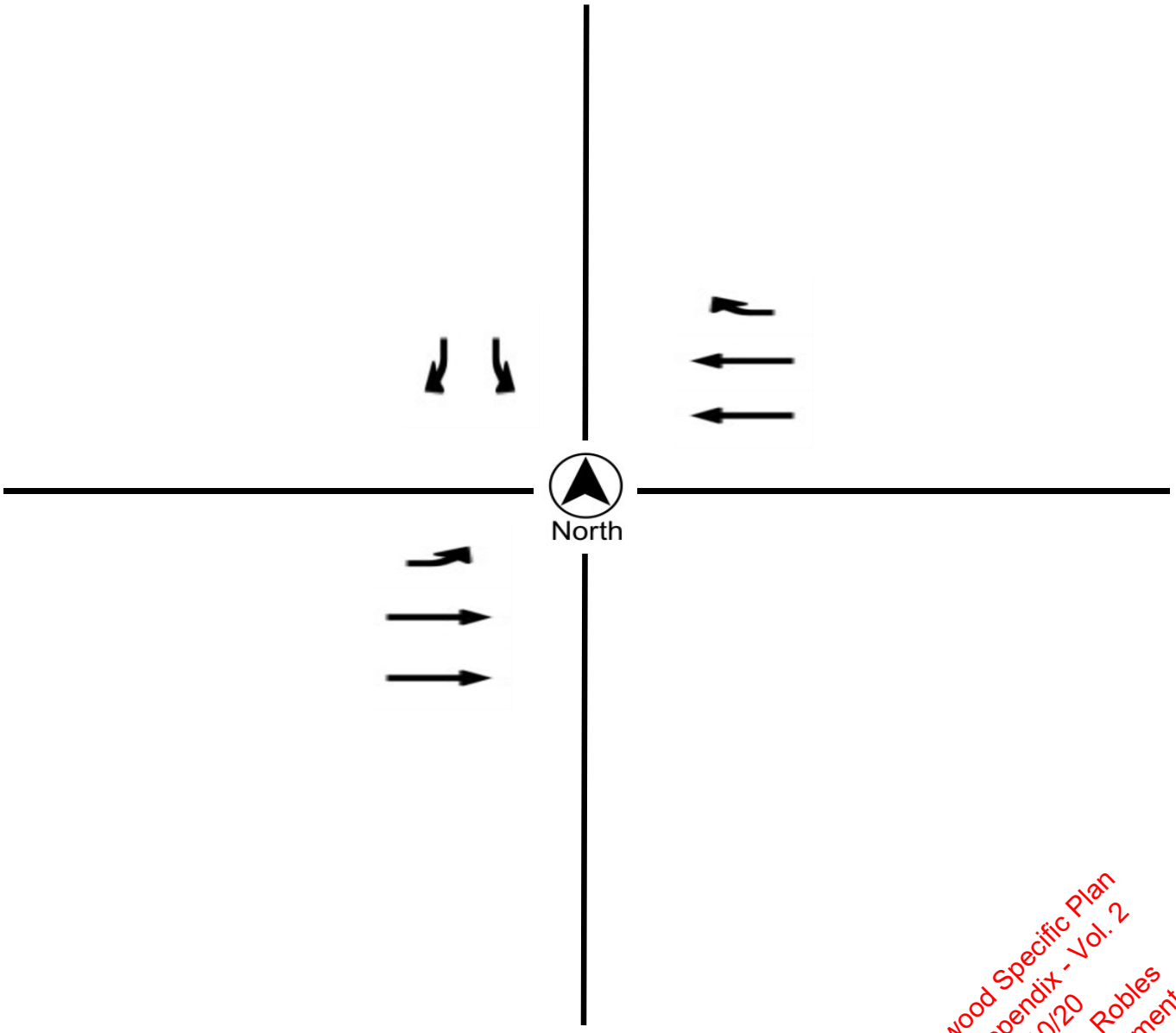
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	SR46 @ Buena Vista Dr	**N/S STREET**	Buena Vista Dr
COUNTY	San Luis Obispo	**E/W STREET**	SR 46
COLLECTION DATE	Tuesday, October 23, 2018	**WEATHER**	Clear
CYCLE TIME	95 Seconds	**CONTROL TYPE**	Signal

COMMENTS Eastbound left turns are protected.



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Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

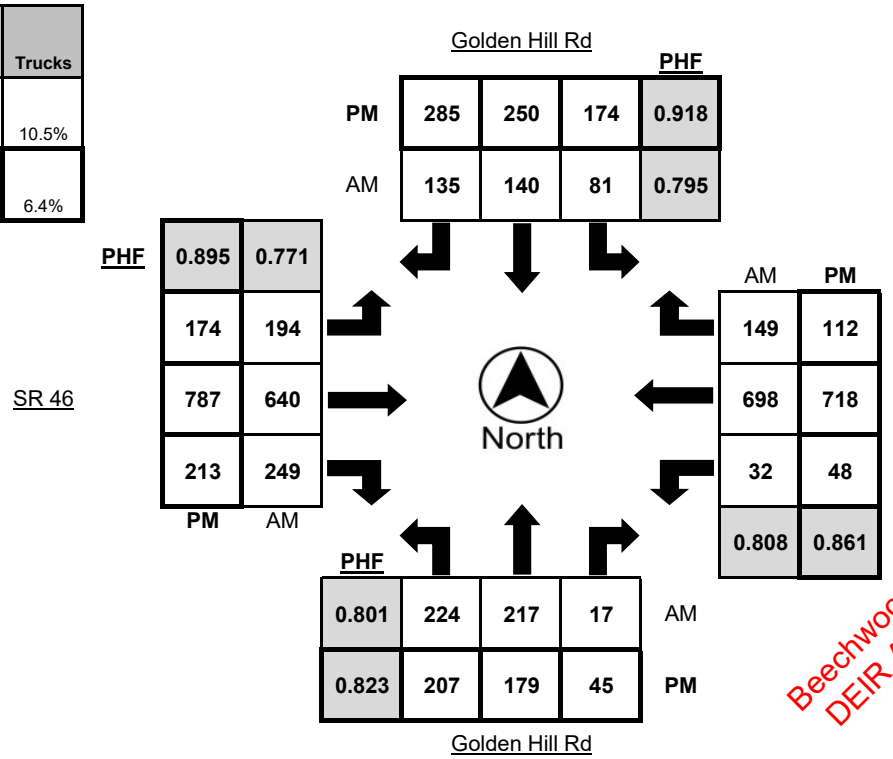
LOCATION SR 46 @ Golden Hill Rd
LATITUDE 35.6446
COUNTY San Luis Obispo
LONGITUDE -120.6581
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	21	43	1	3	16	12	34	10	43	72	20	13	9	122	29	22
7:15 AM - 7:30 AM	37	41	2	2	18	20	33	10	38	139	47	32	3	147	38	20
7:30 AM - 7:45 AM	50	49	6	5	16	33	36	7	31	132	46	24	12	182	44	26
7:45 AM - 8:00 AM	79	62	2	0	10	33	24	7	61	203	87	31	10	226	36	35
8:00 AM - 8:15 AM	64	45	5	2	31	37	44	9	50	156	62	38	7	140	44	22
8:15 AM - 8:30 AM	31	61	4	4	24	37	31	10	52	149	54	35	3	150	25	36
8:30 AM - 8:45 AM	23	37	6	3	25	33	44	17	34	145	40	34	4	131	22	36
8:45 AM - 9:00 AM	26	37	8	1	9	39	43	5	48	132	34	35	4	117	24	19
TOTAL	**331**	**375**	**34**	**20**	**149**	**244**	**289**	**75**	**357**	**1128**	**390**	**242**	**52**	**1215**	**262**	**216**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	49	42	3	1	32	50	67	7	43	158	41	20	13	180	30	19
4:15 PM - 4:30 PM	43	46	14	1	46	70	64	5	47	211	70	33	11	151	30	13
4:30 PM - 4:45 PM	49	54	9	1	35	64	69	8	50	184	51	24	11	206	38	23
4:45 PM - 5:00 PM	47	35	3	1	45	49	74	7	38	191	42	26	14	202	28	21
5:00 PM - 5:15 PM	68	44	19	2	48	67	78	0	39	201	50	23	12	159	16	15
5:15 PM - 5:30 PM	40	31	11	1	30	60	66	8	41	188	64	15	7	177	31	19
5:30 PM - 5:45 PM	42	57	18	0	40	52	48	3	24	246	43	21	11	145	19	17
5:45 PM - 6:00 PM	32	34	10	0	37	30	45	2	34	196	30	22	9	121	24	15
TOTAL	**370**	**343**	**87**	**7**	**313**	**442**	**511**	**40**	**316**	**1575**	**391**	**184**	**88**	**1341**	**216**	**142**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	224	217	17	11	81	140	135	33	194	640	249	128	32	698	149	119
4:15 PM - 5:15 PM	207	179	45	5	174	250	285	20	174	787	213	106	48	718	112	72

	PHF	Trucks
AM	0.833	10.5%
PM	0.973	6.4%



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

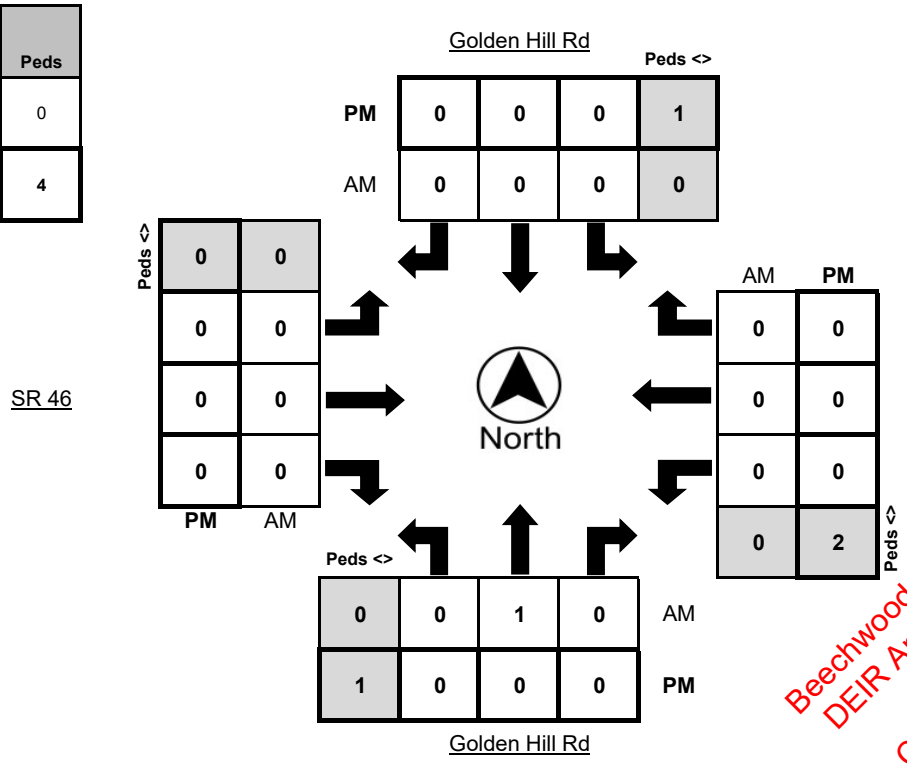
LOCATION SR 46 @ Golden Hill Rd
LATITUDE 35.6446
COUNTY San Luis Obispo
LONGITUDE -120.6581
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	0

	Bikes	Peds
AM Peak Total	1	0
PM Peak Total	0	4



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Community Development Dept.

Metro Traffic Data Inc.
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Prepared For:
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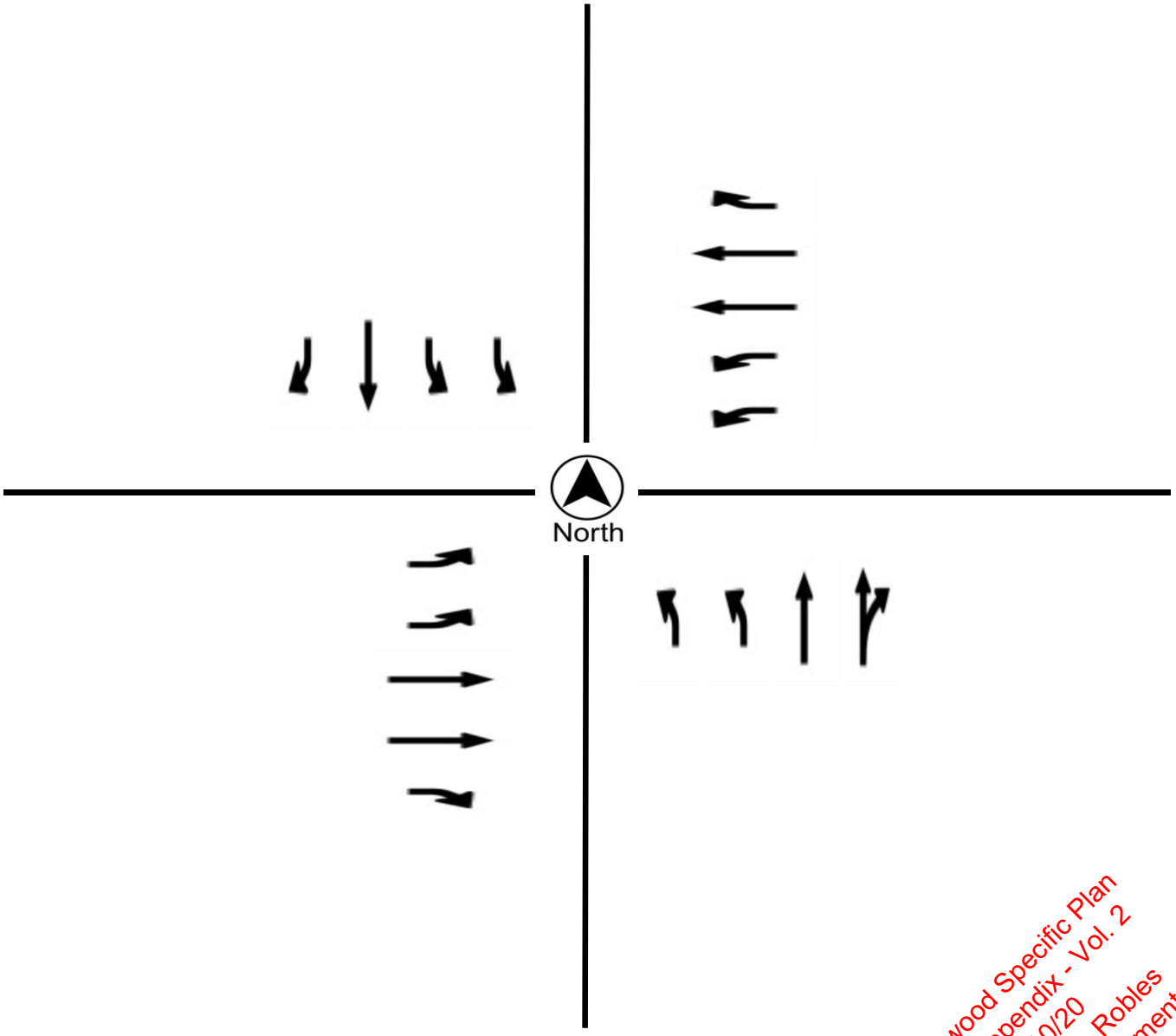
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	SR 46 @ Golden Hill Rd	**N/S STREET**	Golden Hill Rd / Golden Hill Rd
COUNTY	San Luis Obispo	**E/W STREET**	SR 46 / SR 46
COLLECTION DATE	Wednesday, June 6, 2018	**WEATHER**	Clear
CYCLE TIME	169 Seconds	**CONTROL TYPE**	Signal

COMMENTS All approaches have protected left turns.



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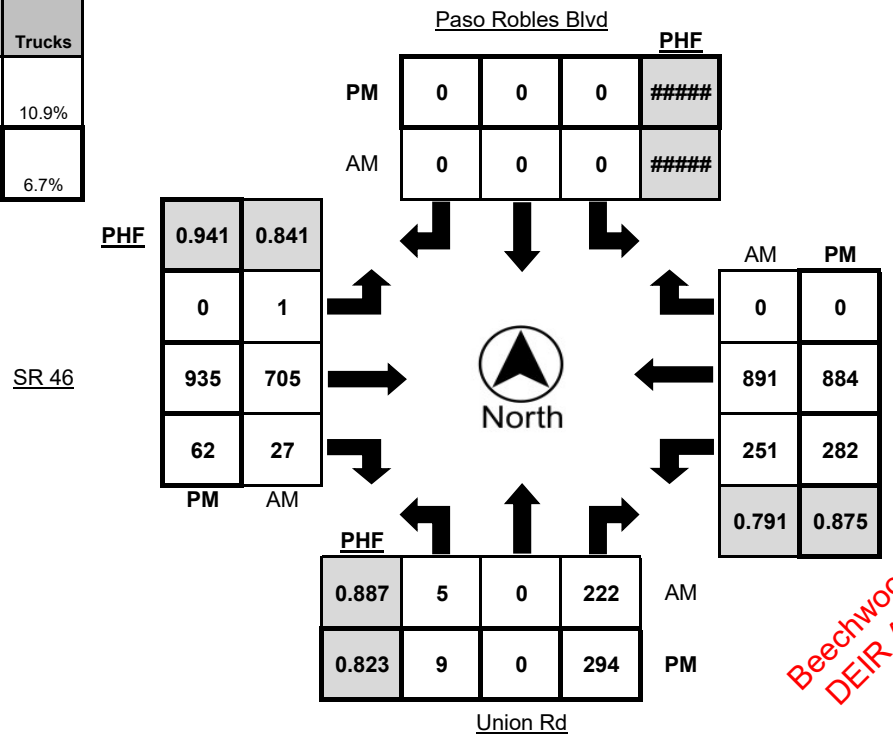
LOCATION SR 46 @ Union Rd
LATITUDE 35.6445
COUNTY San Luis Obispo
LONGITUDE -120.6494
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	42	1	0	0	0	0	0	90	2	11	34	177	0	25
7:15 AM - 7:30 AM	1	0	47	2	0	0	0	0	0	159	5	36	58	180	0	25
7:30 AM - 7:45 AM	1	0	41	1	0	0	0	0	0	143	3	22	91	245	0	23
7:45 AM - 8:00 AM	0	0	60	1	0	0	0	0	0	212	6	25	72	289	0	37
8:00 AM - 8:15 AM	3	0	58	1	0	0	0	0	0	183	10	32	48	180	0	24
8:15 AM - 8:30 AM	1	0	63	1	0	0	0	0	1	167	8	27	40	177	0	35
8:30 AM - 8:45 AM	0	0	39	2	0	1	0	0	0	167	5	37	53	165	0	36
8:45 AM - 9:00 AM	1	0	45	2	0	0	0	0	0	134	10	28	40	142	0	17
TOTAL	**7**	**0**	**395**	**11**	**0**	**1**	**0**	**0**	**1**	**1255**	**49**	**218**	**436**	**1555**	**0**	**222**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	1	0	74	2	0	0	0	0	0	188	9	18	52	228	0	20
4:15 PM - 4:30 PM	3	0	60	0	0	0	0	0	0	250	15	27	54	208	0	12
4:30 PM - 4:45 PM	2	0	65	0	0	0	0	0	0	222	13	21	76	257	0	23
4:45 PM - 5:00 PM	3	0	89	0	0	0	0	0	0	211	21	29	78	232	0	20
5:00 PM - 5:15 PM	1	0	80	0	0	0	0	0	0	252	13	23	74	187	0	10
5:15 PM - 5:30 PM	3	0	68	0	0	0	0	0	0	220	12	14	70	211	0	18
5:30 PM - 5:45 PM	5	0	67	0	0	0	0	0	0	279	22	17	59	167	0	16
5:45 PM - 6:00 PM	9	0	70	0	0	0	0	0	0	241	12	18	39	155	0	21
TOTAL	**27**	**0**	**573**	**2**	**0**	**0**	**0**	**0**	**0**	**1863**	**117**	**167**	**502**	**1645**	**0**	**140**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	5	0	222	4	0	0	0	0	1	705	27	106	251	891	0	119
4:15 PM - 5:15 PM	9	0	294	0	0	0	0	0	0	935	62	100	282	884	0	65

	PHF	Trucks
AM	0.822	10.9%
PM	0.971	6.7%



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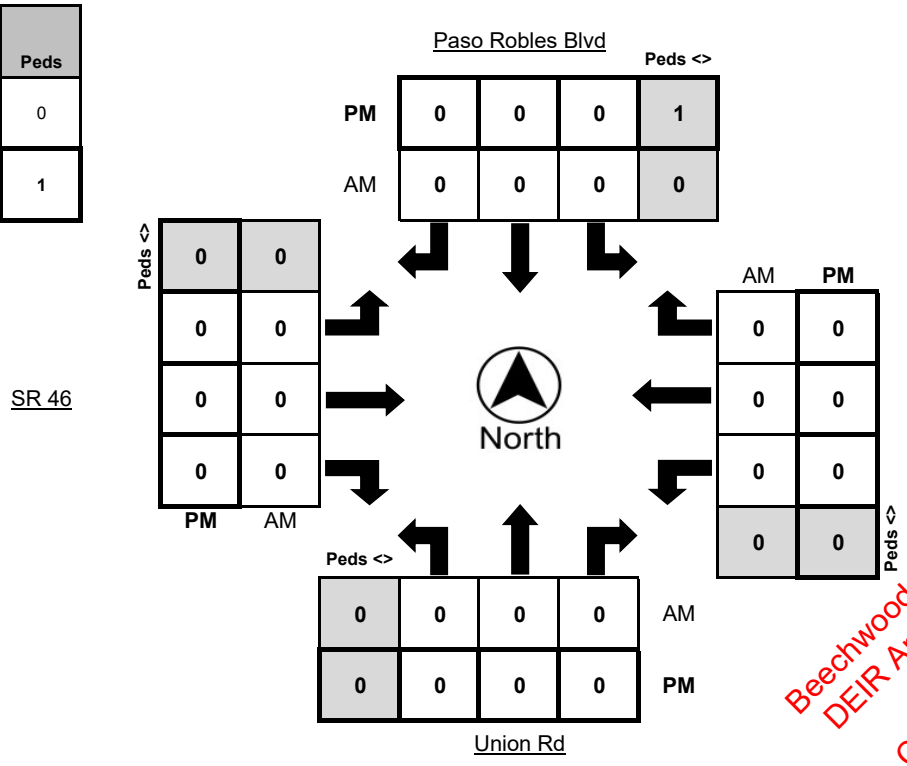
LATITUDE 35.6445
COUNTY San Luis Obispo
LONGITUDE -120.6494
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	0	1



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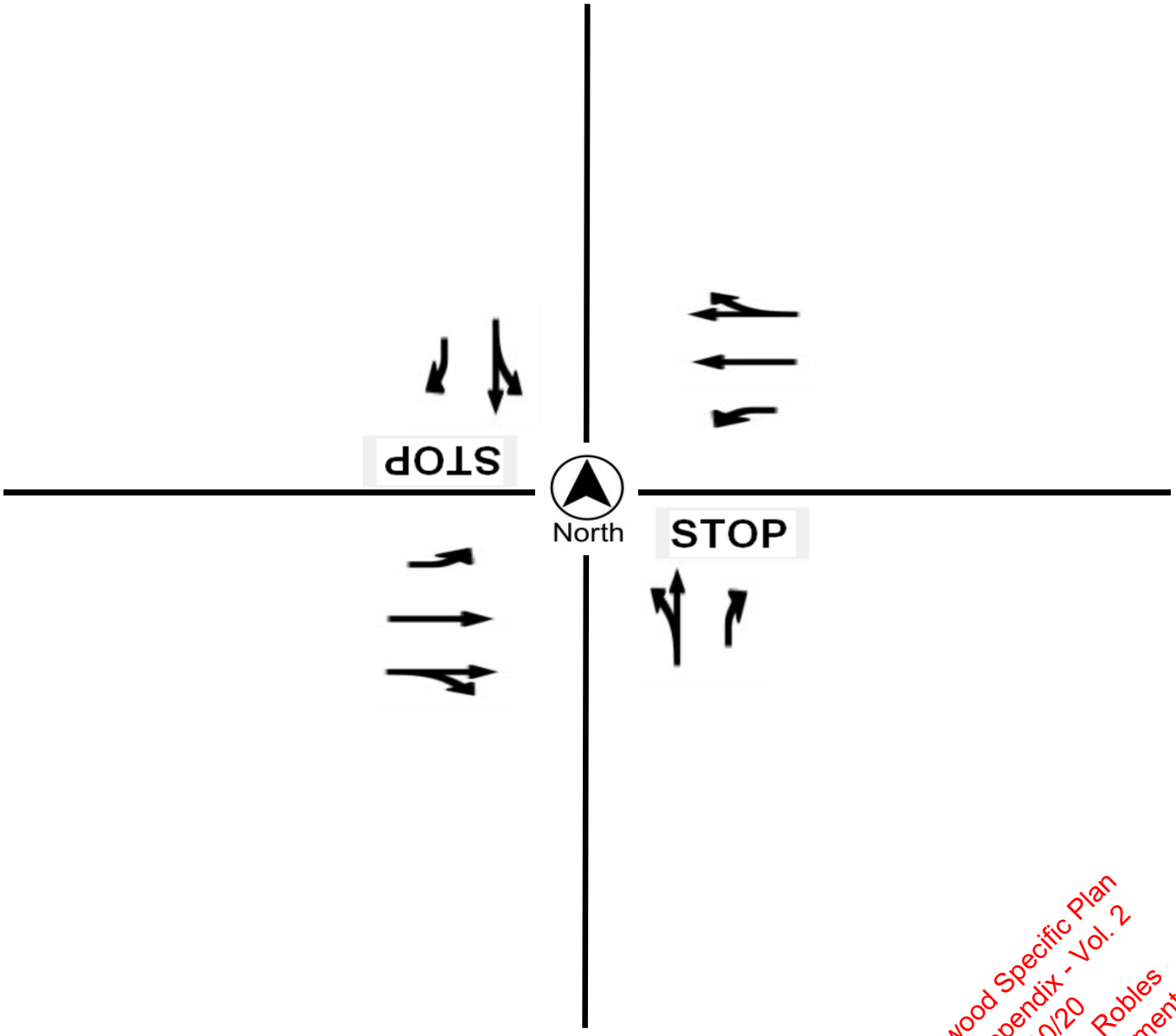
LOCATION	SR 46 @ Union Rd	**N/S STREET**	Paso Robles Blvd / Union Rd
COUNTY	San Luis Obispo	**E/W STREET**	SR 46 / SR 46
COLLECTION DATE	Wednesday, June 6, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	Two-Way Stop

COMMENTS



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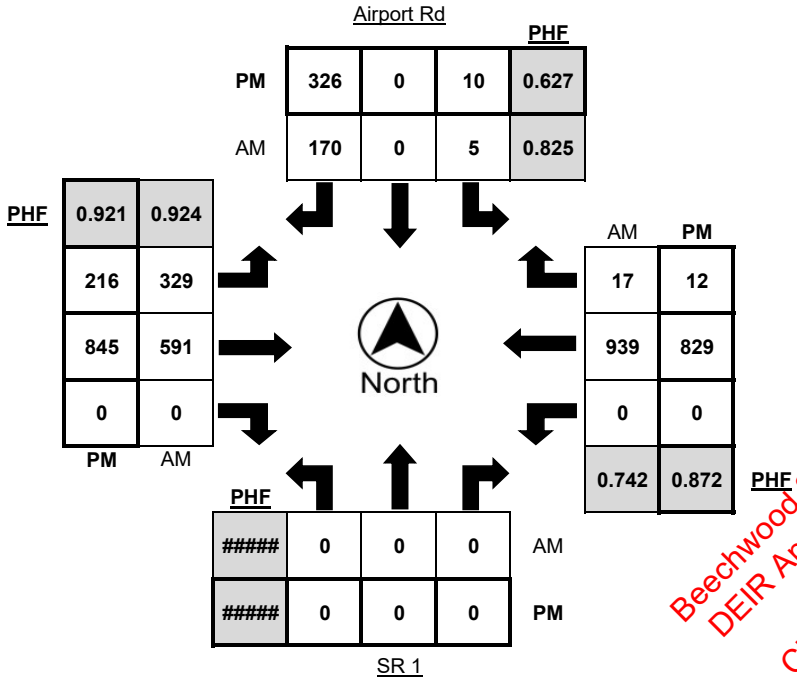
LOCATION SR46 @ Airport Rd
LATITUDE 35.6445
COUNTY San Luis Obispo
LONGITUDE -120.6433
COLLECTION DATE Tuesday, October 23, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	1	0	21	1	52	111	0	15	0	184	3	24
7:15 AM - 7:30 AM	0	0	0	0	0	0	36	3	41	122	0	26	0	203	2	22
7:30 AM - 7:45 AM	0	0	0	0	1	0	41	2	65	134	0	30	0	283	1	24
7:45 AM - 8:00 AM	0	0	0	0	0	0	53	1	111	123	0	25	0	311	11	21
8:00 AM - 8:15 AM	0	0	0	0	4	0	42	9	90	159	0	29	0	183	4	22
8:15 AM - 8:30 AM	0	0	0	0	0	0	34	2	63	175	0	19	0	162	1	20
8:30 AM - 8:45 AM	0	0	0	0	1	0	30	3	51	148	0	38	0	179	0	38
8:45 AM - 9:00 AM	0	0	0	0	3	0	34	4	40	125	0	28	0	156	1	28
TOTAL	**0**	**0**	**0**	**0**	**10**	**0**	**291**	**25**	**513**	**1097**	**0**	**210**	**0**	**1661**	**23**	**199**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
2:00 PM - 2:15 PM	0	0	0	0	6	0	53	4	32	166	0	37	0	216	3	33
2:15 PM - 2:30 PM	0	0	0	0	2	0	55	4	49	185	0	27	0	227	0	25
2:30 PM - 2:45 PM	0	0	0	0	3	0	79	9	39	190	0	45	0	221	4	29
2:45 PM - 3:00 PM	0	0	0	0	4	0	45	3	51	232	0	27	0	190	2	21
3:00 PM - 3:15 PM	0	0	0	0	1	0	47	4	52	188	0	29	0	197	2	29
3:15 PM - 3:30 PM	0	0	0	0	1	0	50	6	58	215	0	30	0	195	6	39
3:30 PM - 3:45 PM	0	0	0	0	3	0	131	1	48	200	0	30	0	209	5	21
3:45 PM - 4:00 PM	0	0	0	0	2	0	67	8	64	224	0	29	0	192	3	17
4:00 PM - 4:15 PM	0	0	0	0	1	0	60	3	49	222	0	23	0	190	1	25
4:15 PM - 4:30 PM	0	0	0	0	4	0	68	3	55	199	0	29	0	238	3	23
4:30 PM - 4:45 PM	0	0	0	0	1	0	99	0	48	220	0	25	0	205	4	21
4:45 PM - 5:00 PM	0	0	0	0	2	0	81	3	41	234	0	25	0	197	1	27
5:00 PM - 5:15 PM	0	0	0	0	4	0	102	4	42	215	0	19	0	169	3	17
5:15 PM - 5:30 PM	0	0	0	0	4	0	58	2	36	226	0	34	0	175	1	13
5:30 PM - 5:45 PM	0	0	0	0	1	0	48	0	53	209	0	20	0	149	1	20
5:45 PM - 6:00 PM	0	0	0	0	1	0	35	0	52	204	0	18	0	146	2	8
TOTAL	**0**	**0**	**0**	**0**	**40**	**0**	**1078**	**54**	**769**	**3329**	**0**	**447**	**0**	**3116**	**41**	**368**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	0	0	0	0	5	0	170	14	329	591	0	103	0	939	17	87
3:30 PM - 4:30 PM	0	0	0	0	10	0	326	15	216	845	0	111	0	829	12	86

	PHF	Trucks
AM	0.842	9.9%
PM	0.939	9.5%



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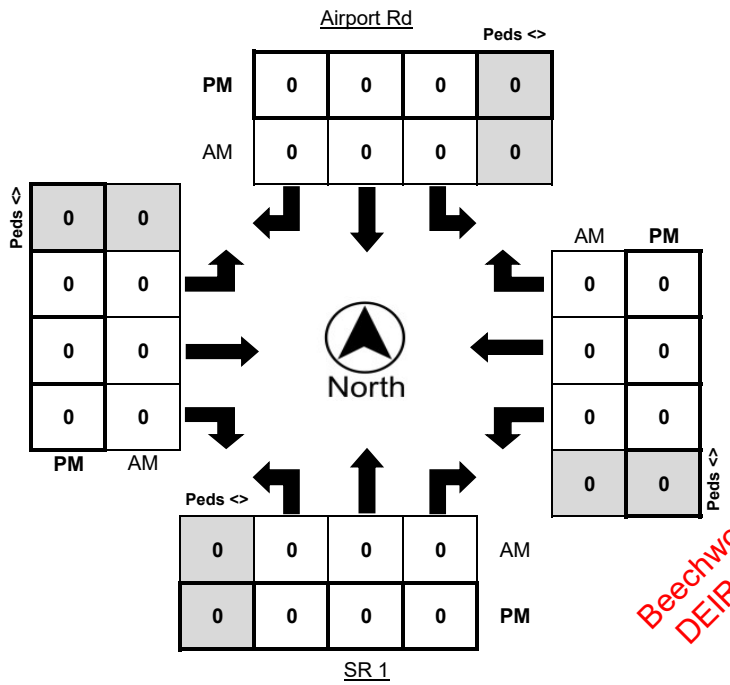
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
2:00 PM - 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM - 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM - 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM - 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM - 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	0	0



Beechwood Specific Plan
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3/10/20
City of Paso Robles
Community Development Dept.

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

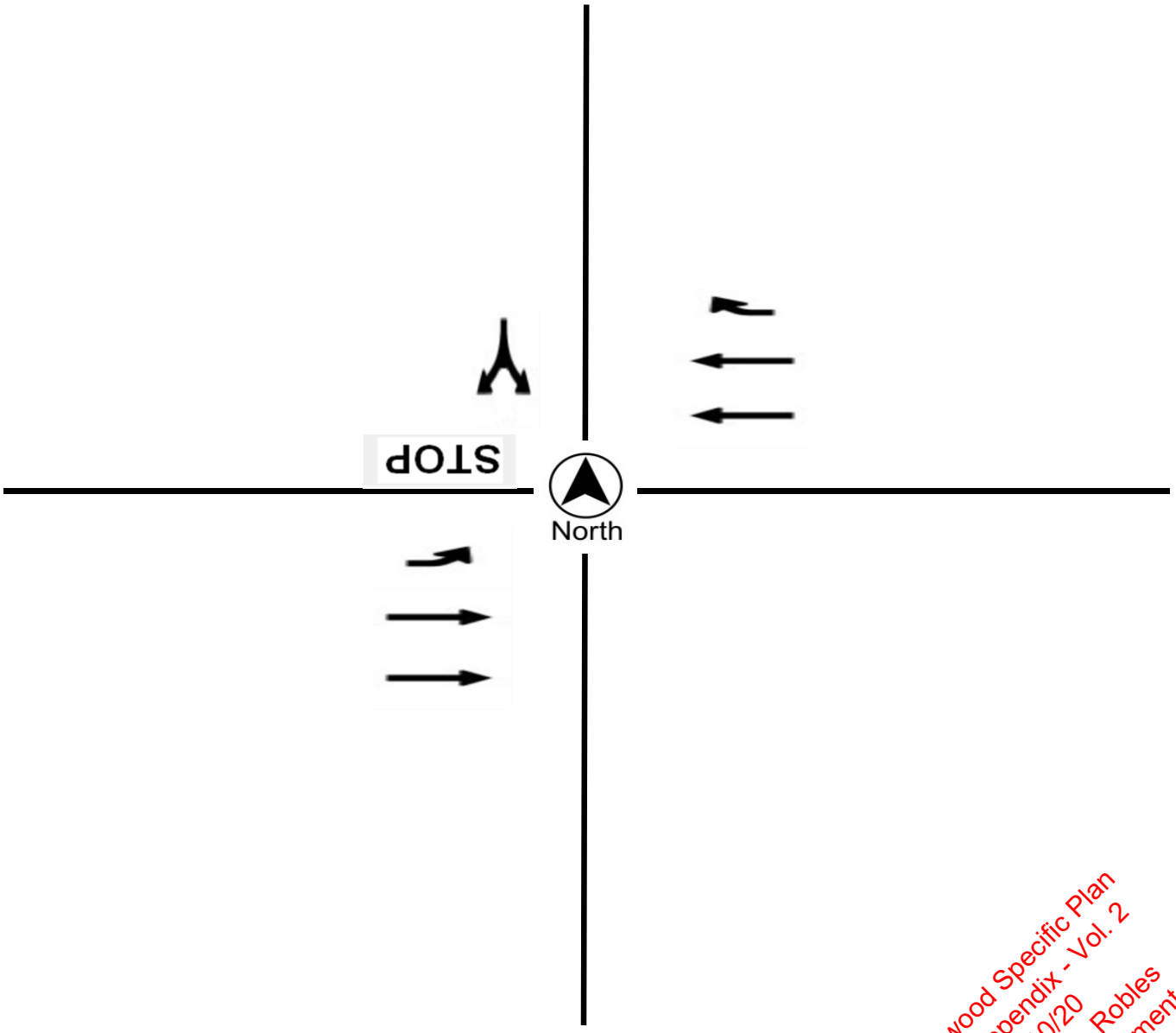
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	SR46 @ Airport Rd	**N/S STREET**	Airport Rd
COUNTY	San Luis Obispo	**E/W STREET**	SR 46
COLLECTION DATE	Tuesday, October 23, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

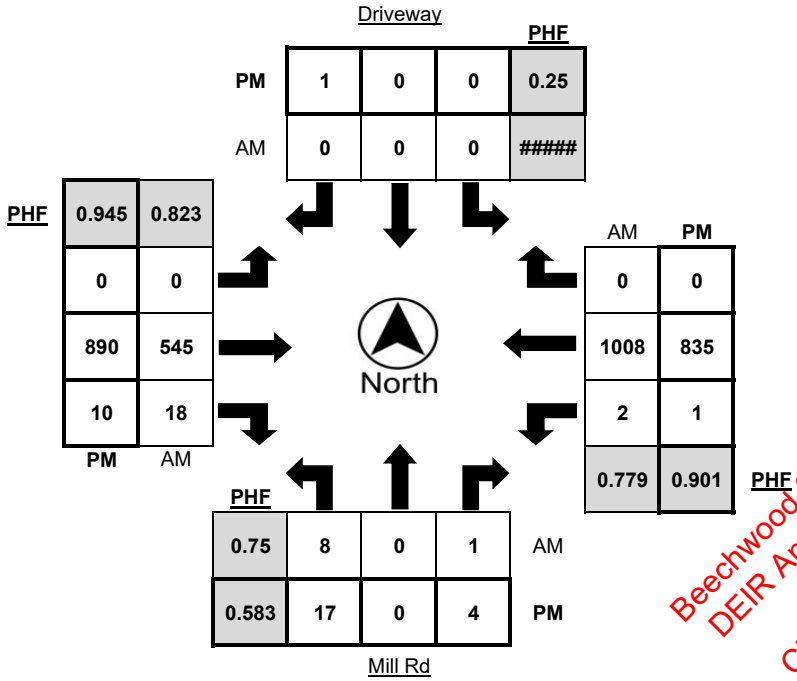
LOCATION SR46 @ Mill Rd
LATITUDE 35.6453
COUNTY San Luis Obispo
LONGITUDE -120.6342
COLLECTION DATE Tuesday, October 23, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	2	0	0	0	0	0	0	0	0	111	0	14	0	177	0	24
7:15 AM - 7:30 AM	3	0	0	0	0	0	0	0	0	126	3	25	0	208	0	21
7:30 AM - 7:45 AM	3	0	0	0	0	0	0	0	0	130	4	28	1	294	0	22
7:45 AM - 8:00 AM	1	0	0	0	0	0	0	0	0	124	5	24	1	323	0	18
8:00 AM - 8:15 AM	1	0	1	0	0	0	0	0	0	165	6	32	0	183	0	20
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	170	3	18	0	163	0	23
8:30 AM - 8:45 AM	3	0	1	2	0	0	0	0	0	149	3	34	0	188	0	31
8:45 AM - 9:00 AM	2	0	1	1	0	0	0	0	0	125	4	29	2	152	0	29
TOTAL	**15**	**0**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**1100**	**28**	**204**	**4**	**1688**	**0**	**188**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
2:00 PM - 2:15 PM	2	0	3	0	0	0	0	0	0	166	6	37	1	225	0	31
2:15 PM - 2:30 PM	4	0	0	0	0	0	0	0	0	185	3	24	0	215	0	25
2:30 PM - 2:45 PM	1	0	1	0	0	0	0	0	0	182	3	44	2	231	0	29
2:45 PM - 3:00 PM	6	0	1	0	0	0	0	0	0	229	2	25	1	175	0	30
3:00 PM - 3:15 PM	11	0	2	3	0	0	0	0	0	193	7	21	2	195	0	30
3:15 PM - 3:30 PM	3	0	0	0	0	0	0	0	0	207	2	32	1	198	0	33
3:30 PM - 3:45 PM	6	0	1	0	0	0	0	0	0	197	3	23	1	209	0	20
3:45 PM - 4:00 PM	6	0	3	0	0	0	0	0	0	225	2	27	3	197	0	13
4:00 PM - 4:15 PM	2	0	1	0	0	0	1	0	0	224	2	23	0	202	0	29
4:15 PM - 4:30 PM	3	0	1	1	0	0	0	0	0	212	4	28	0	232	0	21
4:30 PM - 4:45 PM	8	0	1	0	0	0	0	0	0	217	3	24	1	198	0	22
4:45 PM - 5:00 PM	4	0	1	0	0	0	0	0	0	237	1	25	0	203	0	28
5:00 PM - 5:15 PM	5	0	0	0	0	0	0	0	0	233	1	19	0	166	0	15
5:15 PM - 5:30 PM	6	0	2	0	0	0	0	0	0	231	5	33	0	175	0	15
5:30 PM - 5:45 PM	5	0	0	0	0	0	0	0	0	215	2	18	1	146	0	17
5:45 PM - 6:00 PM	2	0	0	0	0	0	0	0	0	202	1	19	0	146	0	9
TOTAL	**74**	**0**	**17**	**4**	**0**	**0**	**1**	**0**	**0**	**3355**	**47**	**422**	**13**	**3113**	**0**	**367**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	8	0	1	0	0	0	0	0	0	545	18	109	2	1008	0	81
4:00 PM - 5:00 PM	17	0	4	1	0	0	1	0	0	890	10	100	1	835	0	100

	PHF	Trucks
AM	0.871	12.0%
PM	0.972	11.4%



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Community Development Dept.

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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

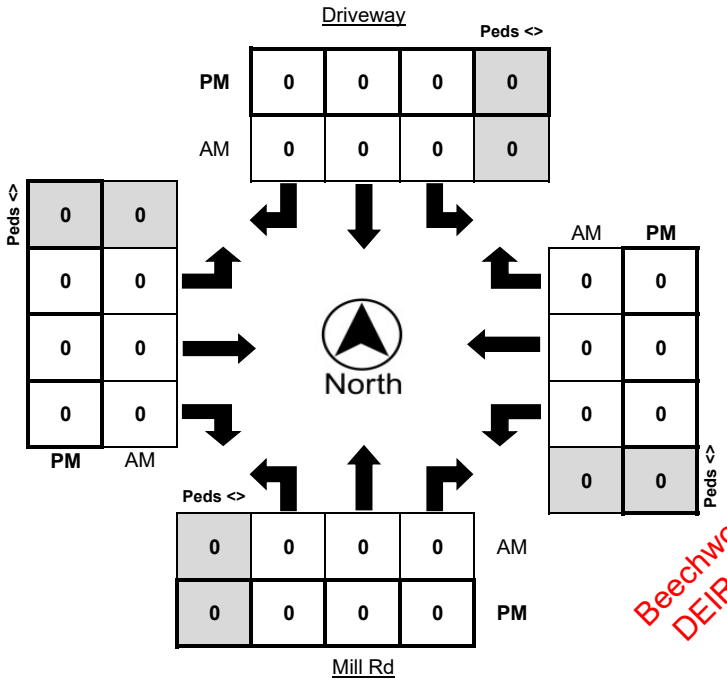
LOCATION SR46 @ Mill Rd
LATITUDE 35.6453
COUNTY San Luis Obispo
LONGITUDE -120.6342
COLLECTION DATE Tuesday, October 23, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
2:00 PM - 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM - 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM - 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM - 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM - 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	0	0



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3/10/20
City of Paso Robles
Community Development Dept.

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Hanford, CA 93230

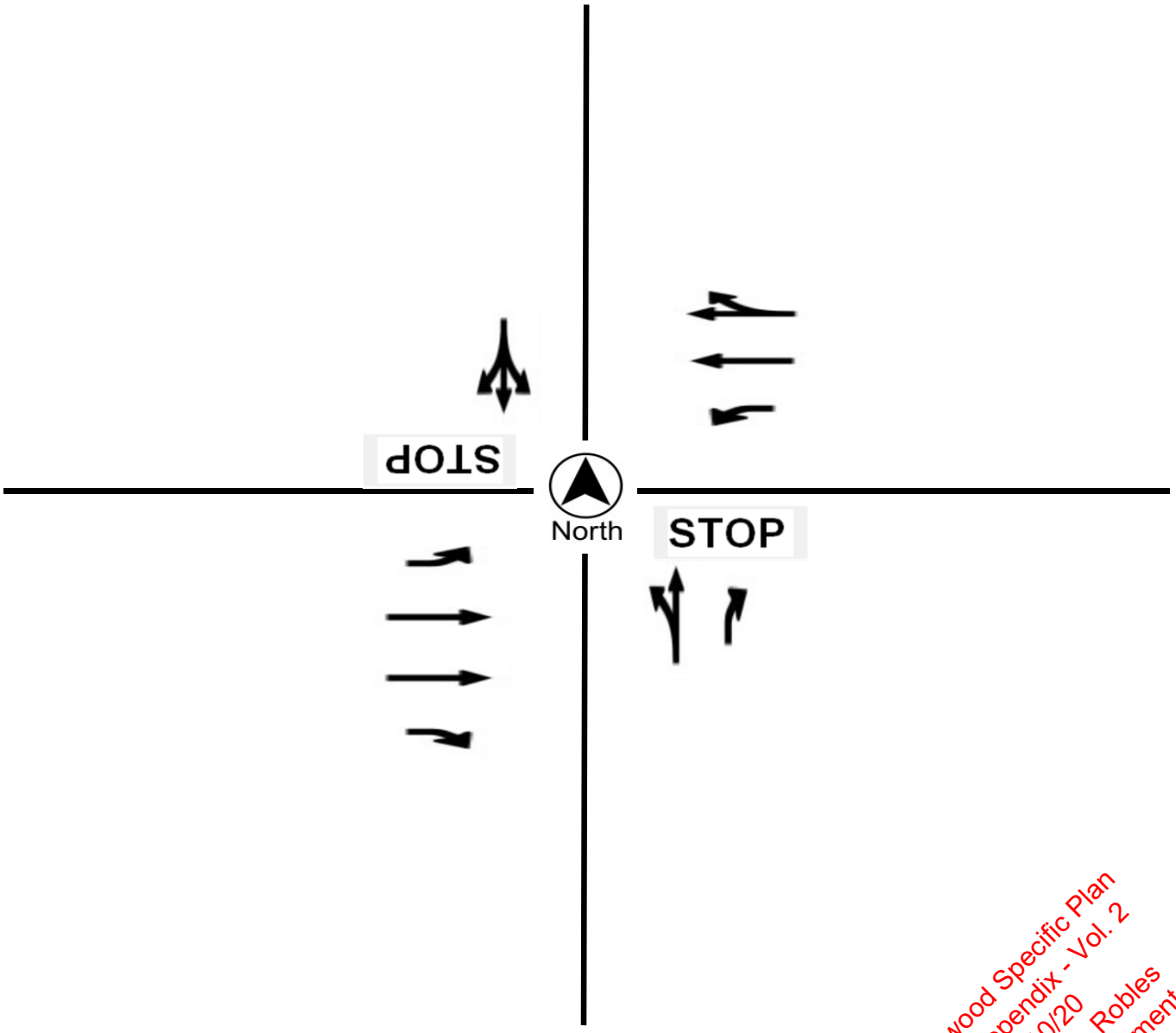
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	SR46 @ Mill Rd	**N/S STREET**	Mill Rd
COUNTY	San Luis Obispo	**E/W STREET**	SR 46
COLLECTION DATE	Tuesday, October 23, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	Two-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

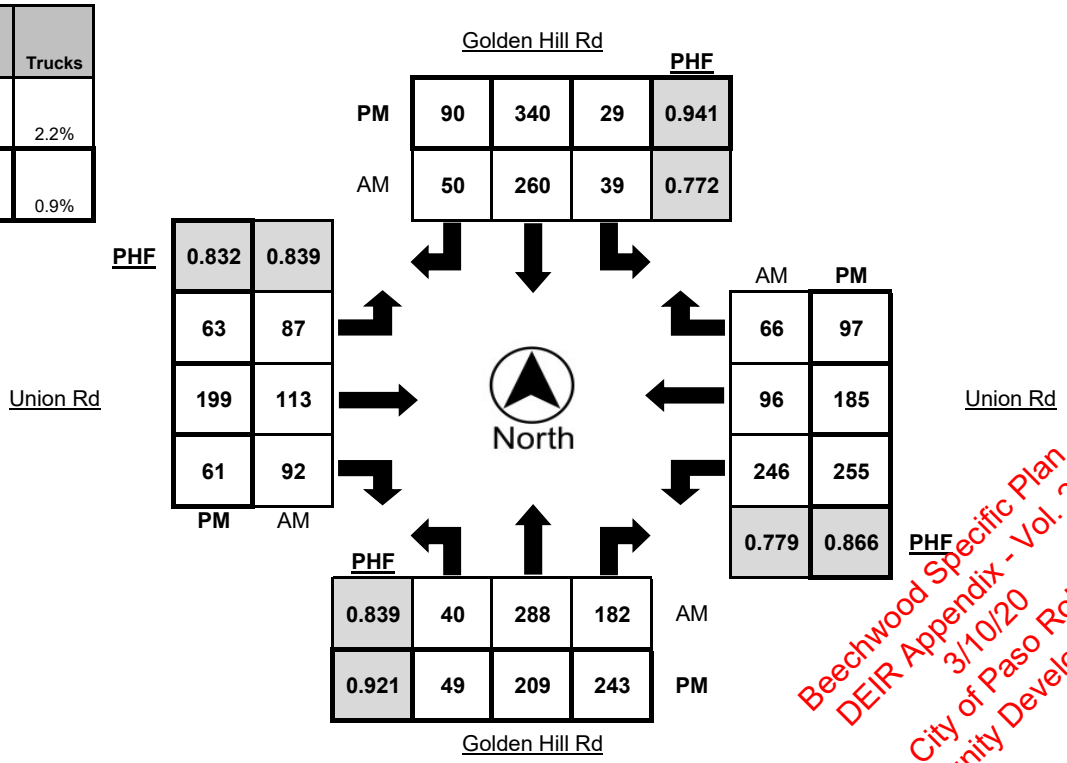
LOCATION Golden Hill Rd @ Union Rd
LATITUDE 35.6402
COUNTY San Luis Obispo
LONGITUDE -120.6581
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	5	39	29	4	5	30	3	3	17	19	9	2	33	15	13	2
7:15 AM - 7:30 AM	7	48	42	1	12	49	3	0	14	26	23	1	53	21	22	6
7:30 AM - 7:45 AM	6	74	32	2	3	60	11	2	19	29	27	0	74	25	10	2
7:45 AM - 8:00 AM	13	82	54	1	12	85	16	6	32	27	28	0	76	32	23	0
8:00 AM - 8:15 AM	14	84	54	2	12	66	20	5	22	31	14	2	43	18	11	5
8:15 AM - 8:30 AM	16	51	46	1	9	49	15	6	12	29	15	0	32	23	15	4
8:30 AM - 8:45 AM	15	37	32	2	9	45	12	6	15	19	9	1	44	27	12	4
8:45 AM - 9:00 AM	6	39	36	3	7	50	10	4	14	23	12	0	26	30	12	2
TOTAL	**82**	**454**	**325**	**16**	**69**	**434**	**90**	**32**	**145**	**203**	**137**	**6**	**381**	**191**	**118**	**25**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	9	50	54	3	13	53	23	2	24	50	14	2	60	40	20	2
4:15 PM - 4:30 PM	6	61	41	0	16	101	23	7	17	48	14	0	49	39	16	3
4:30 PM - 4:45 PM	12	61	50	0	10	85	24	3	11	47	10	1	61	41	29	2
4:45 PM - 5:00 PM	9	44	83	1	4	80	17	0	23	54	20	2	59	48	15	0
5:00 PM - 5:15 PM	15	54	65	1	10	85	27	0	15	48	16	1	69	50	36	1
5:15 PM - 5:30 PM	13	50	45	0	5	90	22	4	14	50	15	0	66	46	17	1
5:30 PM - 5:45 PM	10	66	57	0	8	83	13	2	15	31	16	0	45	40	23	0
5:45 PM - 6:00 PM	4	43	72	0	7	44	13	1	13	47	16	0	34	30	12	0
TOTAL	**78**	**429**	**467**	**5**	**73**	**621**	**162**	**19**	**132**	**375**	**121**	**6**	**443**	**334**	**168**	**9**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	40	288	182	6	39	260	50	13	87	113	92	3	246	96	66	13
4:30 PM - 5:30 PM	49	209	243	2	29	340	90	7	63	199	61	4	255	185	97	4

	PHF	Trucks
AM	0.812	2.2%
PM	0.929	0.9%



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Turning Movement Report

Prepared For:
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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

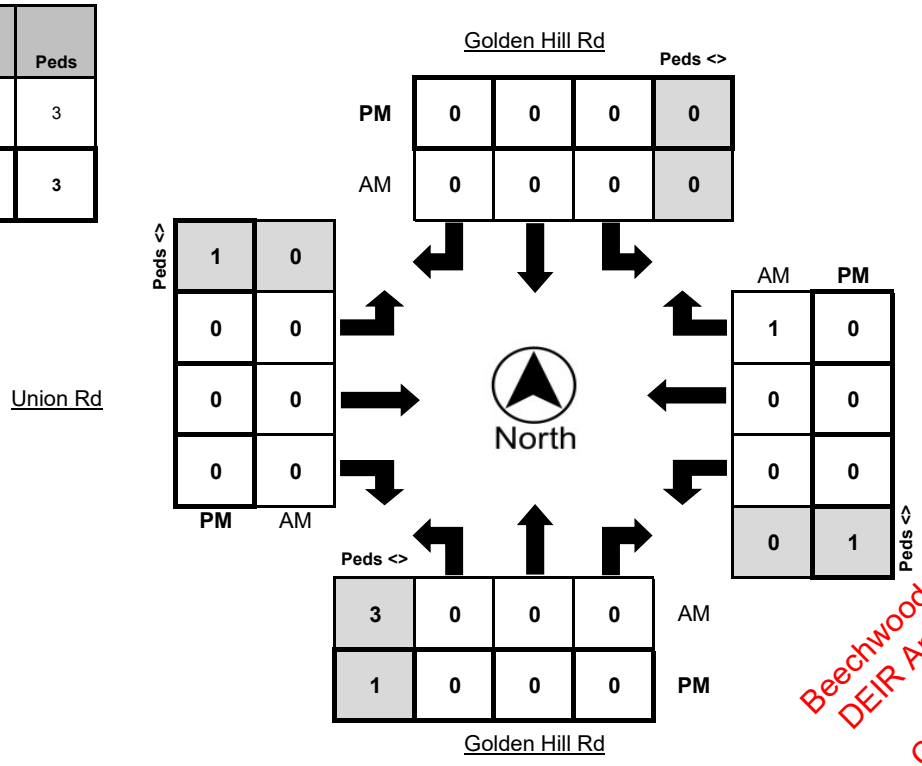
LOCATION Golden Hill Rd @ Union Rd
LATITUDE 35.6402
COUNTY San Luis Obispo
LONGITUDE -120.6581
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1

	Bikes	Peds
AM Peak Total	1	3
PM Peak Total	**0**	**3**



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3/10/20
City of Paso Robles
Community Development Dept.

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

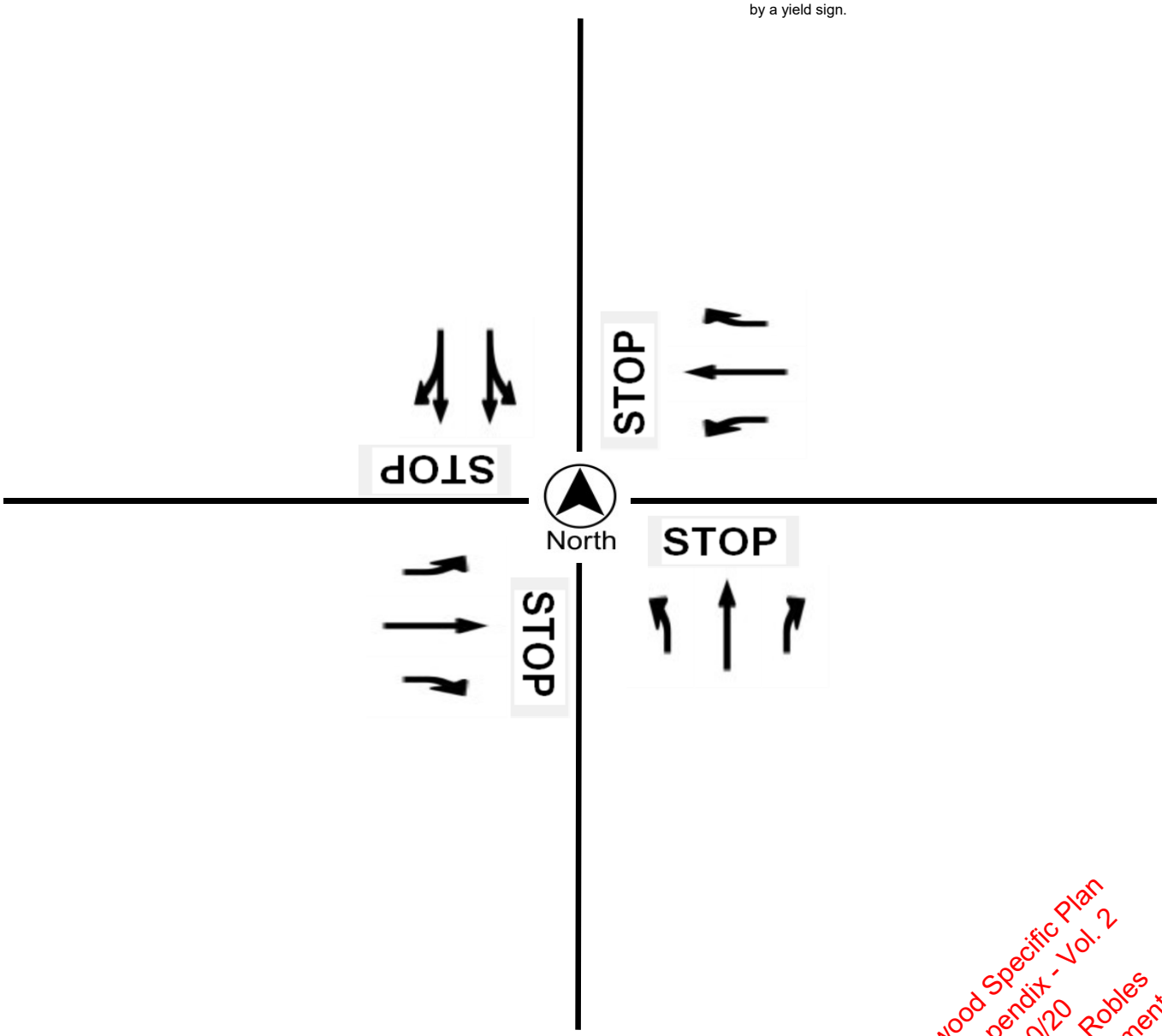
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Golden Hill Rd @ Union Rd	**N/S STREET**	Golden Hill Rd / Golden Hill Rd
COUNTY	San Luis Obispo	**E/W STREET**	Union Rd / Union Rd
COLLECTION DATE	Wednesday, June 6, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	All-Way Stop

COMMENTS Eastbound and westbound right turns controlled by a yield sign.



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

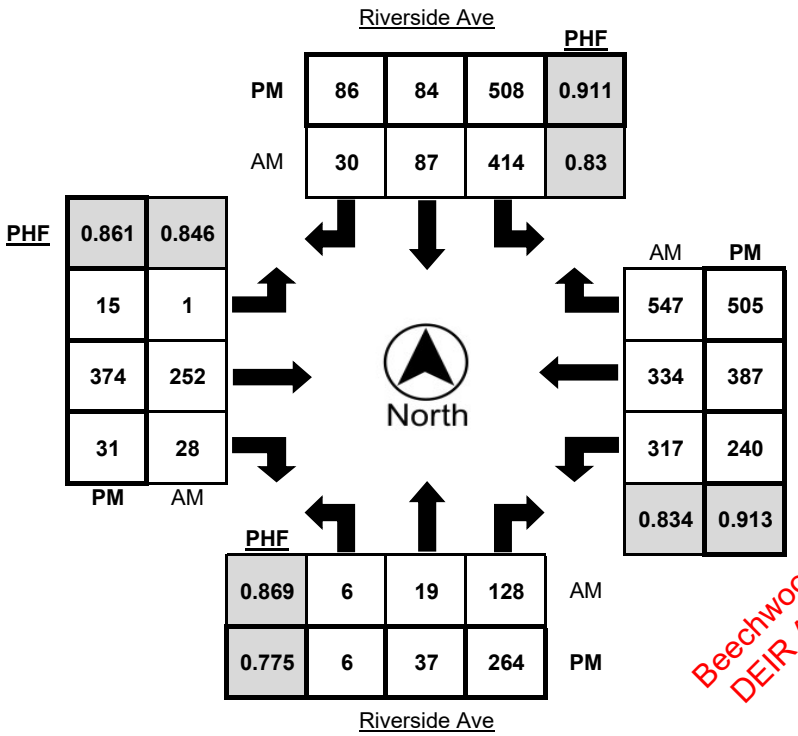
LOCATION 13th St @ Riverisde Ave
LATITUDE 35.6280
COUNTY San Luis Obispo
LONGITUDE -120.6870
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	7	14	1	42	14	3	3	0	31	8	1	52	43	60	9
7:15 AM - 7:30 AM	1	7	19	3	78	25	3	3	1	46	10	2	75	58	76	4
7:30 AM - 7:45 AM	2	2	30	4	126	17	8	3	0	53	7	1	80	61	117	5
7:45 AM - 8:00 AM	0	6	38	2	121	31	8	4	1	68	5	1	94	97	168	5
8:00 AM - 8:15 AM	1	6	26	0	84	19	6	4	0	57	7	1	81	90	156	6
8:15 AM - 8:30 AM	3	5	34	1	83	20	8	5	0	74	9	2	62	86	106	5
8:30 AM - 8:45 AM	1	8	26	4	55	23	12	3	5	50	12	1	58	77	88	7
8:45 AM - 9:00 AM	0	8	33	0	57	15	13	2	4	49	6	1	63	125	97	6
TOTAL	**8**	**49**	**220**	**15**	**646**	**164**	**61**	**27**	**11**	**428**	**64**	**10**	**565**	**637**	**868**	**47**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	9	69	0	89	18	14	6	2	98	10	3	55	101	93	1
4:15 PM - 4:30 PM	2	10	67	0	119	21	16	0	4	93	9	0	64	88	101	2
4:30 PM - 4:45 PM	1	7	61	1	91	22	13	1	2	93	12	0	62	104	98	1
4:45 PM - 5:00 PM	2	10	61	1	137	24	25	0	5	94	6	0	63	107	140	1
5:00 PM - 5:15 PM	0	9	90	1	135	19	26	3	7	74	5	0	50	83	134	1
5:15 PM - 5:30 PM	3	11	52	2	145	19	22	1	1	113	8	1	65	93	133	1
5:30 PM - 5:45 PM	1	10	67	1	105	9	16	1	5	74	6	0	60	100	106	4
5:45 PM - 6:00 PM	0	4	33	1	104	13	14	1	1	71	6	0	47	101	123	1
TOTAL	**9**	**70**	**500**	**7**	**925**	**145**	**146**	**13**	**27**	**710**	**62**	**4**	**466**	**777**	**928**	**12**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	6	19	128	7	414	87	30	16	1	252	28	5	317	334	547	21
4:30 PM - 5:30 PM	6	37	264	5	508	84	86	5	15	374	31	1	240	387	505	4

	PHF	Trucks
AM	0.849	2.3%
PM	0.941	0.6%



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

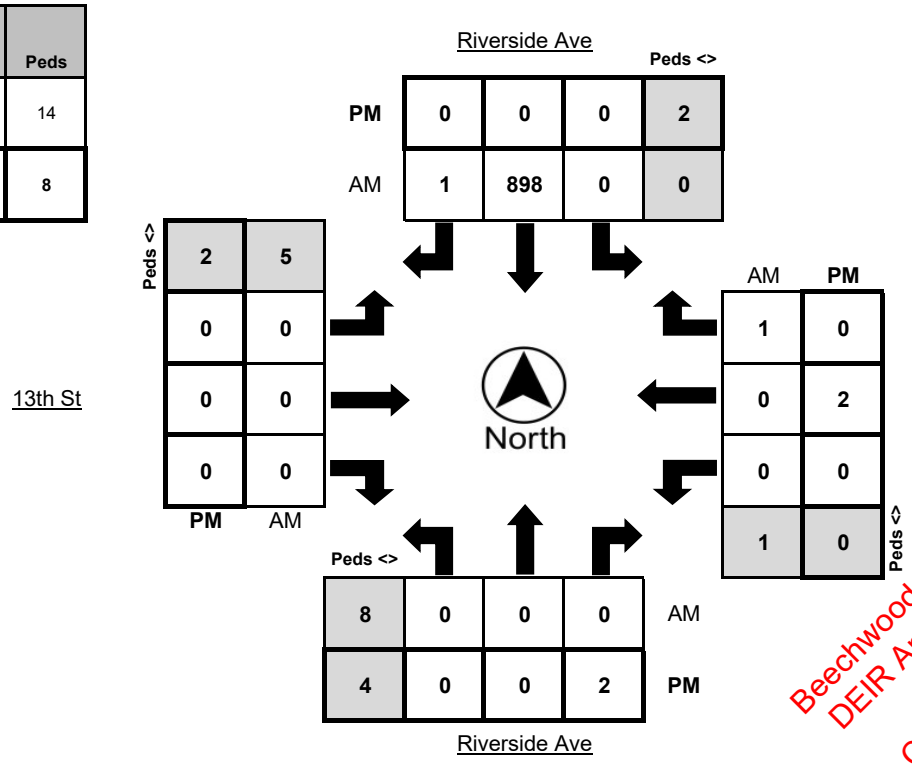
LOCATION 13th St @ Riverisde Ave
LATITUDE 35.6280
COUNTY San Luis Obispo
LONGITUDE -120.6870
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	1	0	0	344	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	308	3	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	232	0	1	0	0	0	0	0	0	0	1
7:45 AM - 8:00 AM	0	0	0	0	0	209	0	0	0	0	0	0	0	0	1	1
8:00 AM - 8:15 AM	0	0	0	0	0	228	0	2	0	0	0	0	0	0	0	2
8:15 AM - 8:30 AM	0	0	0	0	0	229	1	5	0	0	0	1	0	0	0	1
8:30 AM - 8:45 AM	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	1
8:45 AM - 9:00 AM	0	0	0	2	0	0	0	2	0	0	0	0	1	0	0	1
TOTAL	**0**	**0**	**1**	**2**	**0**	**1574**	**4**	**10**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**7**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	2
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	1	0	0	0	0	3	0	0	0	0	0	2	0	0
4:45 PM - 5:00 PM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM - 5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM - 5:45 PM	0	0	1	1	0	0	0	5	0	0	0	0	1	0	0	0
5:45 PM - 6:00 PM	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0	3
TOTAL	**0**	**0**	**3**	**4**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**7**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	898	1	8	0	0	0	1	0	0	1	5
4:30 PM - 5:30 PM	0	0	2	2	0	0	0	4	0	0	0	0	0	2	0	2

	Bikes	Peds
AM Peak Total	900	14
PM Peak Total	4	8



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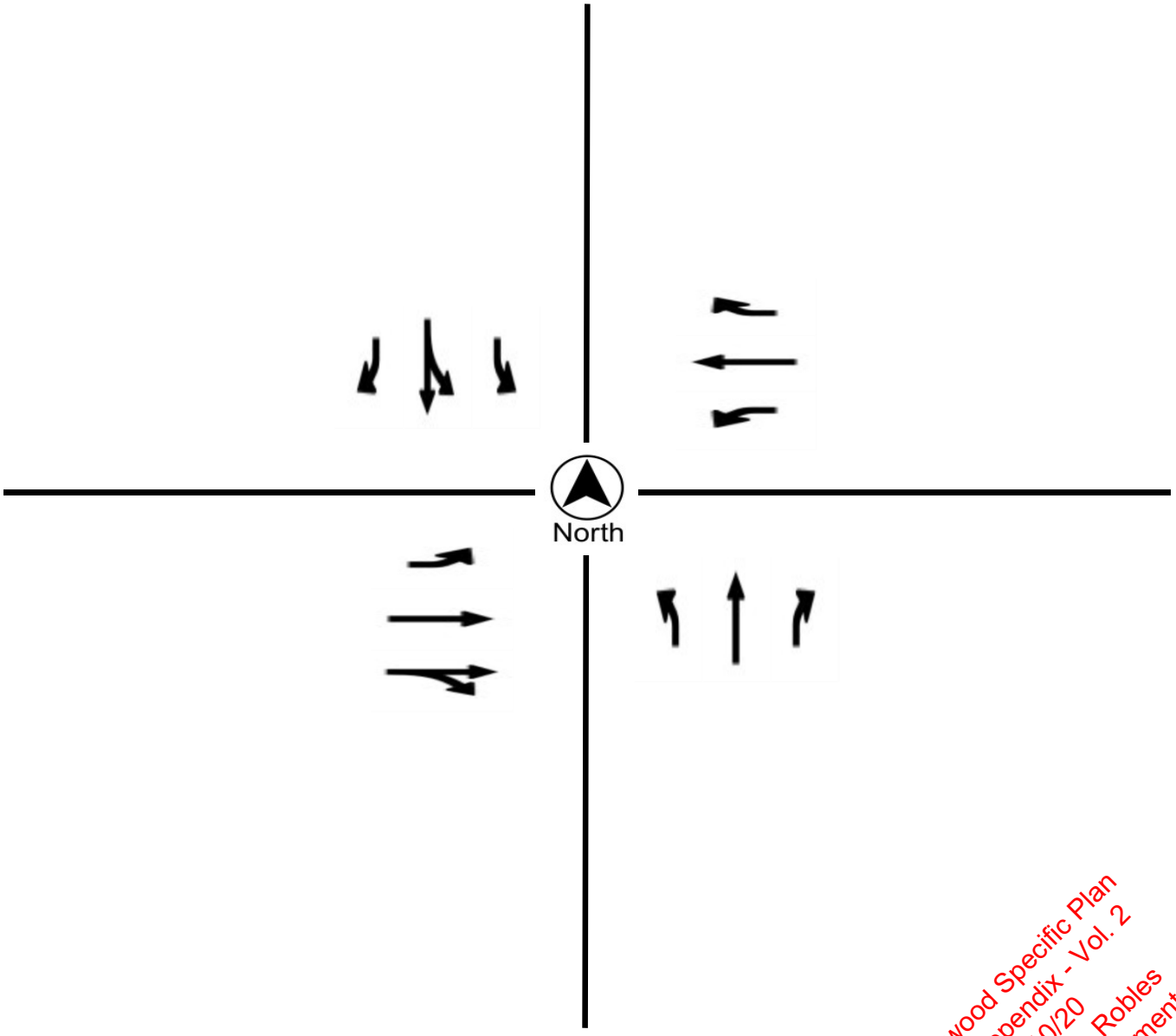
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	13th St @ Riverisde Ave	**N/S STREET**	Riverside Ave / Riverside Ave
COUNTY	San Luis Obispo	**E/W STREET**	13th St / 13th St
COLLECTION DATE	Wednesday, June 6, 2018	**WEATHER**	Clear
CYCLE TIME	104 Seconds	**CONTROL TYPE**	Signal

COMMENTS All approaches have protected left turns.



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

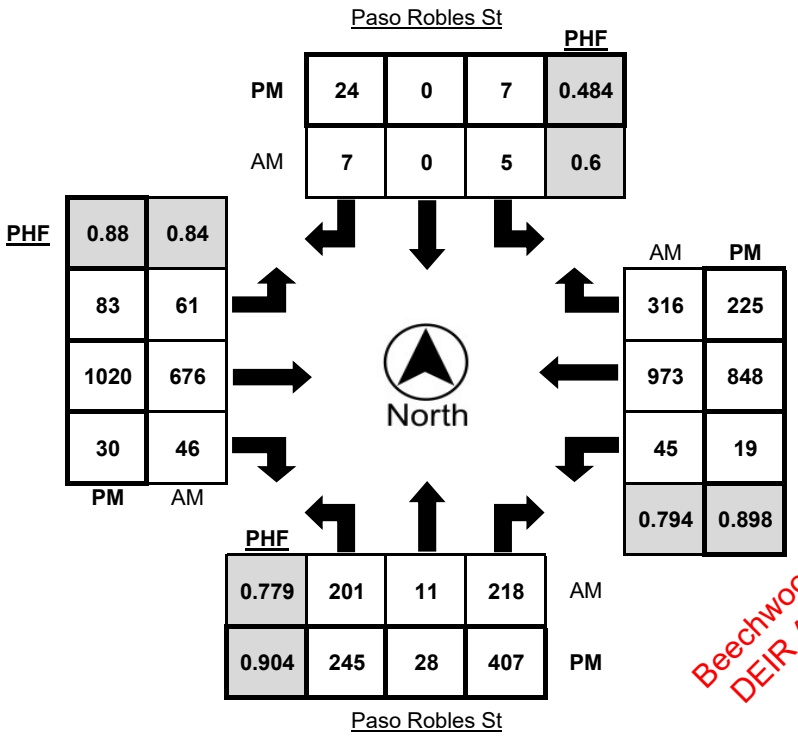
LOCATION 13th St @ Paso Robles St
LATITUDE 35.6281
COUNTY San Luis Obispo
LONGITUDE -120.6857
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	19	0	22	3	1	0	0	0	11	68	7	2	9	141	47	8
7:15 AM - 7:30 AM	29	5	35	1	1	0	1	1	14	125	6	6	6	165	51	2
7:30 AM - 7:45 AM	36	0	47	5	2	0	1	0	15	172	9	6	5	224	89	3
7:45 AM - 8:00 AM	55	4	79	5	2	0	2	1	24	192	17	6	18	291	111	4
8:00 AM - 8:15 AM	58	5	51	2	1	0	4	0	12	134	7	4	9	262	83	4
8:15 AM - 8:30 AM	52	2	41	4	0	0	0	0	10	178	13	5	13	196	33	6
8:30 AM - 8:45 AM	54	2	35	3	1	0	1	1	14	106	9	6	15	160	31	4
8:45 AM - 9:00 AM	70	5	52	5	0	0	4	0	15	105	14	4	11	211	39	6
TOTAL	**373**	**23**	**362**	**28**	**8**	**0**	**13**	**3**	**115**	**1080**	**82**	**39**	**86**	**1650**	**484**	**37**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	50	5	72	2	0	0	3	0	25	224	10	6	14	183	44	2
4:15 PM - 4:30 PM	61	5	98	2	2	0	2	0	23	242	2	1	4	183	51	0
4:30 PM - 4:45 PM	54	9	93	1	5	0	11	0	17	220	11	1	8	197	60	0
4:45 PM - 5:00 PM	52	5	105	2	0	0	3	0	20	261	10	1	4	245	55	1
5:00 PM - 5:15 PM	66	7	101	3	1	0	6	0	26	243	3	3	3	194	53	2
5:15 PM - 5:30 PM	73	7	108	1	1	0	4	0	20	296	6	2	4	212	57	0
5:30 PM - 5:45 PM	58	4	98	1	0	0	4	0	21	219	1	1	3	200	51	2
5:45 PM - 6:00 PM	50	3	77	0	0	0	2	0	8	201	3	3	3	215	40	1
TOTAL	**464**	**45**	**752**	**12**	**9**	**0**	**35**	**0**	**160**	**1906**	**46**	**18**	**43**	**1629**	**411**	**8**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	201	11	218	16	5	0	7	1	61	676	46	21	45	973	316	17
4:30 PM - 5:30 PM	245	28	407	7	7	0	24	0	83	1020	30	7	19	848	225	3

	PHF	Trucks
AM	0.805	2.1%
PM	0.931	0.6%



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

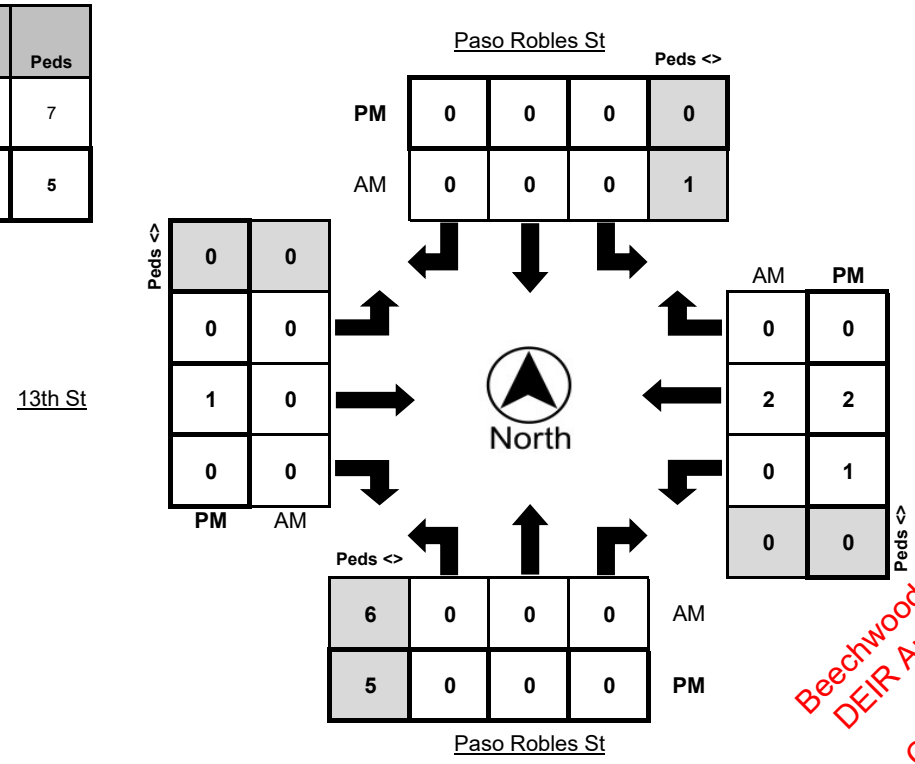
LOCATION 13th St @ Paso Robles St
LATITUDE 35.6281
COUNTY San Luis Obispo
LONGITUDE -120.6857
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
8:45 AM - 9:00 AM	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**7**	**0**	**1**	**0**	**0**	**0**	**3**	**1**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	3	0	1	0	0	0	2	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	1	0	0	0	3	1	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**12**	**1**	**2**	**0**	**0**	**1**	**2**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	1	0	0	0	6	0	0	0	0	0	2	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	5	0	1	0	0	1	2	0	0

	Bikes	Peds
AM Peak Total	2	7
PM Peak Total	4	5



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Turning Movement Report

Prepared For:
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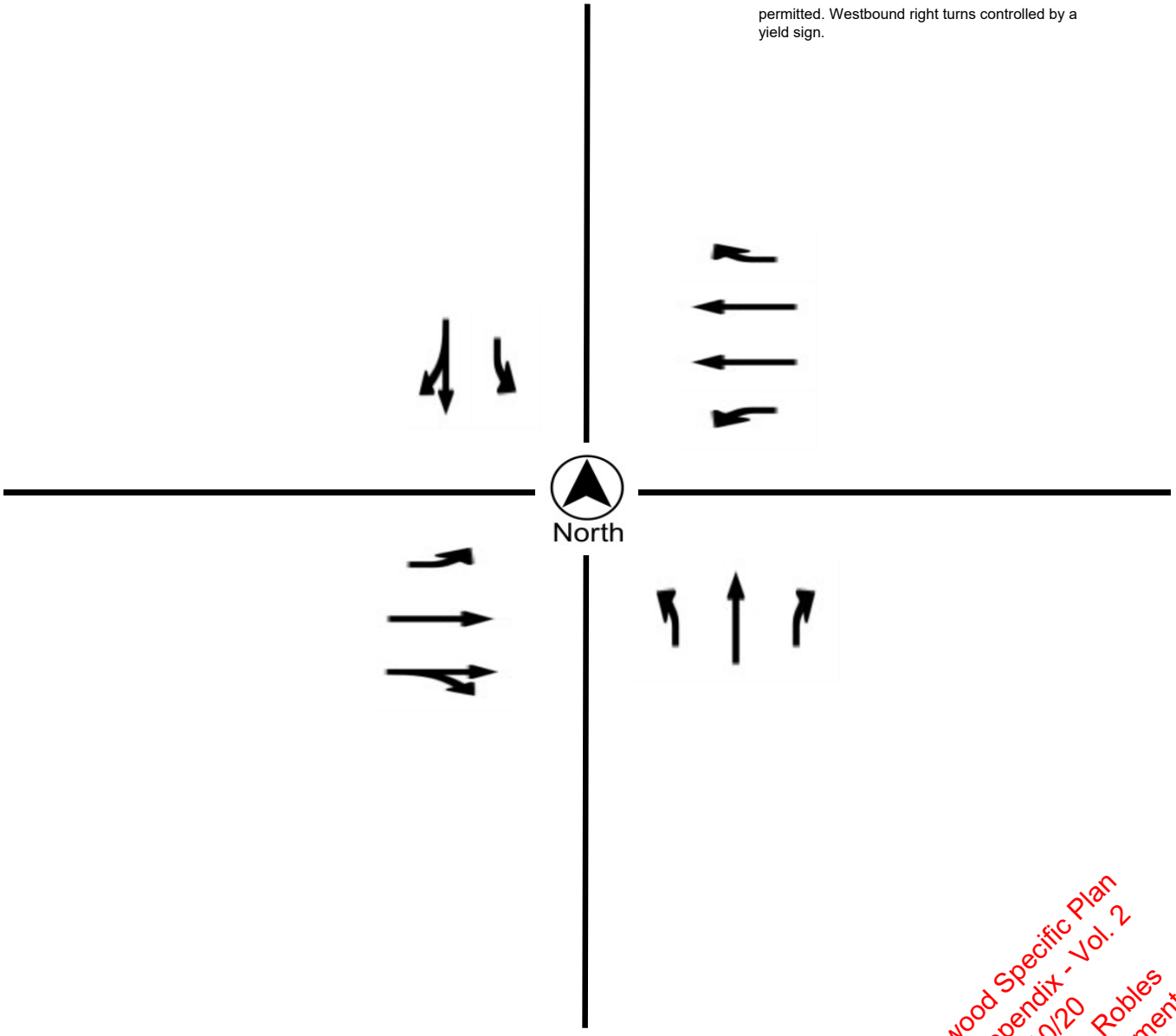
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	13th St @ Paso Robles St	**N/S STREET**	Paso Robles St / Paso Robles St
COUNTY	San Luis Obispo	**E/W STREET**	13th St / 13th St
COLLECTION DATE	Wednesday, June 6, 2018	**WEATHER**	Clear
CYCLE TIME	89 Seconds	**CONTROL TYPE**	Signal

COMMENTS Eastbound and westbound left turns are protected. Northbound and southbound left turns are permitted. Westbound right turns controlled by a yield sign.



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

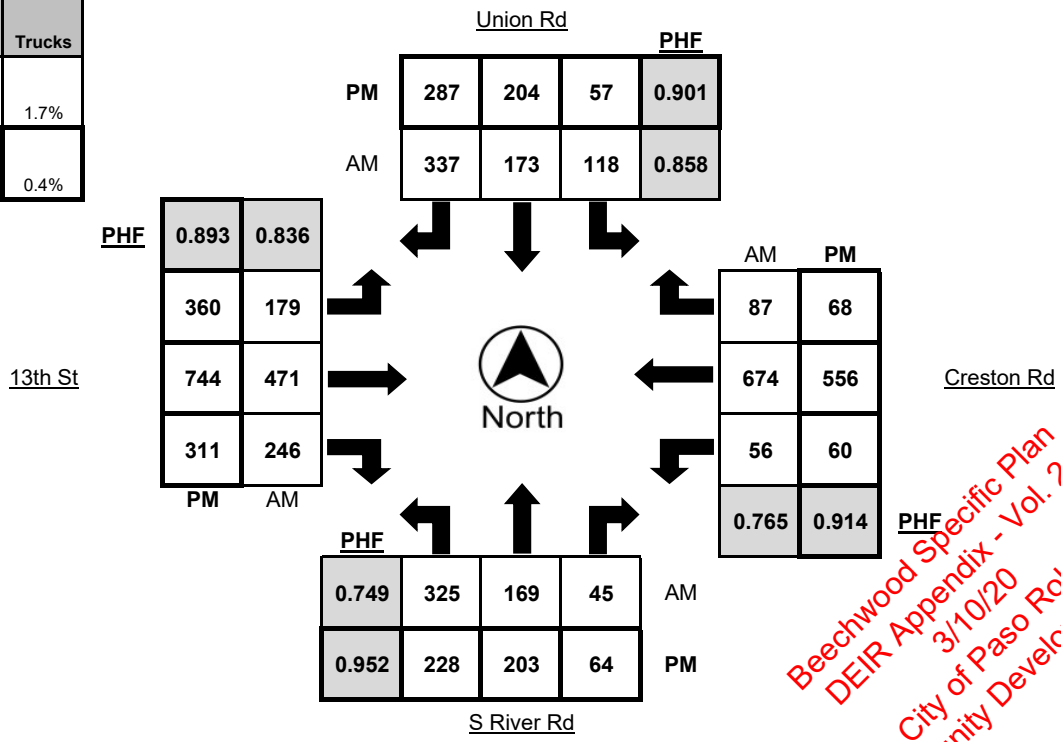
LOCATION Creston Rd @ Union Rd/River Rd
LATITUDE 35.6291
COUNTY San Luis Obispo
LONGITUDE -120.6833
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	38	18	4	1	6	20	62	8	18	46	25	2	8	91	5	1
7:15 AM - 7:30 AM	43	22	5	2	14	38	82	2	32	67	55	6	5	112	6	1
7:30 AM - 7:45 AM	80	42	13	1	27	53	79	2	32	119	71	6	14	165	21	0
7:45 AM - 8:00 AM	105	55	20	3	36	44	103	1	54	140	74	11	11	222	34	1
8:00 AM - 8:15 AM	88	46	6	1	37	49	89	3	38	101	55	4	22	155	19	2
8:15 AM - 8:30 AM	52	26	6	2	18	27	66	4	55	111	46	7	9	132	13	2
8:30 AM - 8:45 AM	39	21	5	2	4	34	58	3	47	71	27	8	13	113	8	2
8:45 AM - 9:00 AM	59	21	8	4	4	30	63	1	44	75	36	5	12	119	6	2
TOTAL	**504**	**251**	**67**	**16**	**146**	**295**	**602**	**24**	**320**	**730**	**389**	**49**	**94**	**1109**	**112**	**11**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	54	54	12	0	11	45	78	1	70	146	72	3	6	108	12	1
4:15 PM - 4:30 PM	54	46	20	1	12	43	71	1	96	196	65	1	21	117	15	0
4:30 PM - 4:45 PM	51	48	18	0	13	46	74	0	81	151	78	2	19	147	21	1
4:45 PM - 5:00 PM	61	47	18	0	12	42	73	1	90	192	76	0	17	149	21	0
5:00 PM - 5:15 PM	57	49	16	0	12	69	55	0	90	190	71	5	6	150	8	2
5:15 PM - 5:30 PM	59	59	12	1	20	47	85	0	99	211	86	2	18	110	18	0
5:30 PM - 5:45 PM	56	52	17	1	8	34	61	0	58	159	80	1	12	135	10	2
5:45 PM - 6:00 PM	48	53	17	2	8	42	77	0	67	146	79	0	15	126	17	0
TOTAL	**440**	**408**	**130**	**5**	**96**	**368**	**574**	**3**	**651**	**1391**	**607**	**14**	**114**	**1042**	**122**	**6**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	325	169	45	7	118	173	337	10	179	471	246	28	56	674	87	5
4:30 PM - 5:30 PM	228	203	64	1	57	204	287	1	360	744	311	9	60	556	68	3

	PHF	Trucks
AM	0.802	1.7%
PM	0.953	0.4%



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

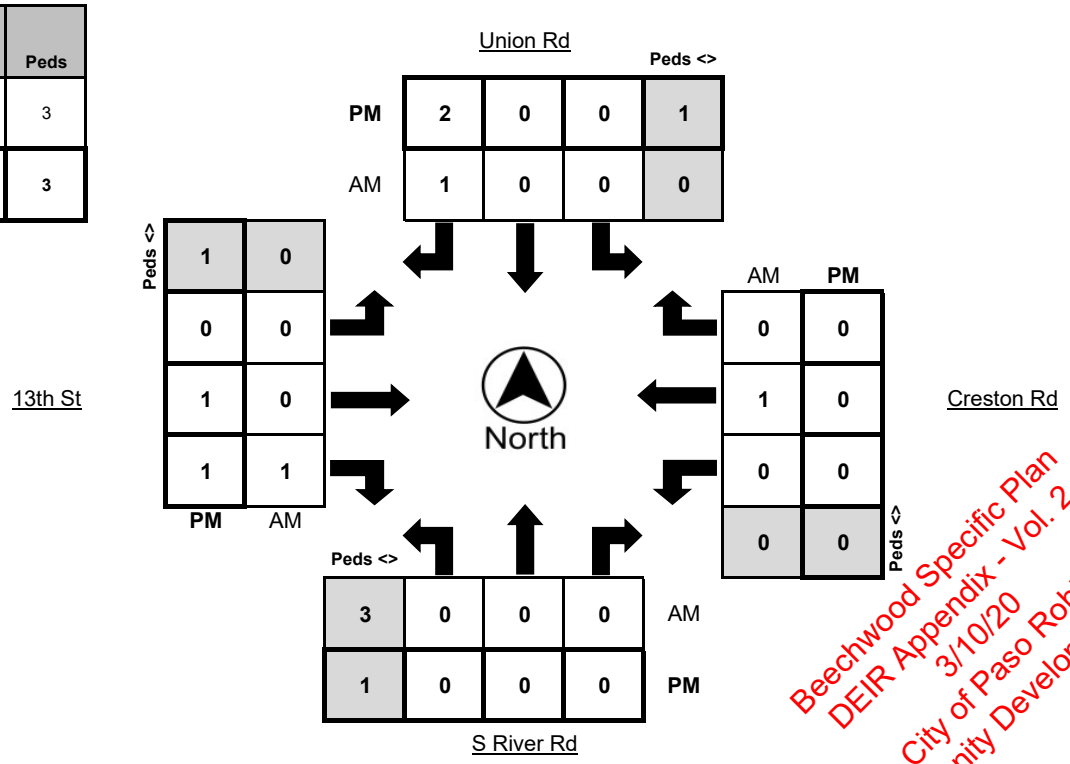
LOCATION Creston Rd @ Union Rd/River Rd
LATITUDE 35.6291
COUNTY San Luis Obispo
LONGITUDE -120.6833
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**4**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	1	0	0	2	0	0	0	1	0	0	0	0	1
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**1**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	0	1	3	0	0	1	0	0	1	0	0
4:30 PM - 5:30 PM	0	0	0	1	0	0	2	1	0	1	1	0	0	0	0	1

	Bikes	Peds
AM Peak Total	3	3
PM Peak Total	4	3



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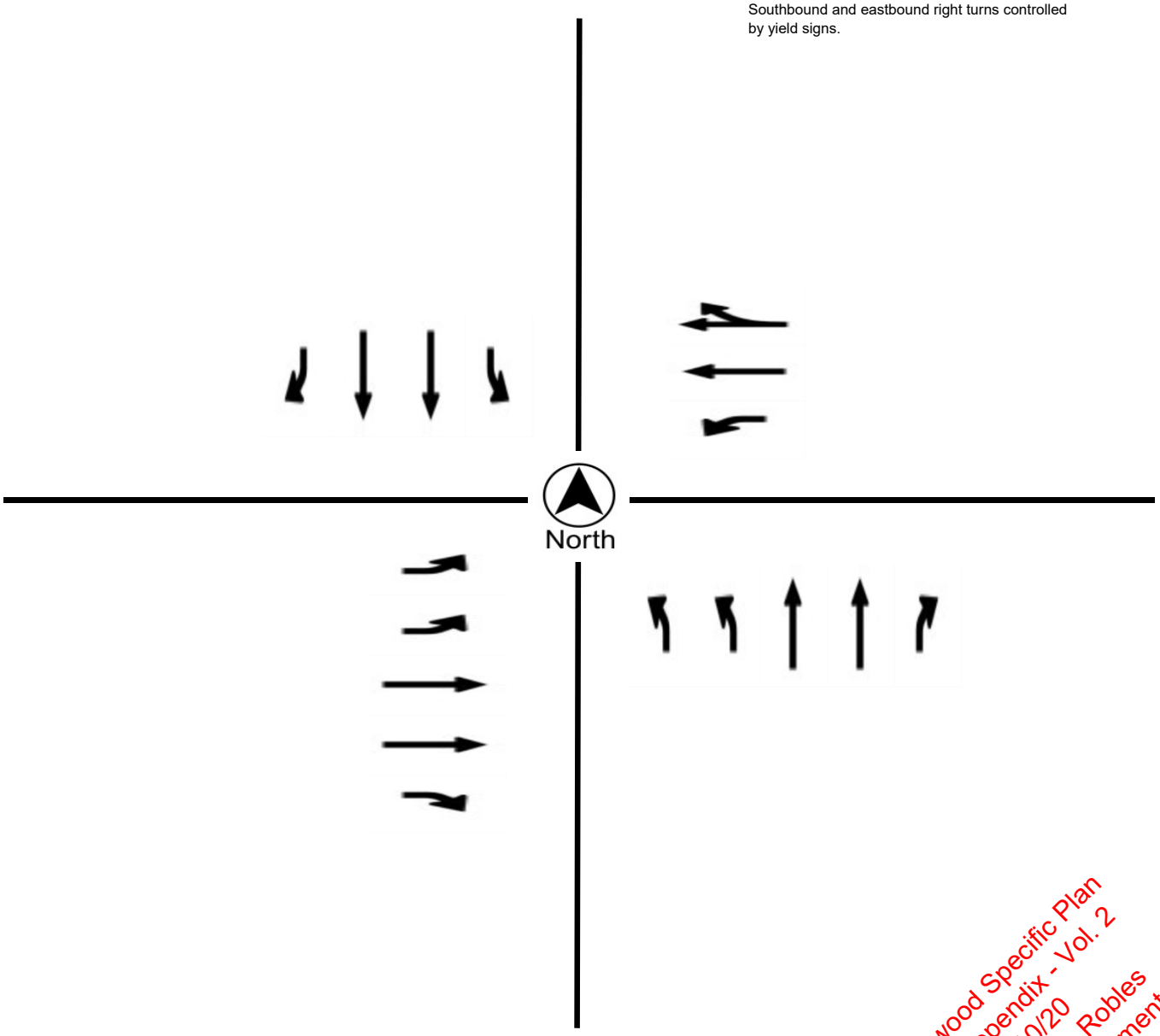
Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Creston Rd @ Union Rd/River Rd	**N/S STREET**	Union Rd / S River Rd
COUNTY	San Luis Obispo	**E/W STREET**	Creston Rd / 13th St
COLLECTION DATE	Wednesday, June 6, 2018	**WEATHER**	Clear
CYCLE TIME	118 Seconds	**CONTROL TYPE**	Signal

COMMENTS All approaches have protected left turns. Southbound and eastbound right turns controlled by yield signs.



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Morro Bay, CA 93442

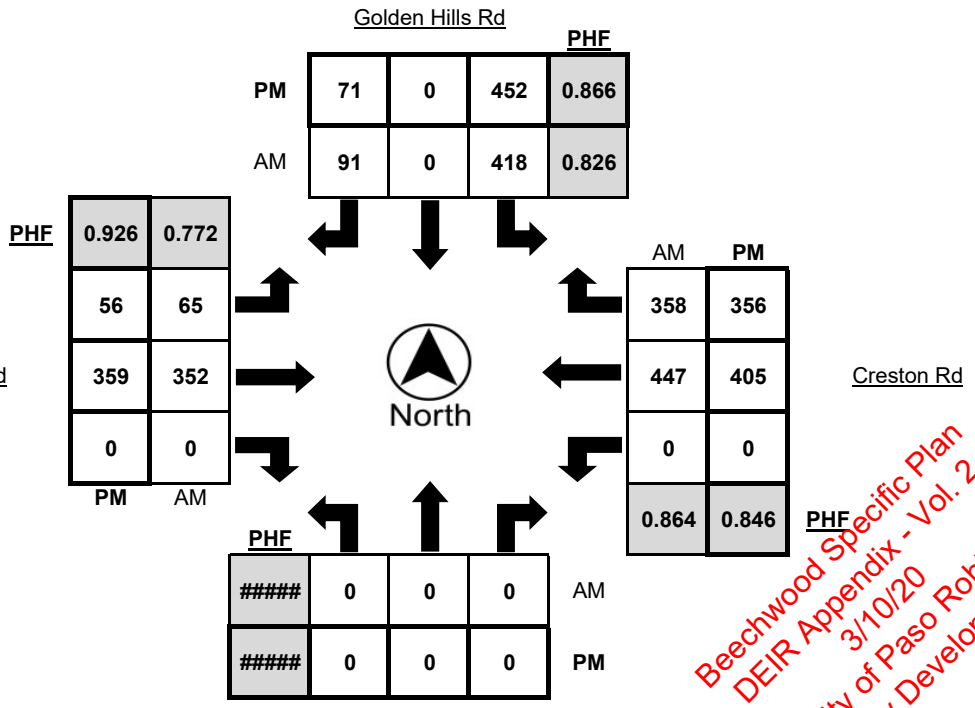
LOCATION Creston Rd @ Golden Hill Rd
LATITUDE 35.6223
COUNTY San Luis Obispo
LONGITUDE -120.6597
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	39	0	8	4	5	43	0	1	0	49	58	3
7:15 AM - 7:30 AM	0	0	0	0	65	0	12	4	9	52	0	4	0	62	53	0
7:30 AM - 7:45 AM	0	0	0	0	111	0	36	4	12	77	0	3	0	112	75	4
7:45 AM - 8:00 AM	0	0	0	0	127	0	27	5	22	89	0	1	0	116	117	4
8:00 AM - 8:15 AM	0	0	0	0	107	0	14	5	21	114	0	1	0	140	89	10
8:15 AM - 8:30 AM	0	0	0	0	73	0	14	3	10	72	0	5	0	79	77	5
8:30 AM - 8:45 AM	0	0	0	0	52	0	7	3	6	44	0	0	0	56	55	1
8:45 AM - 9:00 AM	0	0	0	0	54	0	4	4	7	56	0	1	0	83	57	1
TOTAL	**0**	**0**	**0**	**0**	**628**	**0**	**122**	**32**	**92**	**547**	**0**	**16**	**0**	**697**	**581**	**28**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	87	0	16	0	6	90	0	2	0	104	94	1
4:15 PM - 4:30 PM	0	0	0	0	99	0	12	2	6	85	0	1	0	116	88	0
4:30 PM - 4:45 PM	0	0	0	0	97	0	17	1	12	88	0	1	0	120	105	2
4:45 PM - 5:00 PM	0	0	0	0	132	0	19	1	19	76	0	0	0	89	79	1
5:00 PM - 5:15 PM	0	0	0	0	116	0	14	0	11	101	0	1	0	101	92	1
5:15 PM - 5:30 PM	0	0	0	0	107	0	21	1	14	94	0	1	0	95	80	0
5:30 PM - 5:45 PM	0	0	0	0	117	0	21	1	13	97	0	1	0	96	77	3
5:45 PM - 6:00 PM	0	0	0	0	88	0	18	1	12	79	0	1	0	74	75	0
TOTAL	**0**	**0**	**0**	**0**	**843**	**0**	**138**	**7**	**93**	**710**	**0**	**8**	**0**	**795**	**690**	**8**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	0	0	0	0	418	0	91	17	65	352	0	10	0	447	358	23
4:30 PM - 5:30 PM	0	0	0	0	452	0	71	3	56	359	0	3	0	405	356	4

	PHF	Trucks
AM	0.869	2.9%
PM	0.968	0.6%



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Prepared For:
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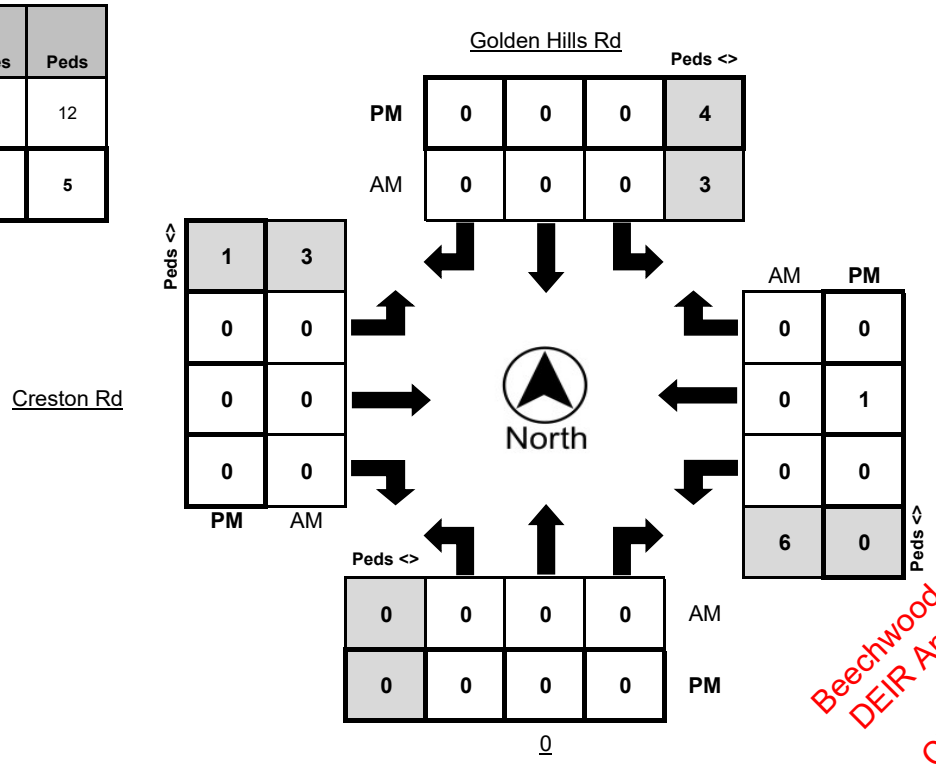
LOCATION Creston Rd @ Golden Hill Rd
LATITUDE 35.6223
COUNTY San Luis Obispo
LONGITUDE -120.6597
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM - 8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**5**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM - 6:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	3	0	0	0	0	0	0	0	6	0	0	0	3
4:30 PM - 5:30 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0	1

	Bikes	Peds
AM Peak Total	0	12
PM Peak Total	**1**	**5**



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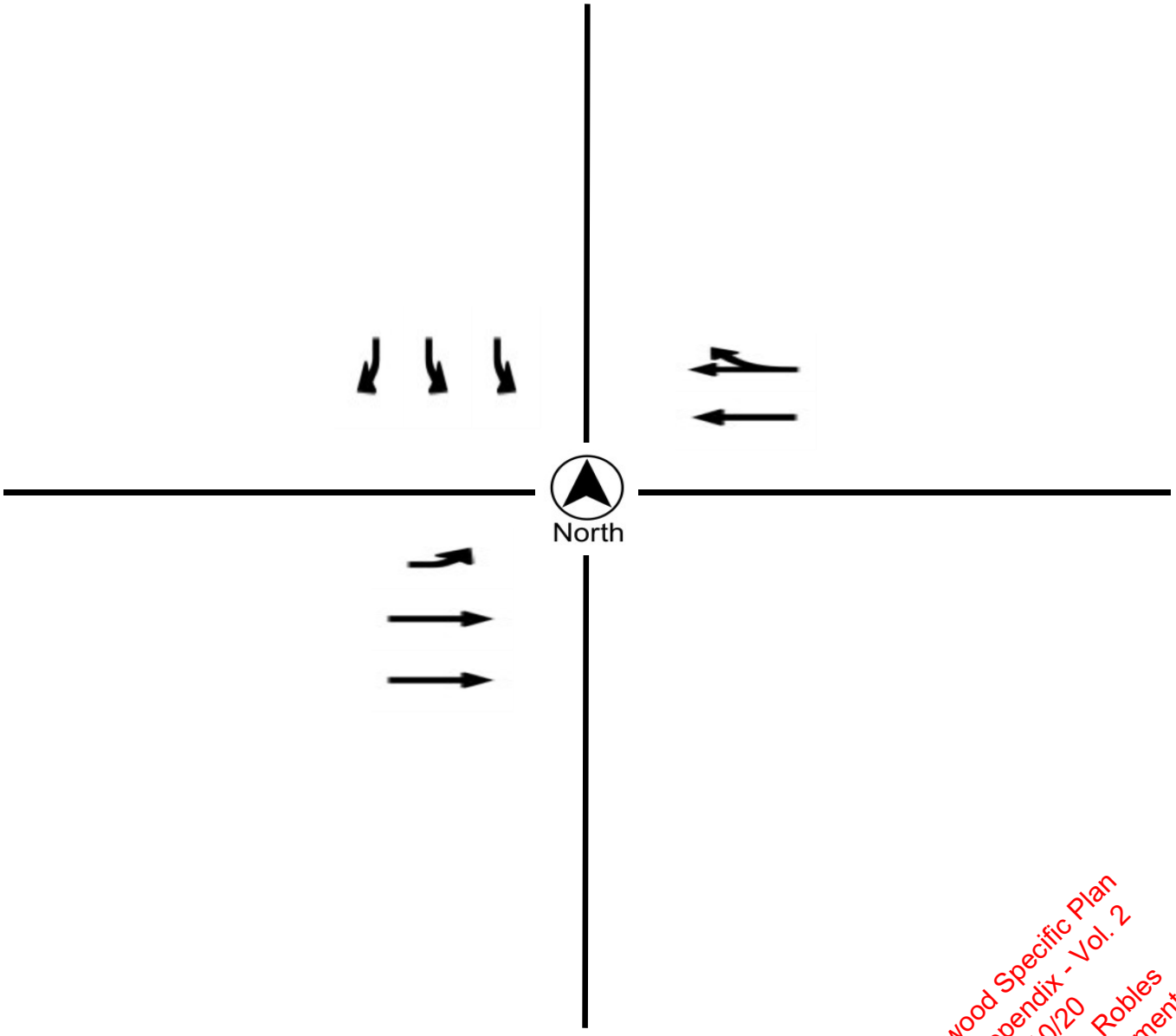
LOCATION	Creston Rd @ Golden Hill Rd	**N/S STREET**	Golden Hills Rd /
COUNTY	San Luis Obispo	**E/W STREET**	Creston Rd / Creston Rd
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	76 Seconds	**CONTROL TYPE**	Signal

COMMENTS Eastbound left turns are protected.



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Community Development Dept.

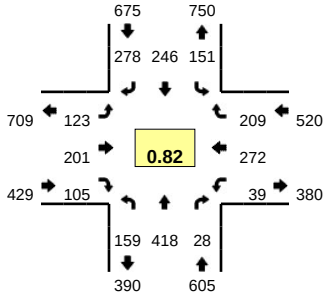
Type of peak hour being reported: Intersection Peak

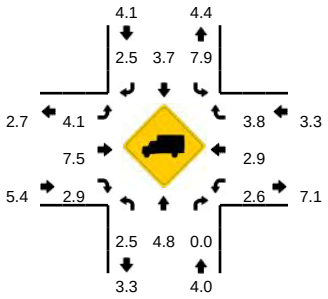
Method for determining peak hour: Total Entering Volume

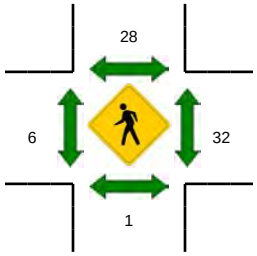
LOCATION: Creston Rd -- Niblick Rd
CITY/STATE: San Luis Obispo, CA

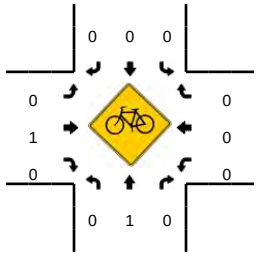
QC JOB #: 13568808
DATE: Tue, Jan 12 2016

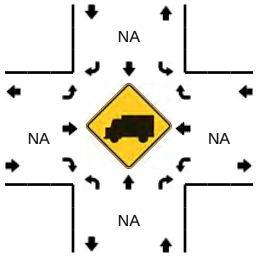
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

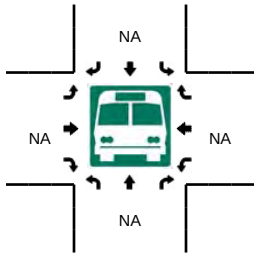












R* = RTOR

5-Min Count Period Beginning At	Creston Rd (Northbound)					Creston Rd (Southbound)					Niblick Rd (Eastbound)					Niblick Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	8	14	0	0	4	13	5	4	0	7	3	20	2	0	2	4	8	3	0	8	105	
7:05 AM	9	21	1	0	2	13	8	3	0	5	7	13	7	0	0	0	15	4	0	6	114	
7:10 AM	6	16	0	0	1	11	8	1	0	6	4	13	1	0	0	4	22	2	0	4	99	
7:15 AM	12	27	0	0	1	4	6	3	0	6	5	6	3	0	0	1	11	10	0	6	101	
7:20 AM	12	18	1	0	1	9	11	6	0	8	3	16	8	0	1	1	21	5	0	3	124	
7:25 AM	18	28	1	0	0	12	13	7	0	10	4	15	3	0	5	5	24	6	0	3	154	
7:30 AM	34	41	1	0	2	4	15	21	0	8	7	9	6	0	1	5	27	17	0	6	204	
7:35 AM	16	45	0	0	0	6	17	34	0	10	10	11	4	0	4	4	31	12	0	8	212	
7:40 AM	16	42	1	0	0	14	13	27	0	15	12	15	8	0	2	1	49	17	0	6	238	
7:45 AM	12	40	0	0	1	12	30	12	0	12	18	26	11	0	4	1	25	14	0	12	230	
7:50 AM	9	35	0	0	2	12	32	9	0	7	16	25	11	0	3	7	19	13	0	11	211	
7:55 AM	9	34	1	0	3	14	29	11	0	9	15	20	7	0	6	3	13	9	0	12	195	1987
8:00 AM	6	40	0	0	1	17	27	11	0	5	15	24	7	0	1	3	14	7	0	6	184	2066
8:05 AM	6	36	4	0	0	17	22	15	0	12	8	14	3	0	1	3	10	8	0	6	165	2117
8:10 AM	14	24	0	0	3	22	20	7	0	9	7	14	2	0	0	2	19	9	0	8	160	2178
8:15 AM	7	35	3	0	3	12	17	6	0	7	8	12	5	0	2	4	20	6	0	5	152	2229
8:20 AM	10	21	1	0	1	16	14	4	0	6	10	13	5	0	0	3	6	5	0	5	120	2225
8:25 AM	11	13	1	0	1	12	14	3	0	13	5	6	6	0	1	2	12	2	0	4	106	2177
8:30 AM	6	16	0	0	2	7	9	3	0	5	2	10	2	0	0	5	13	7	0	9	96	2069
8:35 AM	11	13	1	0	0	4	9	4	0	6	5	12	3	0	3	3	13	6	0	2	95	1952
8:40 AM	11	19	2	0	1	4	13	2	0	6	4	12	1	0	2	0	12	3	0	7	99	1813
8:45 AM	8	19	1	0	1	6	6	6	0	11	2	13	7	0	3	1	16	7	0	4	111	1694
8:50 AM	18	13	0	0	0	7	9	2	0	5	7	4	4	0	0	4	19	4	0	10	106	1589
8:55 AM	6	18	3	0	1	8	11	3	0	5	9	13	5	0	1	1	13	7	0	3	107	1501

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	176	508	4	0	4	128	240	292	0	148	160	208	92	0	40	24	420	172	0	104	2720
Heavy Trucks	8	12	0			4	4	20			8	8	4			0	4	4			76
Pedestrians		0					56					8					72				136
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Railroad																					
Stopped Buses																					

Comments:

Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

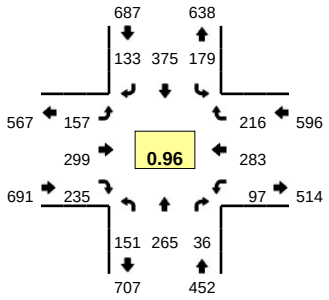
Type of peak hour being reported: Intersection Peak

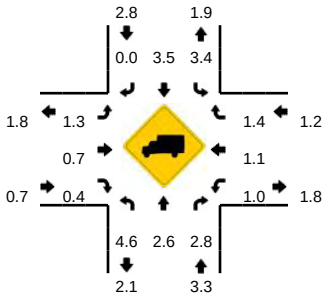
Method for determining peak hour: Total Entering Volume

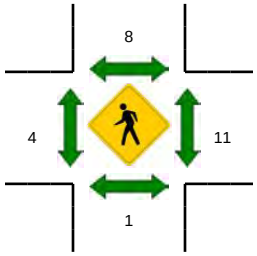
LOCATION: Creston Rd -- Niblick Rd
CITY/STATE: San Luis Obispo, CA

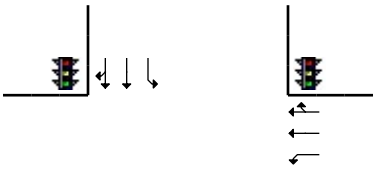
QC JOB #: 13568822
DATE: Tue, Jan 12 2016

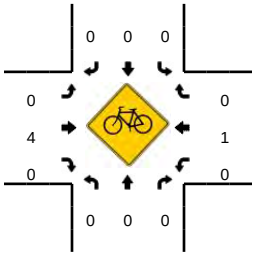
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

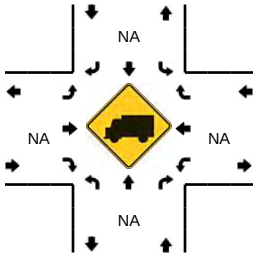


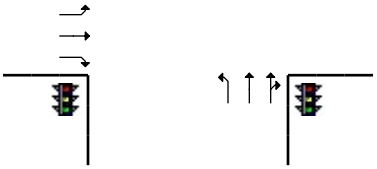


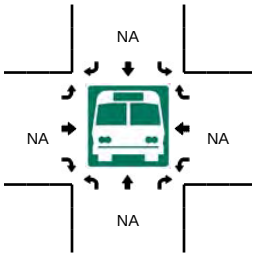












R* = RTOR

5-Min Count Period Beginning At	Creston Rd (Northbound)					Creston Rd (Southbound)					Niblick Rd (Eastbound)					Niblick Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	12	17	0	0	1	16	27	4	0	7	14	20	18	0	7	4	21	5	0	3	176	
4:05 PM	7	15	1	0	2	7	14	5	0	11	13	30	16	0	3	5	30	13	0	1	173	
4:10 PM	15	21	4	0	2	24	37	7	0	2	16	16	11	0	6	6	12	5	0	7	191	
4:15 PM	10	17	4	0	2	11	26	8	0	9	16	21	19	0	1	5	20	11	0	7	187	
4:20 PM	12	24	2	0	1	14	20	4	0	5	11	31	10	0	4	6	17	10	0	8	179	
4:25 PM	13	11	0	0	3	20	25	10	0	4	16	26	6	0	4	6	26	14	0	8	192	
4:30 PM	11	26	0	0	1	13	19	4	0	4	16	25	13	0	4	6	24	15	0	6	187	
4:35 PM	10	22	1	0	2	20	34	2	0	5	8	22	11	0	6	7	28	17	0	5	200	
4:40 PM	12	34	4	0	4	10	22	9	0	7	12	29	18	0	4	9	29	21	0	3	227	
4:45 PM	11	26	2	0	0	11	36	7	0	4	14	26	11	0	17	5	12	10	0	3	195	
4:50 PM	13	23	2	0	2	15	30	3	0	10	18	32	4	0	8	12	21	11	0	4	208	
4:55 PM	23	21	2	0	2	15	36	5	0	6	8	30	12	0	11	6	16	3	0	7	203	2318
5:00 PM	6	9	1	0	0	10	30	2	0	10	9	27	12	0	4	11	30	13	0	2	176	2318
5:05 PM	18	29	0	0	2	11	30	4	0	7	19	20	14	0	4	4	23	18	0	6	209	2354
5:10 PM	11	23	0	0	4	23	26	1	0	12	12	20	9	0	2	8	31	18	0	1	201	2364
5:15 PM	9	19	2	0	1	18	47	7	0	4	8	21	19	0	11	8	24	14	0	9	221	2398
5:20 PM	13	18	0	0	1	19	35	6	0	3	13	18	13	0	6	6	17	6	0	6	180	2399
5:25 PM	14	15	2	0	1	14	30	4	0	7	20	29	15	0	7	15	28	9	0	9	219	2426
5:30 PM	9	27	1	0	2	13	16	6	0	5	16	23	12	0	4	7	17	7	0	2	167	2406
5:35 PM	16	21	0	0	3	17	28	6	0	3	14	23	10	0	7	9	25	8	0	3	193	2399
5:40 PM	11	21	0	0	2	14	30	2	0	9	14	20	8	0	2	4	19	6	0	2	164	2336
5:45 PM	12	21	3	0	2	10	28	13	0	4	13	20	13	0	4	3	12	7	0	3	168	2309
5:50 PM	13	16	0	0	6	9	17	0	0	7	16	19	10	0	6	8	15	6	0	6	154	2255
5:55 PM	10	20	2	0	3	13	27	3	0	1	10	19	6	0	10	5	19	4	0	3	156	2208

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	152	284	8	0	28	208	412	48	0	92	156	244	168	0	68	80	312	200	0	64	2524
Heavy Trucks	0	4	0			4	12	0			4	0	4			0	4	4			36
Pedestrians		0					20					4					16				40
Bicycles	0	0	0			0	0	0			0	4	0			0	1	0			8
Railroad																					
Stopped Buses																					

Comments:

Beechwood Specific Plan
DEIR Appendix - Vol. 2
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Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

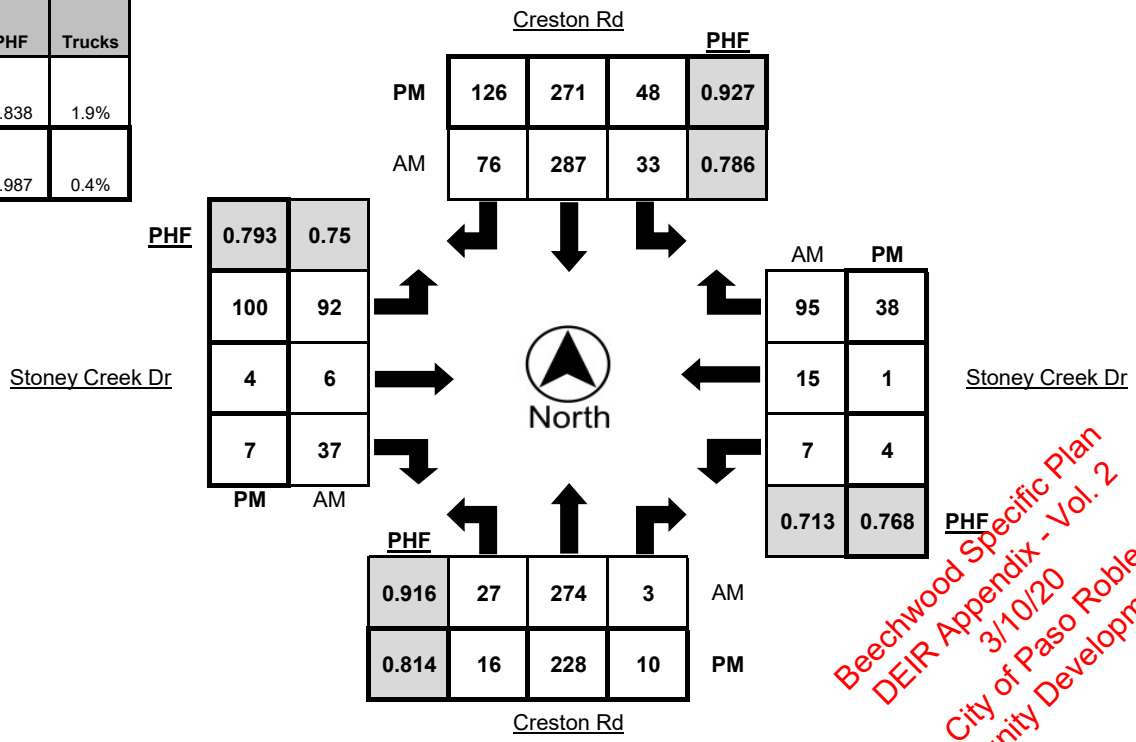
LOCATION Creston Rd @ Stoney Creek Rd
LATITUDE 35.6052
COUNTY San Luis Obispo
LONGITUDE -120.6590
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	36	1	1	1	37	8	1	16	0	0	0	0	1	11	0
7:15 AM - 7:30 AM	2	53	0	0	6	37	11	1	14	1	2	1	1	4	11	0
7:30 AM - 7:45 AM	5	65	1	0	4	57	24	0	29	0	7	2	1	6	17	0
7:45 AM - 8:00 AM	6	71	1	0	9	89	22	5	26	0	19	1	4	6	28	0
8:00 AM - 8:15 AM	11	71	1	4	13	91	22	1	19	5	10	0	0	3	38	1
8:15 AM - 8:30 AM	5	67	0	2	7	50	8	2	18	1	1	0	2	0	12	0
8:30 AM - 8:45 AM	1	37	0	0	2	35	8	1	15	0	2	1	1	1	8	0
8:45 AM - 9:00 AM	1	36	0	0	6	39	7	2	16	1	0	0	0	1	9	0
TOTAL	**31**	**436**	**4**	**7**	**48**	**435**	**110**	**13**	**153**	**8**	**41**	**5**	**9**	**22**	**134**	**1**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	5	67	3	1	10	60	28	0	19	2	2	0	0	1	8	0
4:15 PM - 4:30 PM	6	79	1	0	8	45	34	1	27	2	3	1	0	0	3	0
4:30 PM - 4:45 PM	4	72	2	0	10	56	37	0	24	1	0	0	2	0	8	0
4:45 PM - 5:00 PM	4	50	0	0	9	77	34	0	20	0	1	0	0	1	12	0
5:00 PM - 5:15 PM	1	60	2	0	14	73	28	1	28	1	1	0	0	0	6	0
5:15 PM - 5:30 PM	7	46	6	0	15	65	27	1	28	2	5	1	2	0	12	0
5:30 PM - 5:45 PM	9	50	5	1	9	57	29	4	21	1	5	0	1	1	15	0
5:45 PM - 6:00 PM	0	49	2	0	10	55	37	0	32	2	0	0	1	0	12	0
TOTAL	**36**	**473**	**21**	**2**	**85**	**488**	**254**	**7**	**199**	**11**	**17**	**2**	**6**	**3**	**76**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	27	274	3	6	33	287	76	8	92	6	37	3	7	15	95	1
4:30 PM - 5:30 PM	16	228	10	0	48	271	126	2	100	4	7	1	4	1	38	0

	PHF	Trucks
AM	0.838	1.9%
PM	0.987	0.4%



Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

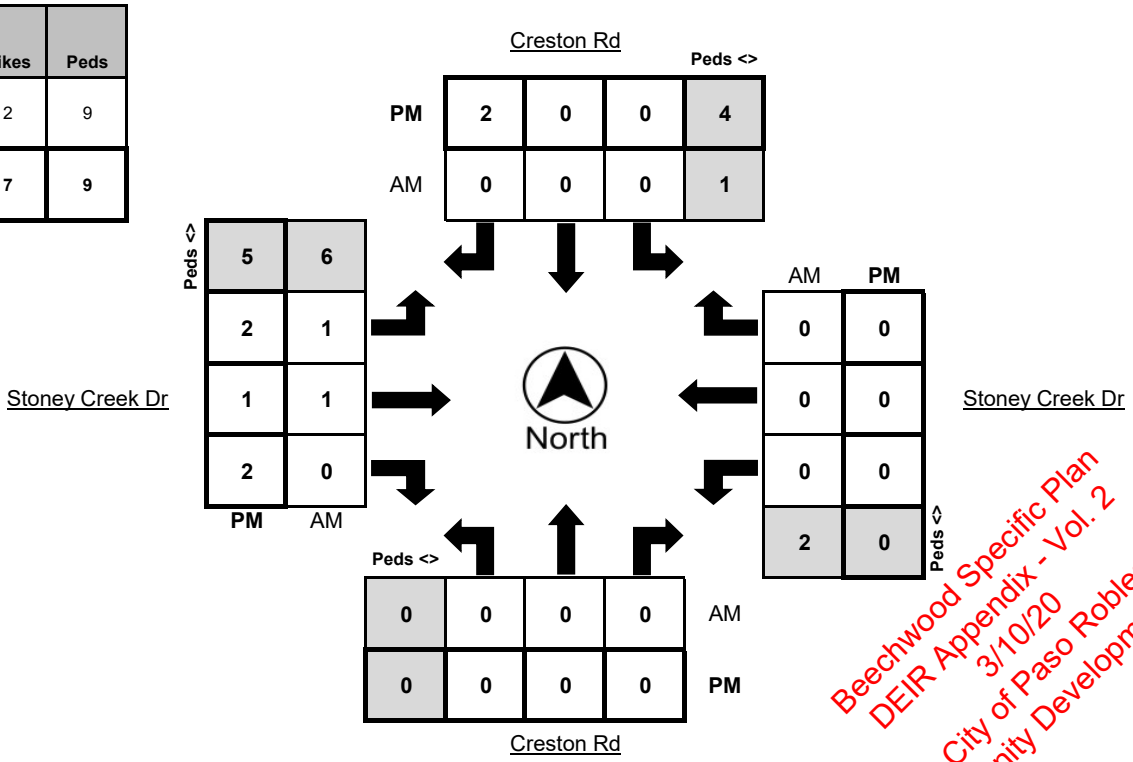
LOCATION Creston Rd @ Stoney Creek Rd
LATITUDE 35.6052
COUNTY San Luis Obispo
LONGITUDE -120.6590
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1
7:15 AM - 7:30 AM	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	3
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM - 8:30 AM	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**4**	**1**	**0**	**3**	**0**	**0**	**0**	**12**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
4:30 PM - 4:45 PM	0	0	0	1	0	0	1	0	1	1	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3
5:00 PM - 5:15 PM	0	0	0	2	0	0	1	0	0	0	2	0	0	0	0	2
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	4	0	0	0	3	1	0	0	3	0	0	0	3
5:45 PM - 6:00 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	1
TOTAL	**1**	**0**	**0**	**9**	**0**	**1**	**3**	**3**	**3**	**1**	**2**	**3**	**0**	**1**	**0**	**10**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	1	0	0	0	0	1	1	0	2	0	0	0	6
4:30 PM - 5:30 PM	0	0	0	4	0	0	2	0	2	1	2	0	0	0	0	5

	Bikes	Peds
AM Peak Total	2	9
PM Peak Total	7	9



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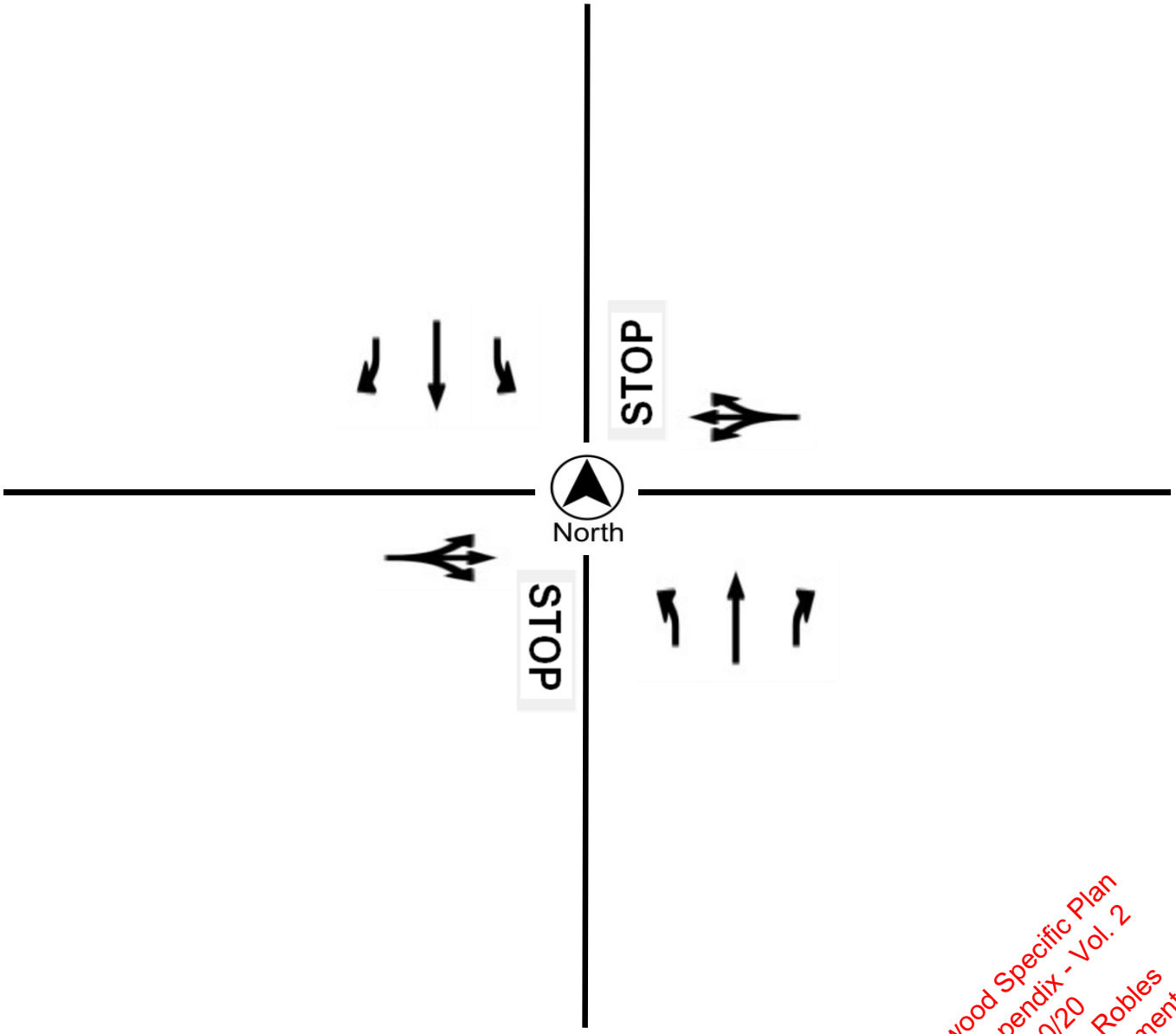
Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Creston Rd @ Stoney Creek Rd	**N/S STREET**	Creston Rd / Creston Rd
COUNTY	San Luis Obispo	**E/W STREET**	Stoney Creek Dr / Stoney Creek Dr
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	Two-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

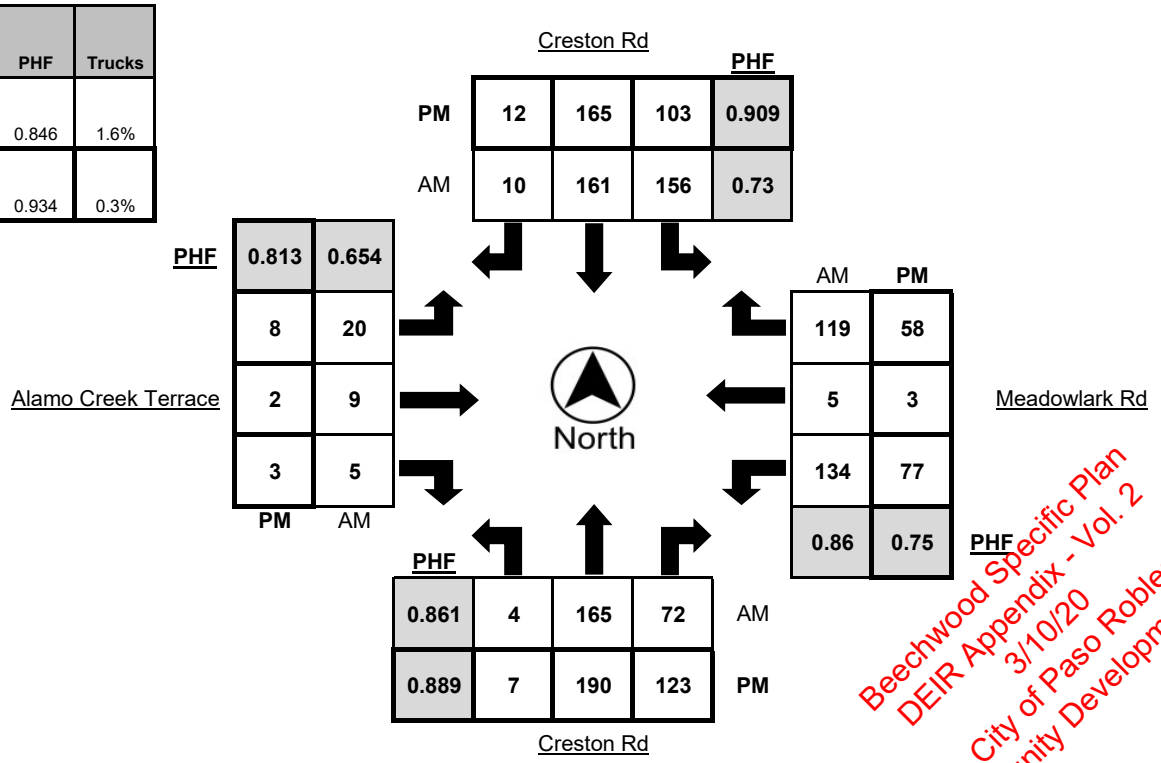
LOCATION Creston Rd @ Meadowlark Rd
LATITUDE 35.6013
COUNTY San Luis Obispo
LONGITUDE -120.6590
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	1	31	3	1	7	31	1	1	0	0	4	0	20	0	10	0
7:15 AM - 7:30 AM	2	34	4	0	16	21	1	0	2	0	0	0	31	1	18	0
7:30 AM - 7:45 AM	0	42	14	0	29	32	1	1	7	0	3	0	44	1	30	0
7:45 AM - 8:00 AM	1	45	21	0	63	48	1	4	8	4	1	0	40	0	22	0
8:00 AM - 8:15 AM	1	44	25	5	53	42	7	1	3	4	1	0	28	2	37	0
8:15 AM - 8:30 AM	2	34	12	1	11	39	1	1	2	1	0	0	22	2	30	1
8:30 AM - 8:45 AM	0	25	12	0	11	25	2	1	0	0	2	0	16	1	10	0
8:45 AM - 9:00 AM	0	31	5	0	13	26	0	2	3	0	0	0	23	0	9	1
TOTAL	**7**	**286**	**96**	**7**	**203**	**264**	**14**	**11**	**25**	**9**	**11**	**0**	**224**	**7**	**166**	**2**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	2	52	29	1	15	41	4	0	3	1	1	0	12	0	23	0
4:15 PM - 4:30 PM	1	56	23	0	17	32	0	0	1	0	0	0	14	0	24	0
4:30 PM - 4:45 PM	0	62	28	0	21	33	3	0	0	1	1	0	16	0	16	0
4:45 PM - 5:00 PM	3	42	31	0	27	48	2	0	3	1	0	0	19	2	9	0
5:00 PM - 5:15 PM	3	44	30	0	23	48	3	1	3	0	1	0	27	0	19	0
5:15 PM - 5:30 PM	1	42	34	1	32	36	4	0	2	0	1	0	15	1	14	0
5:30 PM - 5:45 PM	0	33	28	1	24	34	5	1	2	0	0	0	10	0	24	0
5:45 PM - 6:00 PM	1	34	20	0	17	34	4	0	3	2	1	0	10	0	13	0
TOTAL	**11**	**365**	**223**	**3**	**176**	**306**	**25**	**2**	**17**	**5**	**5**	**0**	**123**	**3**	**142**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	4	165	72	6	156	161	10	7	20	9	5	0	134	5	119	1
4:30 PM - 5:30 PM	7	190	123	1	103	165	12	1	8	2	3	0	77	3	58	0

	PHF	Trucks
AM	0.846	1.6%
PM	0.934	0.3%



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Community Development Dept.

Metro Traffic Data Inc.
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www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

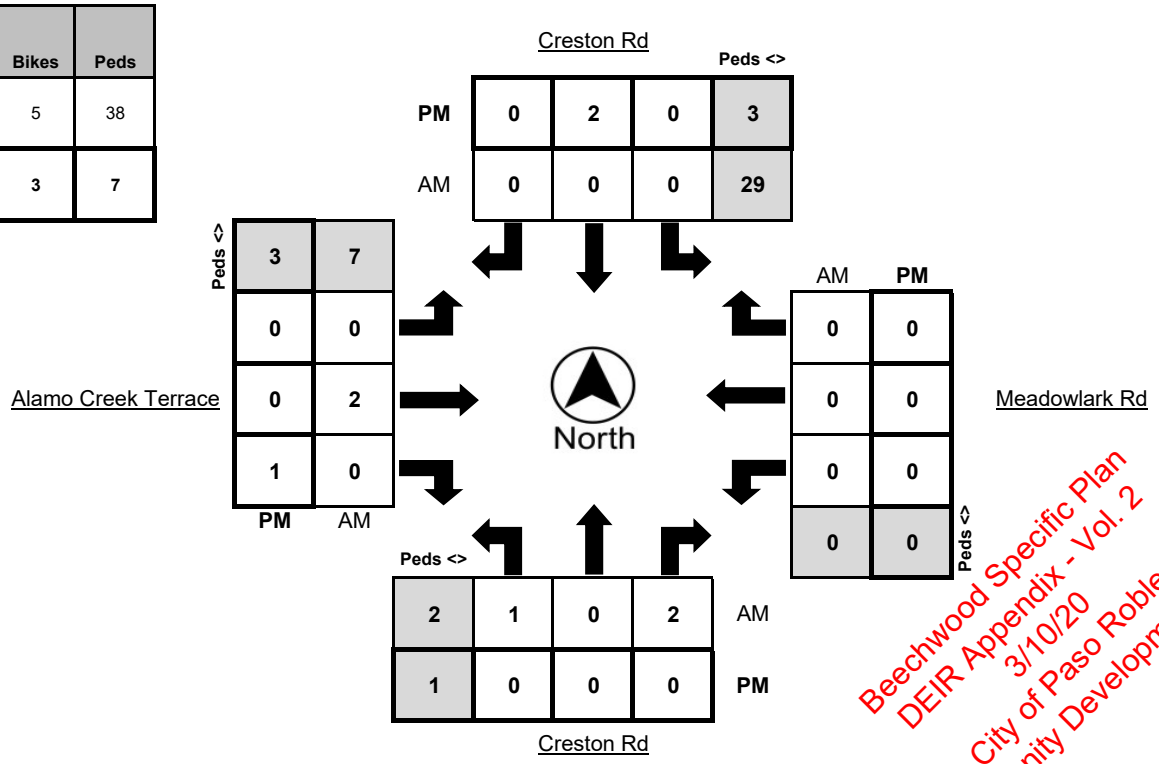
LOCATION Creston Rd @ Meadowlark Rd
LATITUDE 35.6013
COUNTY San Luis Obispo
LONGITUDE -120.6590
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	4	0	0	0	0	0	0	0	0	2	0	0	5
7:30 AM - 7:45 AM	0	0	2	5	0	0	0	2	0	0	0	0	0	0	0	1
7:45 AM - 8:00 AM	0	0	0	19	0	0	0	0	0	2	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
8:15 AM - 8:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM - 8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
TOTAL	**1**	**0**	**2**	**34**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**15**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	4	0	0	0	0	0	0	0	2	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	3
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM - 6:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	**0**	**0**	**0**	**8**	**0**	**2**	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**6**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	1	0	2	29	0	0	0	2	0	2	0	0	0	0	0	7
4:30 PM - 5:30 PM	0	0	0	3	0	2	0	1	0	0	1	0	0	0	0	3

	Bikes	Peds
AM Peak Total	5	38
PM Peak Total	3	7



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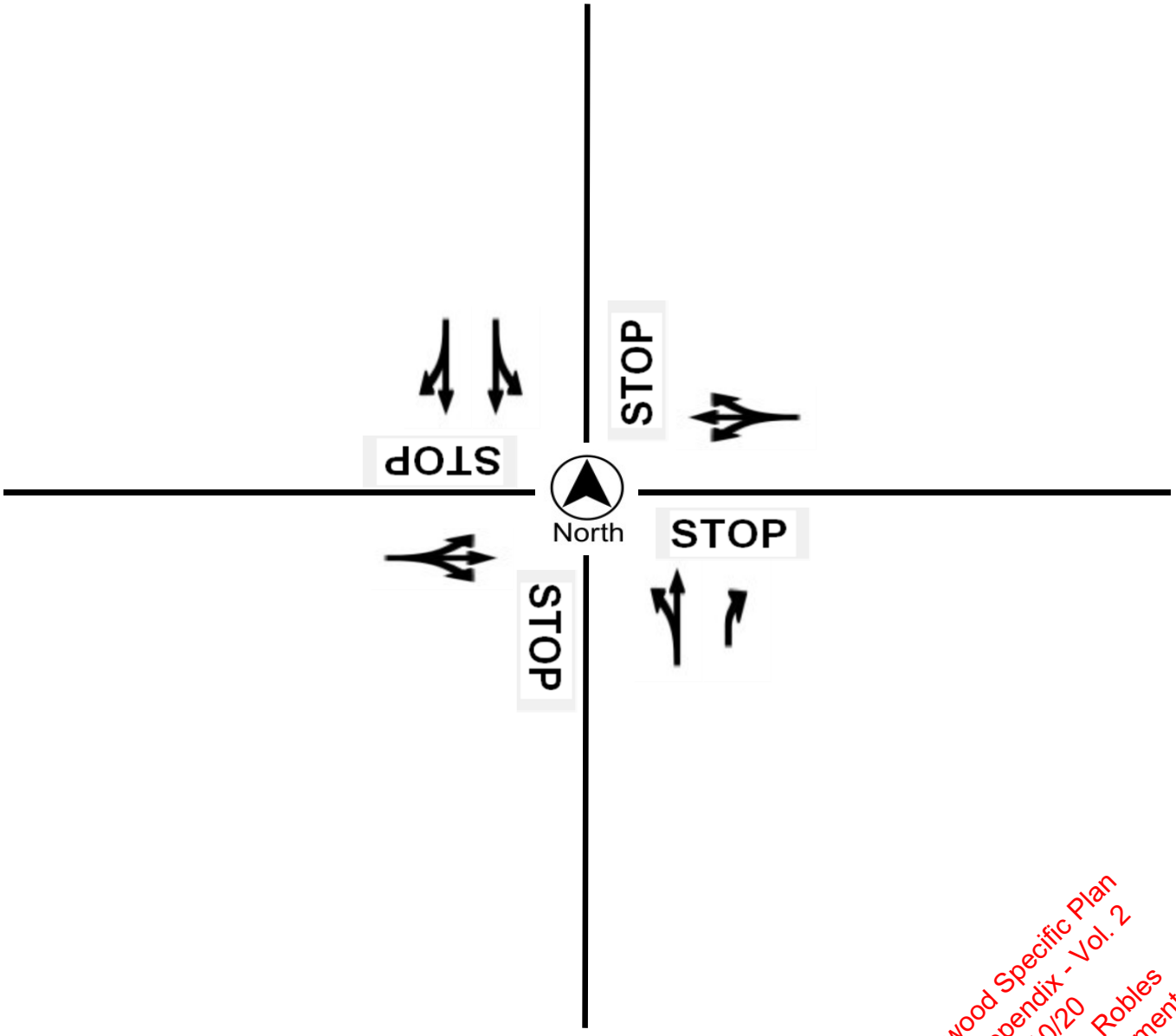
Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Creston Rd @ Meadowlark Rd	**N/S STREET**	Creston Rd / Creston Rd
COUNTY	San Luis Obispo	**E/W STREET**	Meadowlark Rd / Alamo Creek Terrace
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	All-Way Stop

COMMENTS



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Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

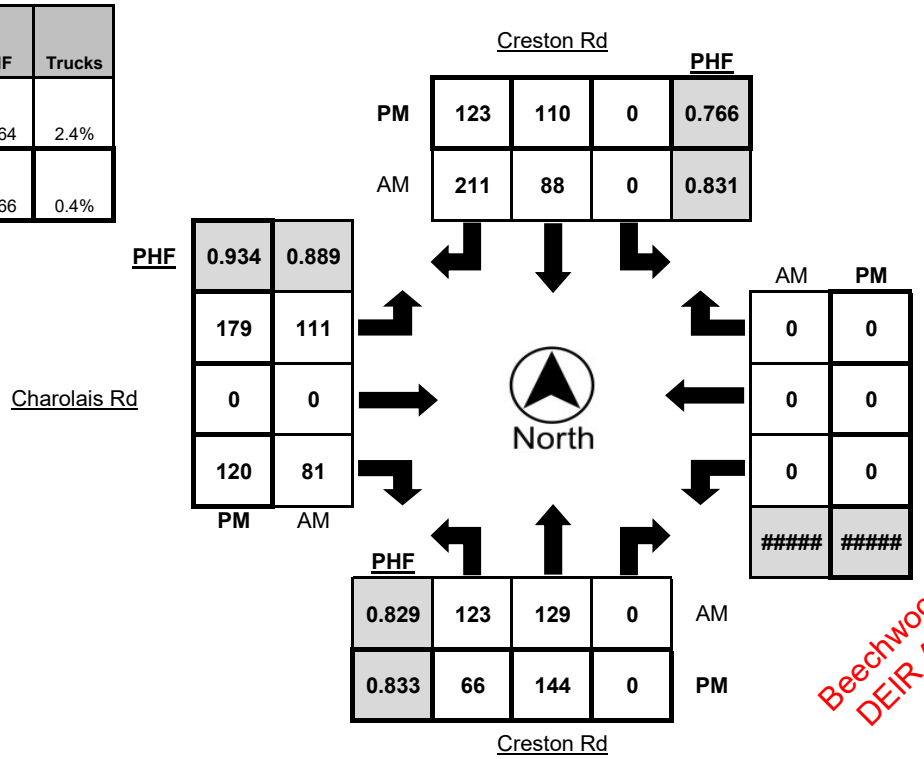
LOCATION Creston Rd @ Charolais Rd
LATITUDE 35.5991
COUNTY San Luis Obispo
LONGITUDE -120.6590
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	12	24	0	2	0	23	31	1	11	0	8	1	0	0	0	0
7:15 AM - 7:30 AM	24	32	0	0	0	13	39	0	9	0	6	0	0	0	0	0
7:30 AM - 7:45 AM	28	29	0	1	0	12	66	1	31	0	17	2	0	0	0	0
7:45 AM - 8:00 AM	39	37	0	0	0	27	63	4	26	0	23	0	0	0	0	0
8:00 AM - 8:15 AM	36	38	0	4	0	25	42	0	31	0	23	2	0	0	0	0
8:15 AM - 8:30 AM	20	25	0	2	0	24	40	2	23	0	18	0	0	0	0	0
8:30 AM - 8:45 AM	23	21	0	0	0	18	25	1	18	0	11	0	0	0	0	0
8:45 AM - 9:00 AM	21	21	0	0	0	16	30	1	14	0	6	0	0	0	0	0
TOTAL	**203**	**227**	**0**	**9**	**0**	**158**	**336**	**10**	**163**	**0**	**112**	**5**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	20	38	0	1	0	28	30	1	45	0	26	0	0	0	0	0
4:15 PM - 4:30 PM	20	43	0	0	0	23	21	0	36	0	35	0	0	0	0	0
4:30 PM - 4:45 PM	15	47	0	1	0	20	29	0	45	0	26	0	0	0	0	0
4:45 PM - 5:00 PM	19	27	0	0	0	30	34	0	47	0	33	0	0	0	0	0
5:00 PM - 5:15 PM	12	27	0	0	0	37	39	2	51	0	26	0	0	0	0	0
5:15 PM - 5:30 PM	15	28	0	0	0	30	24	0	48	0	30	0	0	0	0	0
5:30 PM - 5:45 PM	21	20	0	0	0	29	17	1	48	0	34	0	0	0	0	0
5:45 PM - 6:00 PM	18	19	0	0	0	24	19	0	34	0	29	0	0	0	0	0
TOTAL	**140**	**249**	**0**	**2**	**0**	**221**	**213**	**4**	**354**	**0**	**239**	**0**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	123	129	0	7	0	88	211	7	111	0	81	4	0	0	0	0
4:15 PM - 5:15 PM	66	144	0	1	0	110	123	2	179	0	120	0	0	0	0	0

	PHF	Trucks
AM	0.864	2.4%
PM	0.966	0.4%



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Turning Movement Report

Prepared For:
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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

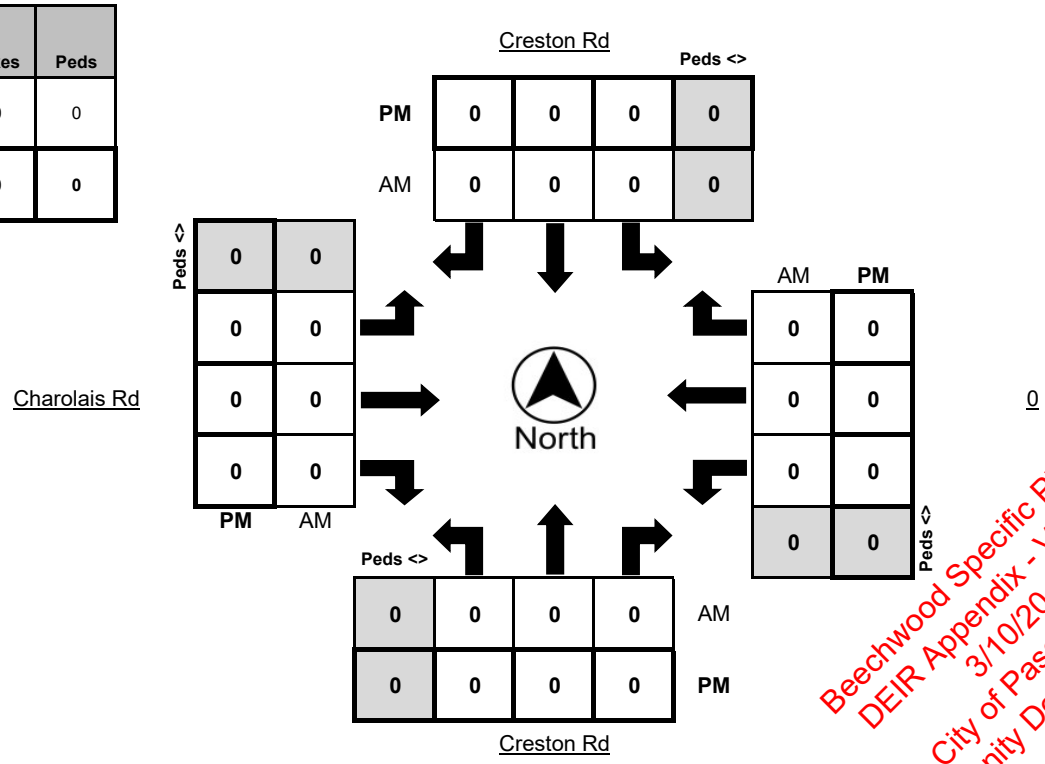
LOCATION Creston Rd @ Charolais Rd
LATITUDE 35.5991
COUNTY San Luis Obispo
LONGITUDE -120.6590
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	0	0



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Turning Movement Report

Prepared For:
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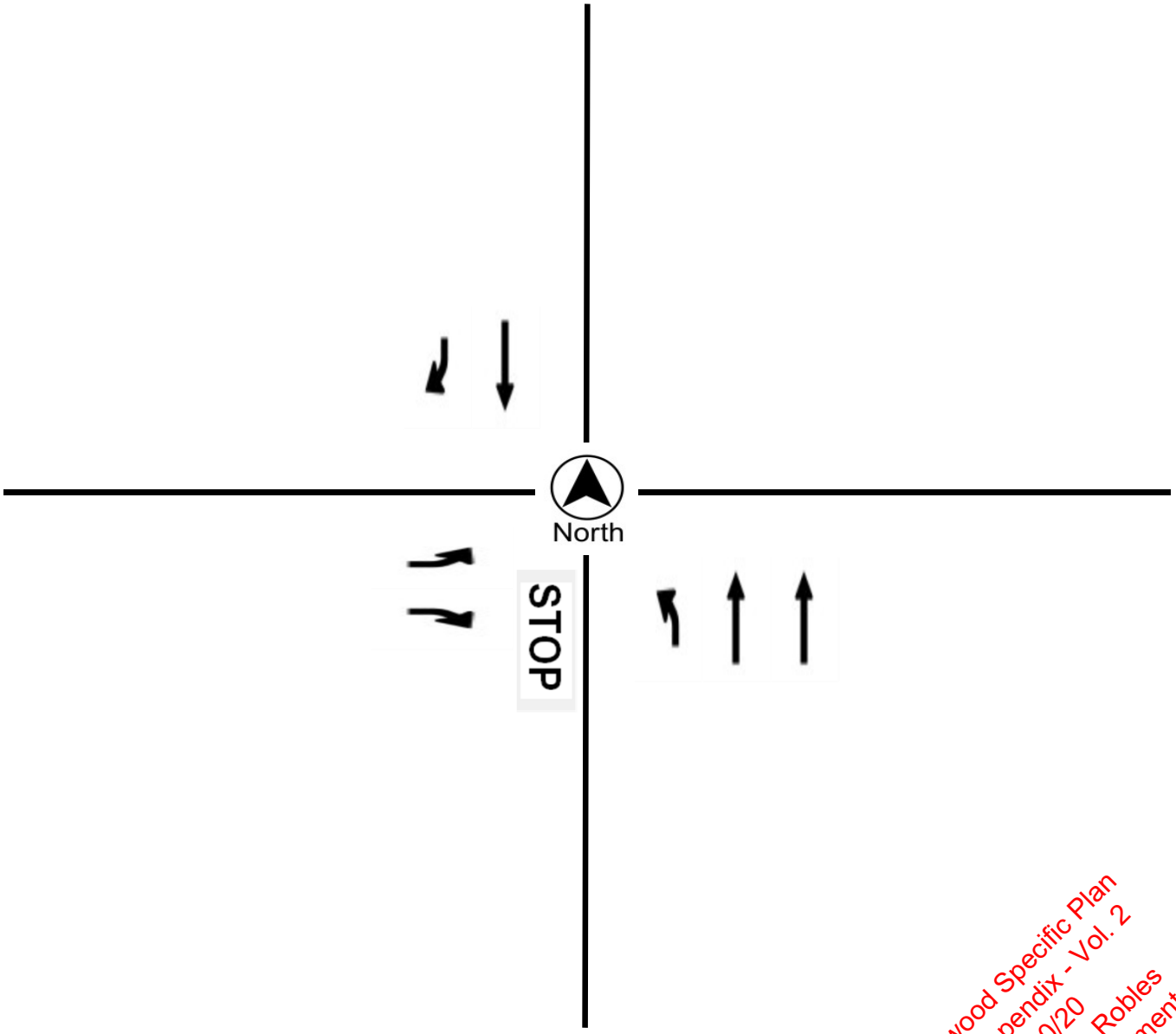
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Creston Rd @ Charolais Rd	**N/S STREET**	Creston Rd / Creston Rd
COUNTY	San Luis Obispo	**E/W STREET**	/ Charolais Rd
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



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Prepared For:
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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

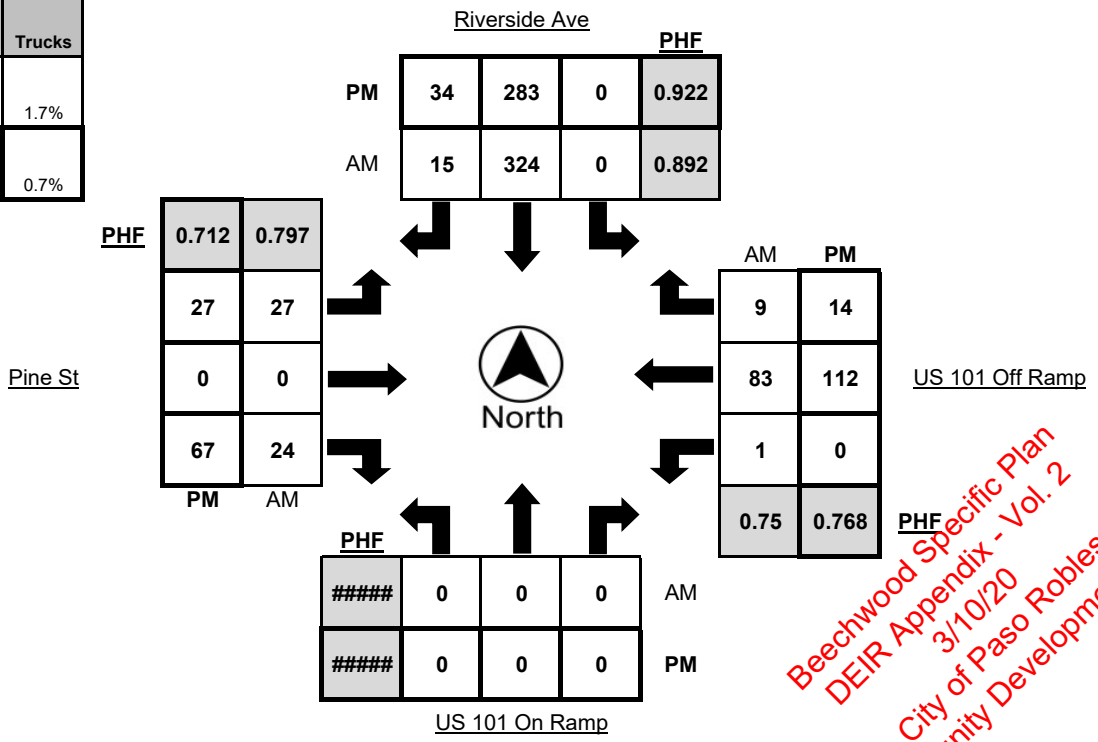
LOCATION Riverside Ave @ Pine St/101 SB Ramps
LATITUDE 35.6177
COUNTY San Luis Obispo
LONGITUDE -120.6876
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	0	51	2	0	3	0	5	0	0	9	3	1
7:15 AM - 7:30 AM	0	0	0	0	0	77	5	3	4	0	8	0	0	16	2	1
7:30 AM - 7:45 AM	0	0	0	0	0	93	2	1	5	0	3	0	0	19	1	0
7:45 AM - 8:00 AM	0	0	0	0	0	71	5	0	7	0	8	0	1	21	2	1
8:00 AM - 8:15 AM	0	0	0	0	0	83	3	2	11	0	5	0	0	27	4	0
8:15 AM - 8:30 AM	0	0	0	0	0	68	2	4	4	0	11	0	0	20	2	0
8:30 AM - 8:45 AM	0	0	0	0	0	59	2	5	7	0	13	0	0	15	5	4
8:45 AM - 9:00 AM	0	0	0	0	0	57	3	2	2	0	6	0	0	21	11	1
TOTAL	**0**	**0**	**0**	**0**	**0**	**559**	**24**	**17**	**43**	**0**	**59**	**0**	**1**	**148**	**30**	**8**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	0	56	4	1	5	0	17	0	0	13	2	0
4:15 PM - 4:30 PM	0	0	0	0	0	74	9	1	7	0	9	0	0	30	3	0
4:30 PM - 4:45 PM	0	0	0	0	0	66	10	1	8	0	16	0	0	23	3	0
4:45 PM - 5:00 PM	0	0	0	0	0	63	9	0	5	0	16	0	0	25	1	0
5:00 PM - 5:15 PM	0	0	0	0	0	80	6	1	7	0	26	0	0	34	7	1
5:15 PM - 5:30 PM	0	0	0	0	0	64	10	0	4	0	19	0	0	18	5	0
5:30 PM - 5:45 PM	0	0	0	0	0	60	10	0	7	0	11	0	0	10	5	0
5:45 PM - 6:00 PM	0	0	0	0	0	59	7	0	0	0	11	0	0	25	4	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**522**	**65**	**4**	**43**	**0**	**125**	**0**	**0**	**178**	**30**	**1**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	0	0	0	0	0	324	15	6	27	0	24	0	1	83	9	2
4:15 PM - 5:15 PM	0	0	0	0	0	283	34	3	27	0	67	0	0	112	14	1

	PHF	Trucks
AM	0.908	1.7%
PM	0.839	0.7%



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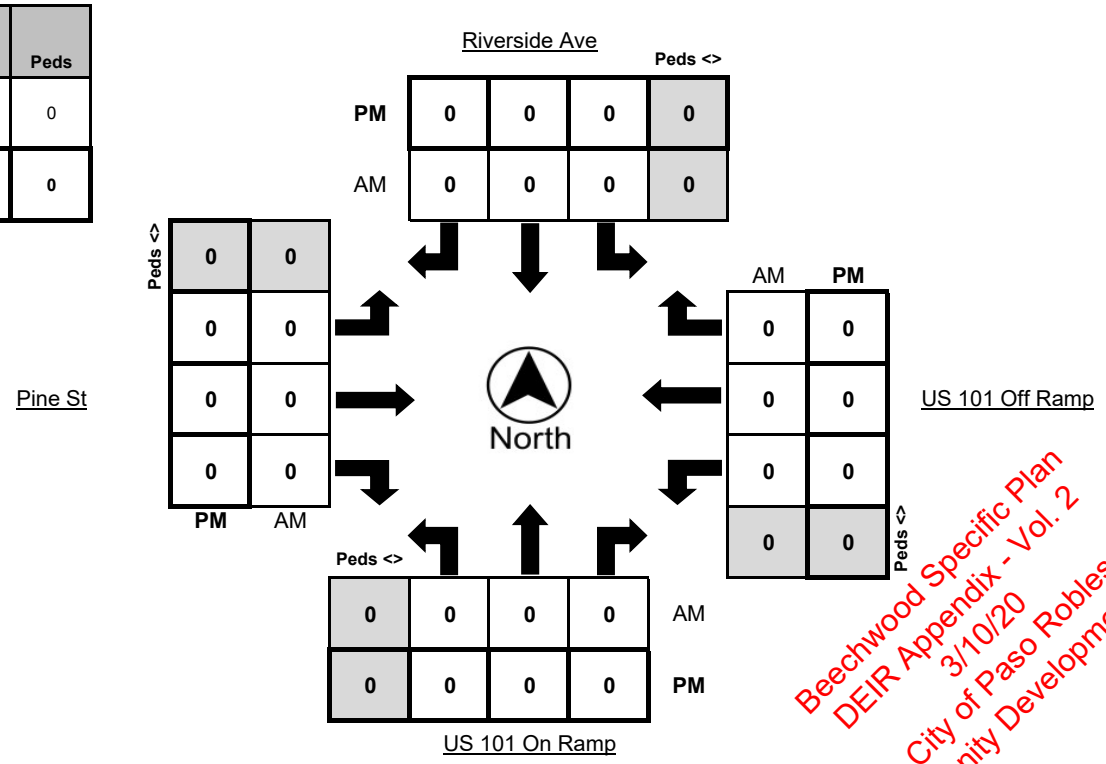
LOCATION Riverside Ave @ Pine St/101 SB Ramps
LATITUDE 35.6177
COUNTY San Luis Obispo
LONGITUDE -120.6876
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	0	0



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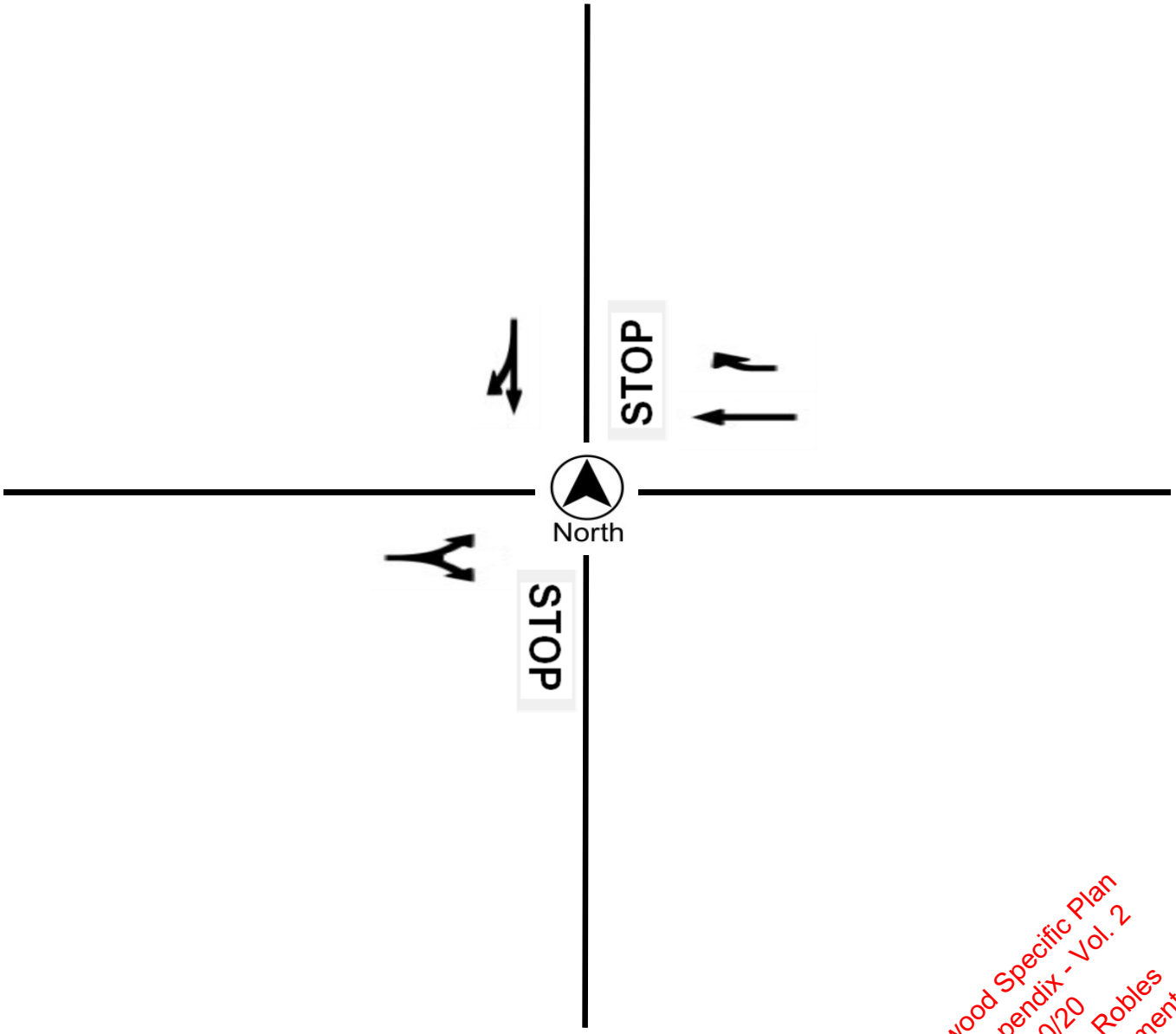
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Riverside Ave @ Pine St/101 SB Ramps	**N/S STREET**	Riverside Ave / US 101 On Ramp
COUNTY	San Luis Obispo	**E/W STREET**	US 101 Off Ramp / Pine St
COLLECTION DATE	Wednesday, June 6, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	Two-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:
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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

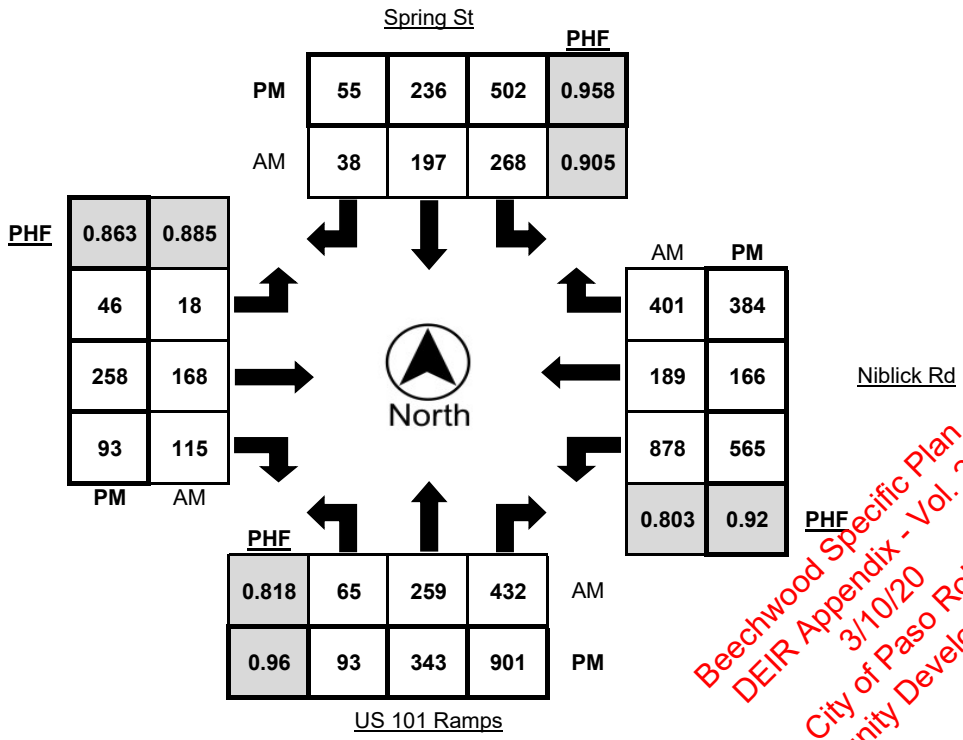
LOCATION 1st St / Niblick Rd @ Spring St
LATITUDE 35.6153
COUNTY San Luis Obispo
LONGITUDE -120.6905
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	8	41	58	8	24	29	8	1	4	9	13	0	190	7	30	1
7:15 AM - 7:30 AM	12	41	83	3	42	43	7	4	4	24	19	3	223	20	50	3
7:30 AM - 7:45 AM	11	40	103	3	75	43	9	3	10	37	34	2	260	38	71	3
7:45 AM - 8:00 AM	24	81	126	5	73	54	12	2	1	48	25	0	255	65	137	11
8:00 AM - 8:15 AM	13	80	103	2	58	48	8	0	3	51	31	1	197	49	121	4
8:15 AM - 8:30 AM	17	58	100	4	62	52	9	2	4	32	25	1	166	37	72	2
8:30 AM - 8:45 AM	9	70	94	1	64	41	7	3	5	32	29	2	167	26	73	5
8:45 AM - 9:00 AM	18	91	90	4	64	44	8	3	5	32	20	0	121	33	63	2
TOTAL	**112**	**502**	**757**	**30**	**462**	**354**	**68**	**18**	**36**	**265**	**196**	**9**	**1579**	**275**	**617**	**31**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	28	99	212	3	109	56	16	3	7	48	22	1	131	33	94	3
4:15 PM - 4:30 PM	13	85	220	3	97	69	11	4	12	51	18	1	127	38	106	1
4:30 PM - 4:45 PM	28	82	201	4	127	69	11	1	12	45	18	1	146	55	102	6
4:45 PM - 5:00 PM	22	93	223	2	116	51	19	0	17	76	22	0	148	27	118	3
5:00 PM - 5:15 PM	18	87	235	3	128	55	15	0	7	79	29	0	108	37	79	1
5:15 PM - 5:30 PM	25	81	242	1	131	61	10	2	10	58	24	1	163	47	85	0
5:30 PM - 5:45 PM	19	76	241	1	79	56	17	1	12	59	16	0	146	53	96	3
5:45 PM - 6:00 PM	15	68	199	1	80	37	7	1	9	37	15	1	129	40	85	1
TOTAL	**168**	**671**	**1773**	**18**	**867**	**454**	**106**	**12**	**86**	**453**	**164**	**5**	**1098**	**330**	**765**	**18**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	65	259	432	14	268	197	38	7	18	168	115	4	878	189	401	20
4:30 PM - 5:30 PM	93	343	901	10	502	236	55	3	46	258	93	2	565	166	384	10

	PHF	Trucks
AM	0.840	1.5%
PM	0.972	0.7%



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Turning Movement Report

Prepared For:
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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

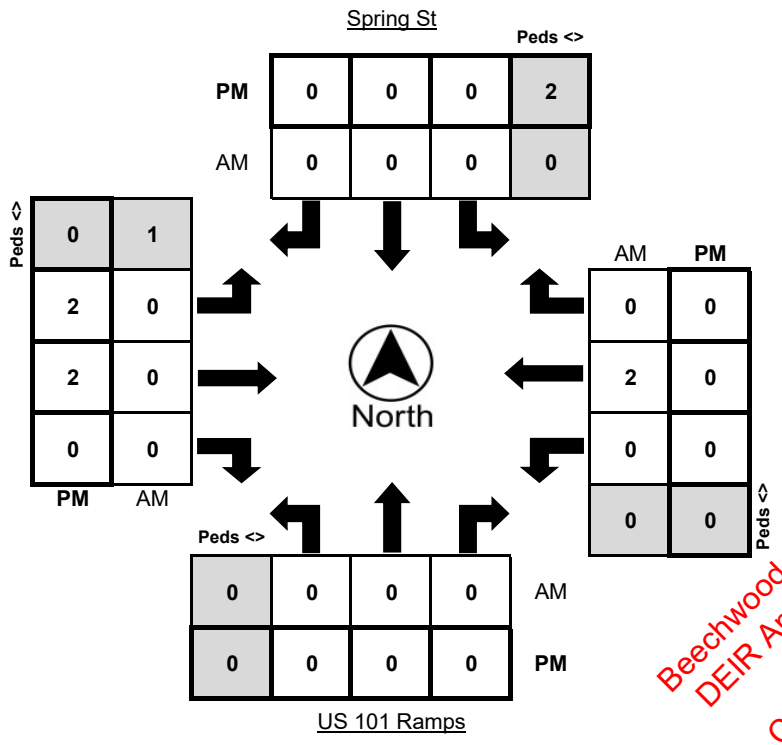
LOCATION 1st St / Niblick Rd @ Spring St
LATITUDE 35.6153
COUNTY San Luis Obispo
LONGITUDE -120.6905
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:30 AM - 8:45 AM	0	0	0	3	0	0	0	0	0	5	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	1	1	0	1	0	0	1	0	0	0	2	0	0
TOTAL	**0**	**0**	**0**	**9**	**1**	**0**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**4**	**0**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1
4:30 PM - 5:30 PM	0	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	2	1
PM Peak Total	4	2



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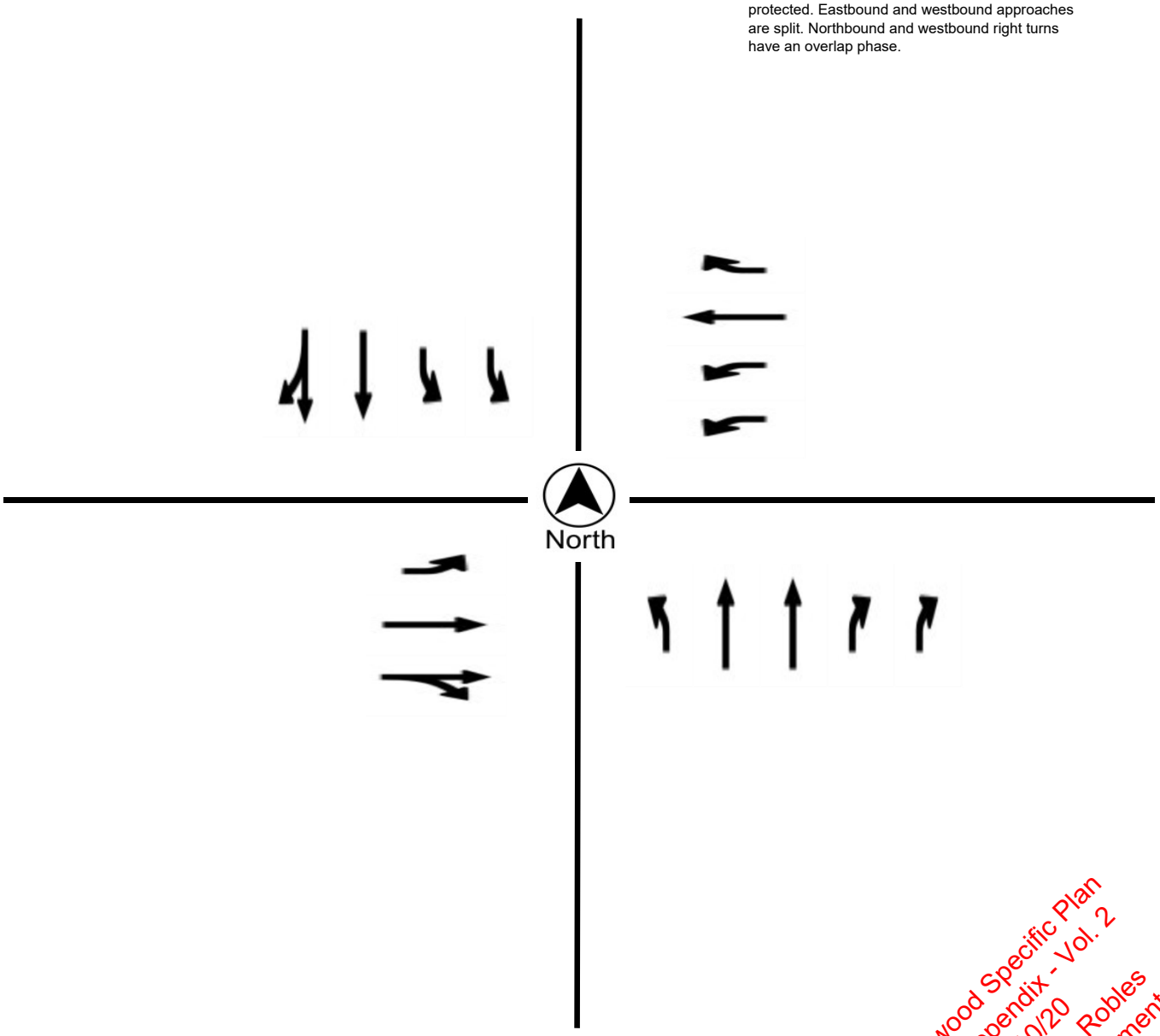
Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	1st St / Niblick Rd @ Spring St	**N/S STREET**	Spring St / US 101 Ramps
COUNTY	San Luis Obispo	**E/W STREET**	Niblick Rd / 1st st
COLLECTION DATE	Wednesday, June 6, 2018	**WEATHER**	Clear
CYCLE TIME	138 Seconds	**CONTROL TYPE**	Signal

COMMENTS Northbound and southbound left turns are protected. Eastbound and westbound approaches are split. Northbound and westbound right turns have an overlap phase.



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

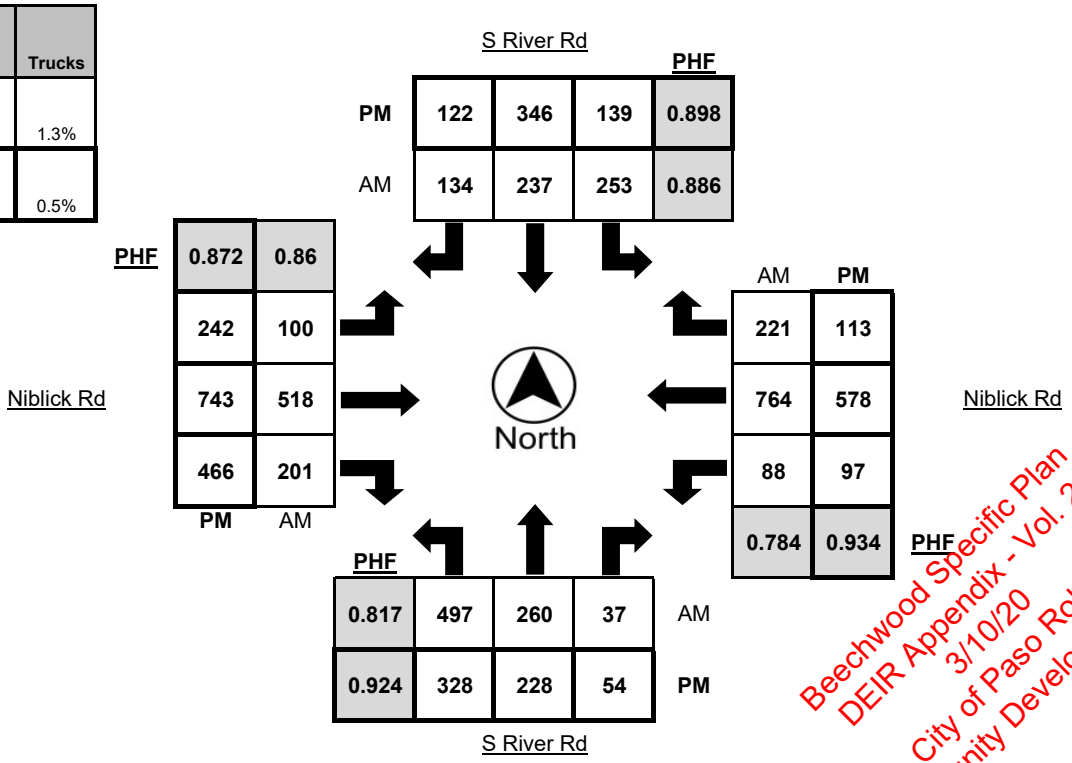
LOCATION Niblick Rd @ S River Rd
LATITUDE 35.6150
COUNTY San Luis Obispo
LONGITUDE -120.6802
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	81	27	1	0	17	35	25	0	9	67	19	7	10	103	16	2
7:15 AM - 7:30 AM	102	48	23	0	50	28	26	4	14	106	29	8	11	156	29	0
7:30 AM - 7:45 AM	138	73	13	4	86	47	23	2	25	166	47	6	12	212	56	3
7:45 AM - 8:00 AM	160	74	9	1	63	63	32	2	22	140	46	2	18	243	81	5
8:00 AM - 8:15 AM	109	73	6	2	59	71	46	2	26	110	53	1	29	170	56	3
8:15 AM - 8:30 AM	90	40	9	0	45	56	33	3	27	102	55	5	29	139	28	2
8:30 AM - 8:45 AM	93	36	7	0	31	52	27	1	23	98	44	4	16	138	24	6
8:45 AM - 9:00 AM	77	56	6	1	16	54	22	3	15	73	37	4	25	104	21	4
TOTAL	**850**	**427**	**74**	**8**	**367**	**406**	**234**	**17**	**161**	**862**	**330**	**37**	**150**	**1265**	**311**	**25**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	63	54	9	1	22	82	42	1	51	163	97	1	18	133	17	0
4:15 PM - 4:30 PM	78	45	12	0	21	89	20	0	70	185	91	3	23	144	22	3
4:30 PM - 4:45 PM	76	46	12	1	36	70	27	0	57	171	95	2	23	137	28	5
4:45 PM - 5:00 PM	86	62	17	0	33	76	34	1	55	159	106	1	24	142	32	2
5:00 PM - 5:15 PM	103	51	11	2	30	104	26	1	58	189	130	1	22	147	33	2
5:15 PM - 5:30 PM	65	54	16	0	39	76	20	0	66	228	122	1	30	158	23	2
5:30 PM - 5:45 PM	74	61	10	0	37	90	42	2	63	167	108	1	21	131	25	0
5:45 PM - 6:00 PM	69	42	12	0	45	73	28	0	55	168	89	1	20	122	34	0
TOTAL	**614**	**415**	**99**	**4**	**263**	**660**	**239**	**5**	**475**	**1430**	**838**	**11**	**181**	**1114**	**214**	**14**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	497	260	37	7	253	237	134	9	100	518	201	14	88	764	221	13
4:45 PM - 5:45 PM	328	228	54	2	139	346	122	4	242	743	466	4	97	578	113	6

	PHF	Trucks
AM	0.870	1.3%
PM	0.956	0.5%



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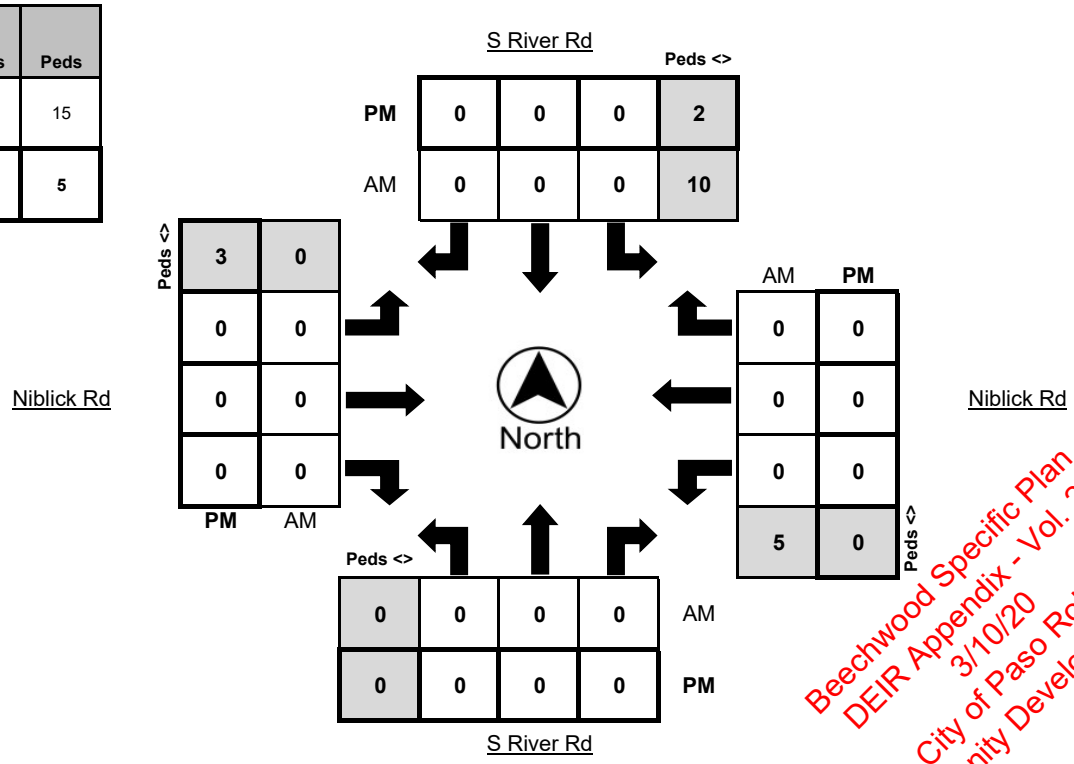
LOCATION Niblick Rd @ S River Rd
LATITUDE 35.6150
COUNTY San Luis Obispo
LONGITUDE -120.6802
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	1
7:30 AM - 7:45 AM	0	0	0	4	0	0	0	0	0	0	0	2	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	3	0	0	0	0	0	0	0	2	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8:45 AM - 9:00 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
TOTAL	**0**	**1**	**0**	**11**	**0**	**0**	**1**	**4**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**3**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	3	0	0	0	2	0	0	0	3	0	0	0	2
4:15 PM - 4:30 PM	0	0	0	5	0	0	0	1	0	0	0	0	0	1	0	7
4:30 PM - 4:45 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM - 6:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**0**	**1**	**0**	**12**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	10	0	0	0	0	0	0	0	5	0	0	0	0
4:45 PM - 5:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3

	Bikes	Peds
AM Peak Total	0	15
PM Peak Total	**0**	**5**



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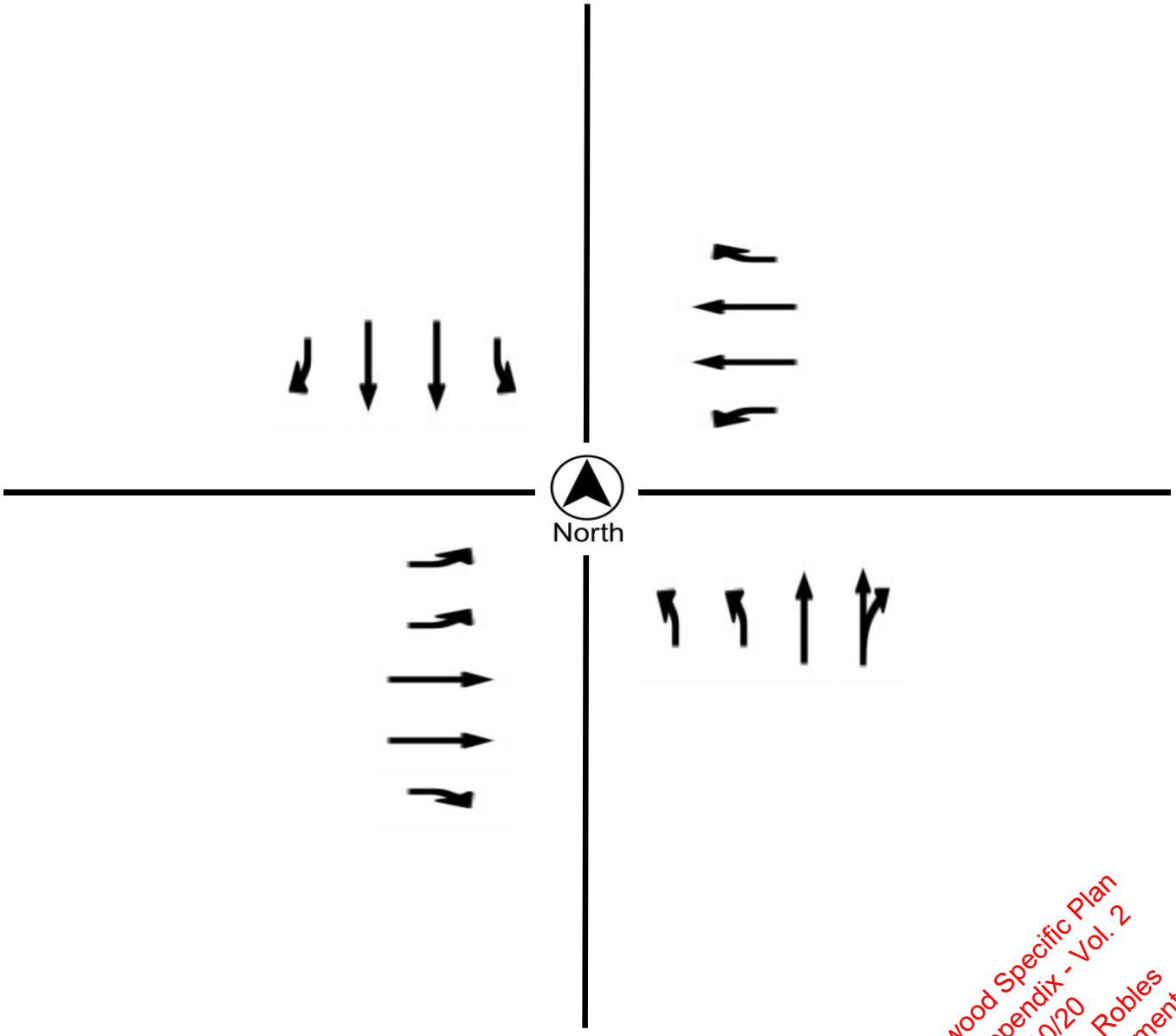
Morro Bay, CA 93442

LOCATION	Niblick Rd @ S River Rd	**N/S STREET**	S River Rd / S River Rd
COUNTY	San Luis Obispo	**E/W STREET**	Niblick Rd / Niblick Rd
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	125 Seconds	**CONTROL TYPE**	Signal

COMMENTS All approaches have protected left turns.



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800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

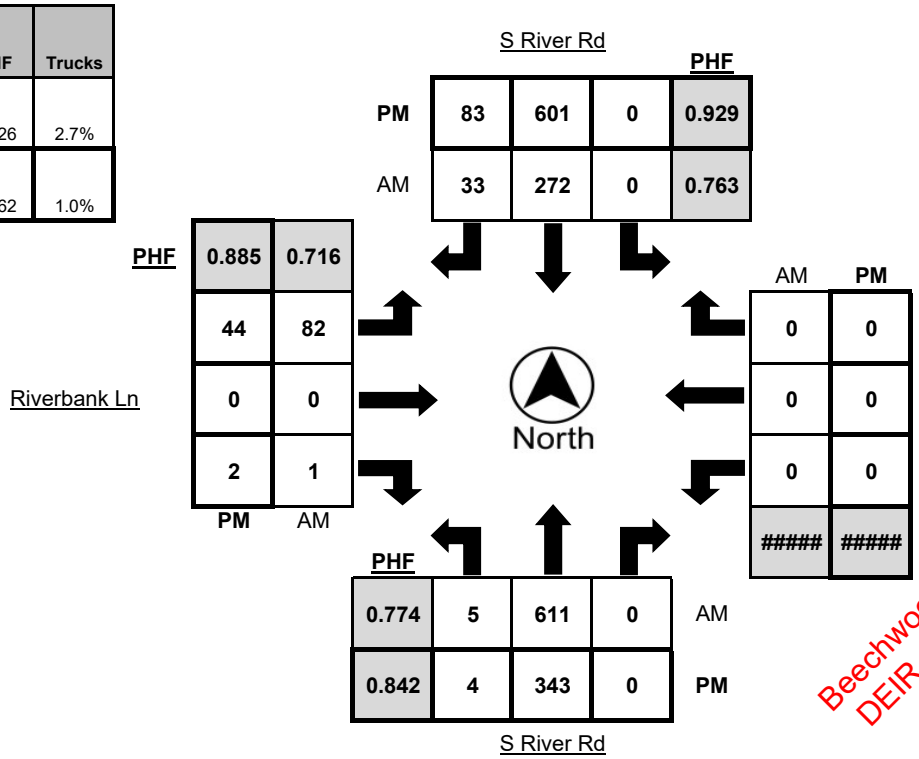
LOCATION S River Rd @ Riverbank Ln
LATITUDE 35.6101
COUNTY San Luis Obispo
LONGITUDE -120.6810
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	1	119	0	1	0	44	4	1	14	0	2	0	0	0	0	0
7:15 AM - 7:30 AM	1	172	0	3	0	53	5	1	24	0	1	1	0	0	0	0
7:30 AM - 7:45 AM	0	199	0	1	0	73	3	4	29	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	2	129	0	4	0	89	11	4	20	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	2	111	0	5	0	57	14	3	9	0	0	1	0	0	0	0
8:15 AM - 8:30 AM	1	100	0	2	0	51	10	2	16	0	1	0	0	0	0	0
8:30 AM - 8:45 AM	0	101	0	2	0	53	9	0	8	0	0	1	0	0	0	0
8:45 AM - 9:00 AM	0	78	0	3	0	55	5	0	6	0	4	0	0	0	0	0
TOTAL	**7**	**1009**	**0**	**21**	**0**	**475**	**61**	**15**	**126**	**0**	**8**	**3**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	1	65	0	0	0	138	11	1	7	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	1	111	0	1	0	135	15	2	13	0	1	1	0	0	0	0
4:30 PM - 4:45 PM	1	85	0	1	0	136	16	2	10	0	1	0	0	0	0	0
4:45 PM - 5:00 PM	2	101	0	2	0	140	24	0	11	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	1	78	0	2	0	152	21	3	12	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	1	82	0	0	0	162	22	3	11	0	2	0	0	0	0	0
5:30 PM - 5:45 PM	0	82	0	0	0	147	16	1	10	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	1	75	0	0	0	90	15	1	14	0	1	0	0	0	0	0
TOTAL	**8**	**679**	**0**	**6**	**0**	**1100**	**140**	**13**	**88**	**0**	**5**	**1**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	5	611	0	13	0	272	33	12	82	0	1	2	0	0	0	0
4:45 PM - 5:45 PM	4	343	0	4	0	601	83	7	44	0	2	0	0	0	0	0

	PHF	Trucks
AM	0.826	2.7%
PM	0.962	1.0%



Beechwood Specific Plan
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Community Development Dept.

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Prepared For:
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Morro Bay, CA 93442

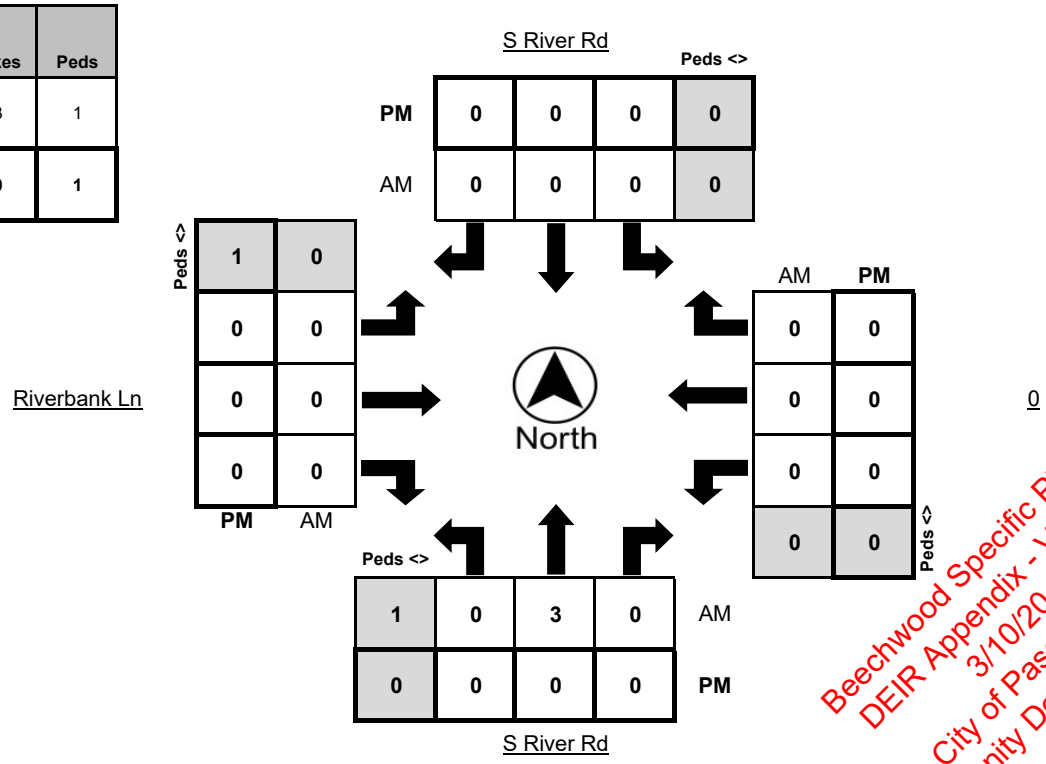
LOCATION S River Rd @ Riverbank Ln
LATITUDE 35.6101
COUNTY San Luis Obispo
LONGITUDE -120.6810
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM - 7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
8:30 AM - 8:45 AM	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	2
TOTAL	**0**	**6**	**0**	**0**	**0**	**8**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4:45 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

	Bikes	Peds
AM Peak Total	3	1
PM Peak Total	**0**	**1**



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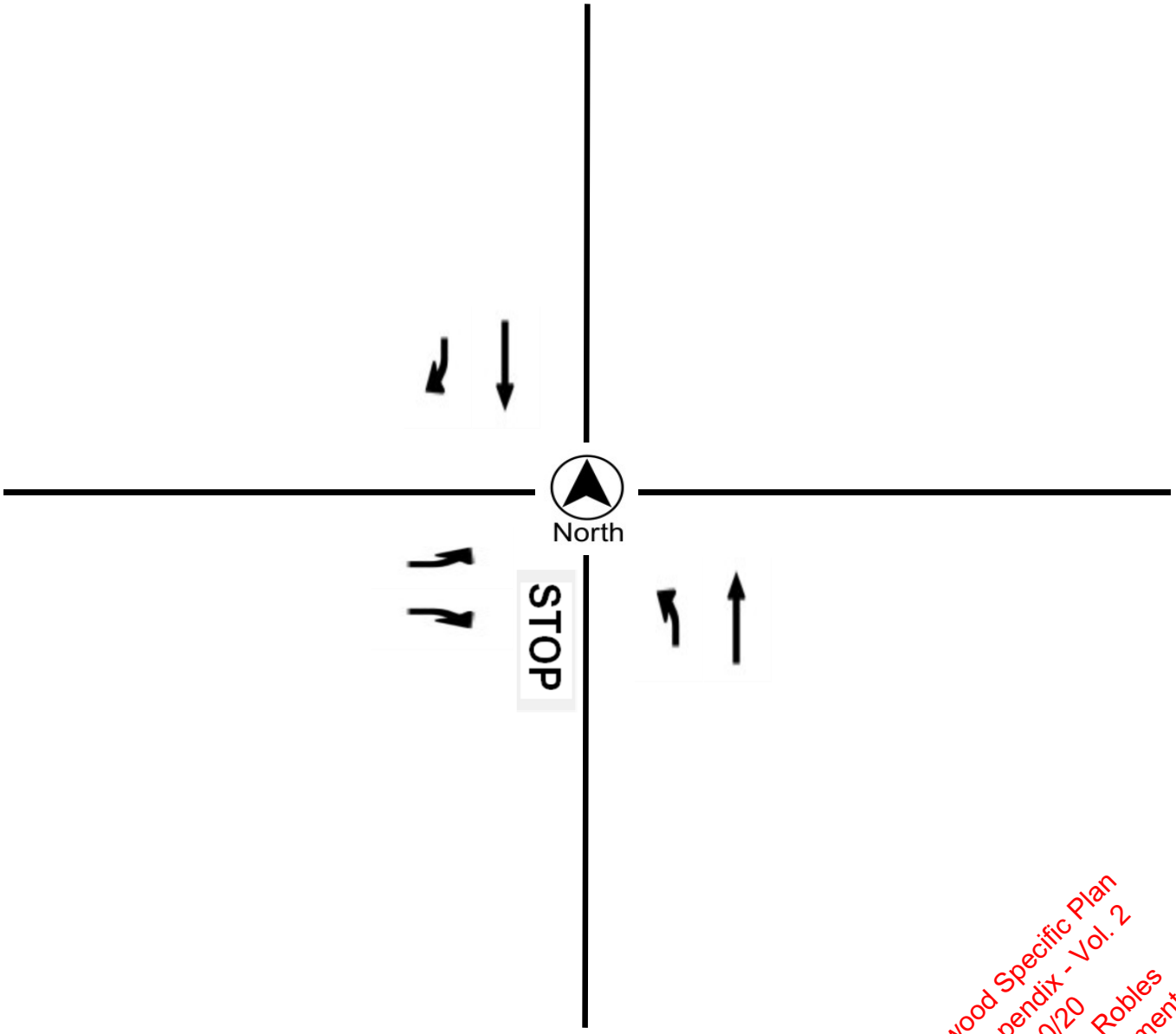
Morro Bay, CA 93442

LOCATION	S River Rd @ Riverbank Ln	**N/S STREET**	S River Rd / S River Rd
COUNTY	San Luis Obispo	**E/W STREET**	/ Riverbank Ln
COLLECTION DATE	Wednesday, June 6, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



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Morro Bay, CA 93442

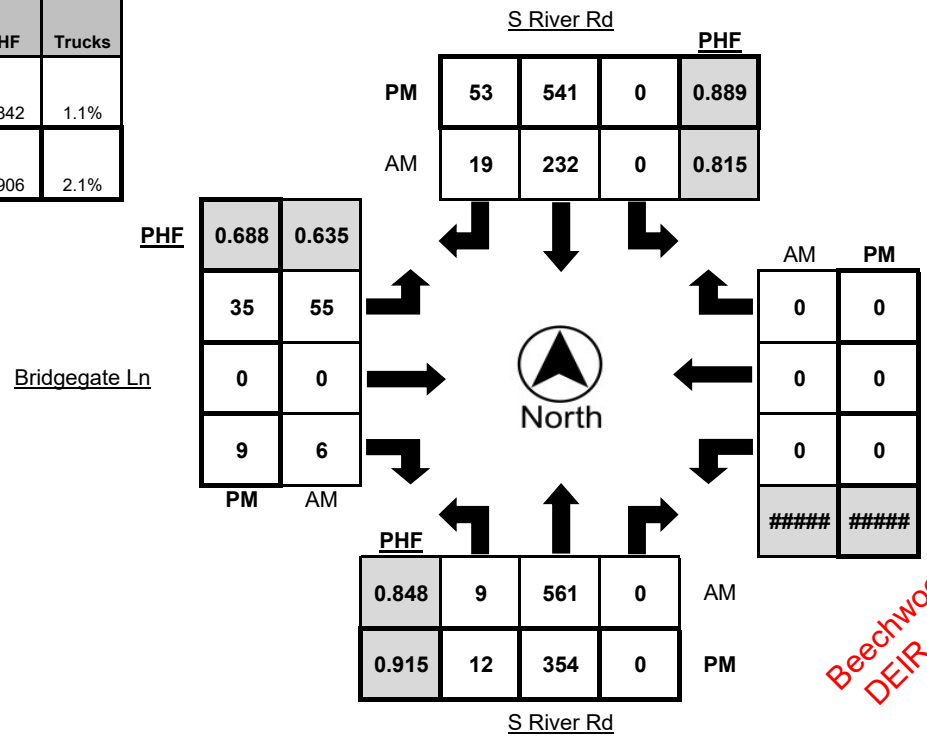
LOCATION S River Rd @ Bridgegate Ln
LATITUDE 35.6077
COUNTY San Luis Obispo
LONGITUDE -120.6816
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	2	72	0	2	0	25	4	2	16	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	2	118	0	0	0	36	4	2	21	0	3	0	0	0	0	0
7:30 AM - 7:45 AM	1	149	0	1	0	52	6	3	11	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	5	163	0	1	0	71	6	1	15	0	2	0	0	0	0	0
8:00 AM - 8:15 AM	1	131	0	2	0	73	3	0	8	0	1	0	0	0	0	0
8:15 AM - 8:30 AM	1	100	0	2	0	55	6	1	8	0	1	0	0	0	0	0
8:30 AM - 8:45 AM	2	94	0	0	0	47	4	5	7	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	2	82	0	4	0	40	1	1	9	0	0	0	0	0	0	0
TOTAL	**16**	**909**	**0**	**12**	**0**	**399**	**34**	**15**	**95**	**0**	**7**	**0**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	72	0	3	0	130	16	1	9	0	1	0	0	0	0	0
4:15 PM - 4:30 PM	2	87	0	1	0	139	12	6	8	0	3	0	0	0	0	0
4:30 PM - 4:45 PM	2	85	0	5	0	118	14	2	7	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	1	89	0	3	0	136	8	2	11	0	5	0	0	0	0	0
5:00 PM - 5:15 PM	7	93	0	1	0	148	19	1	9	0	1	0	0	0	0	0
5:15 PM - 5:30 PM	1	65	0	0	0	132	11	1	9	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	76	0	0	0	127	15	2	12	0	2	0	0	0	0	0
5:45 PM - 6:00 PM	1	79	0	0	0	107	12	0	12	0	3	0	0	0	0	0
TOTAL	**14**	**646**	**0**	**13**	**0**	**1037**	**107**	**15**	**77**	**0**	**15**	**0**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	9	561	0	4	0	232	19	6	55	0	6	0	0	0	0	0
4:15 PM - 5:15 PM	12	354	0	10	0	541	53	11	35	0	9	0	0	0	0	0

	PHF	Trucks
AM	0.842	1.1%
PM	0.906	2.1%



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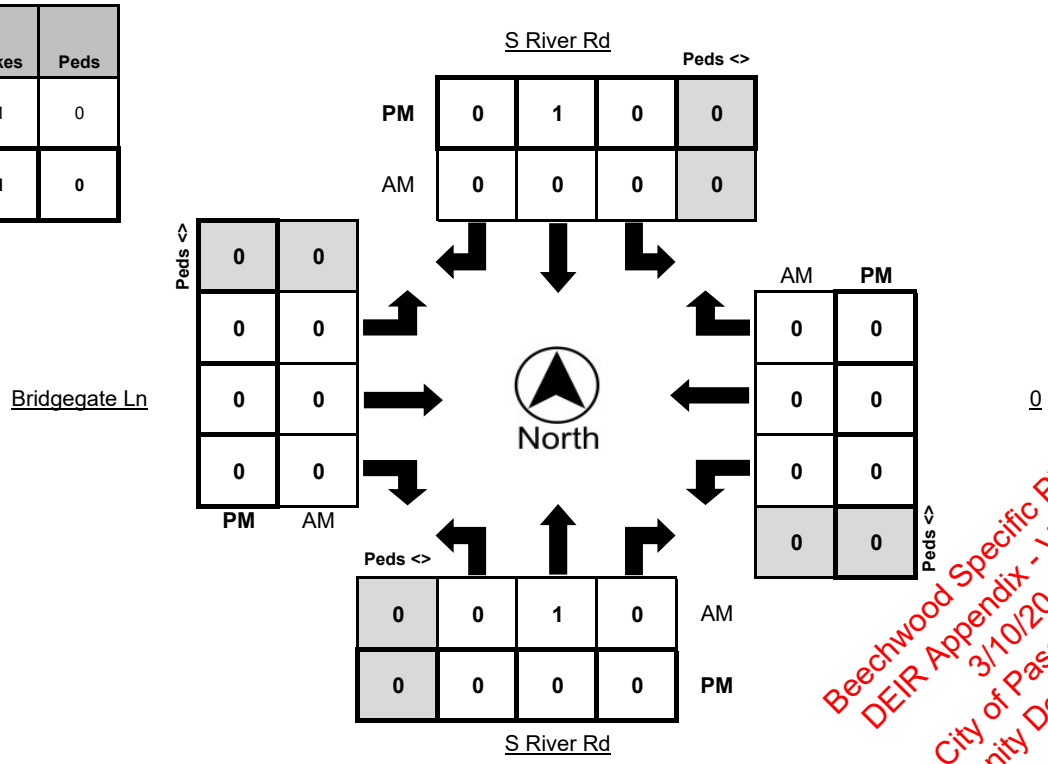
LOCATION S River Rd @ Bridgegate Ln
LATITUDE 35.6077
COUNTY San Luis Obispo
LONGITUDE -120.6816
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	1	0
PM Peak Total	1	0



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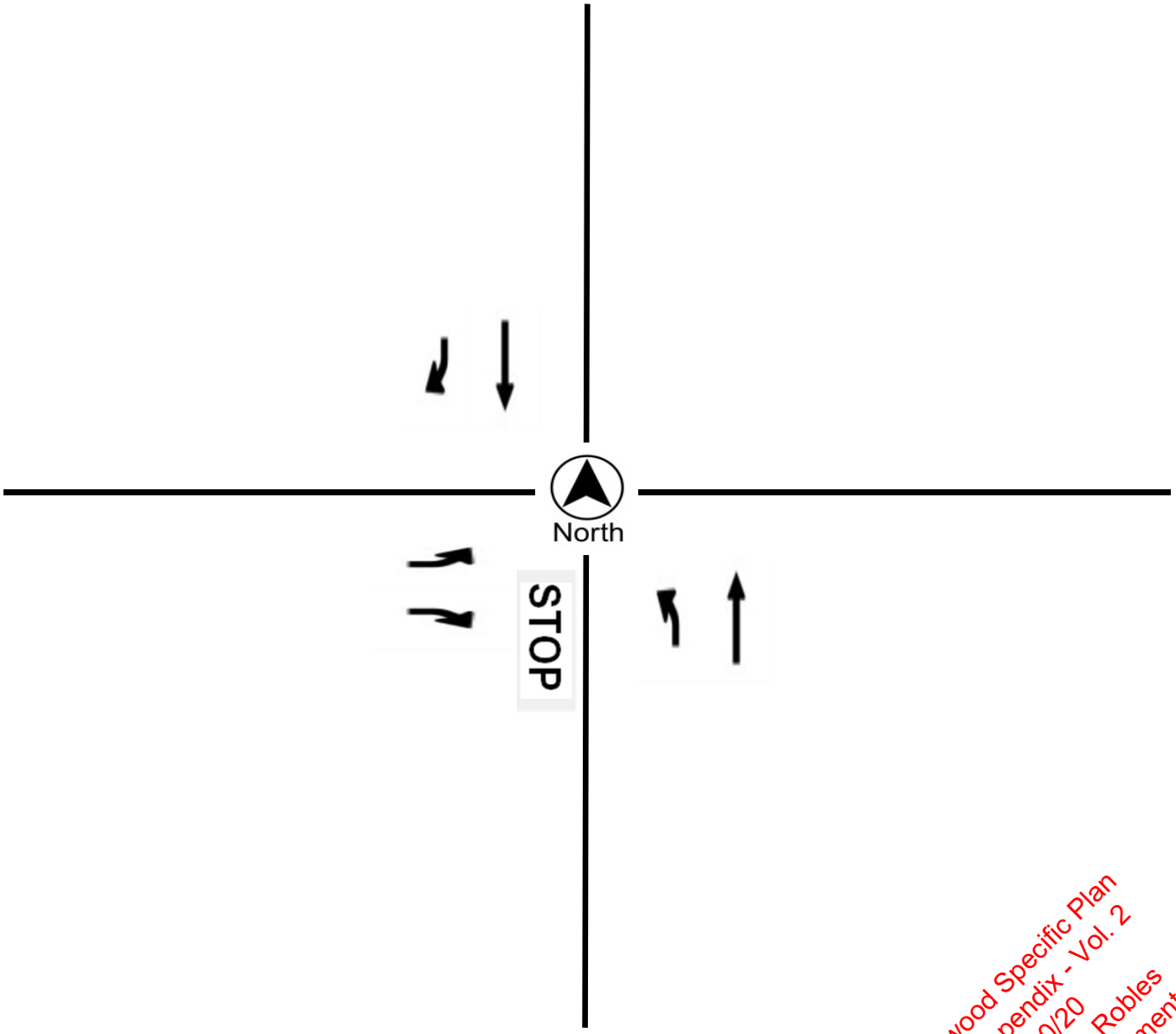
LOCATION	S River Rd @ Bridgegate Ln	**N/S STREET**	S River Rd / S River Rd
COUNTY	San Luis Obispo	**E/W STREET**	/ Bridgegate Ln
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



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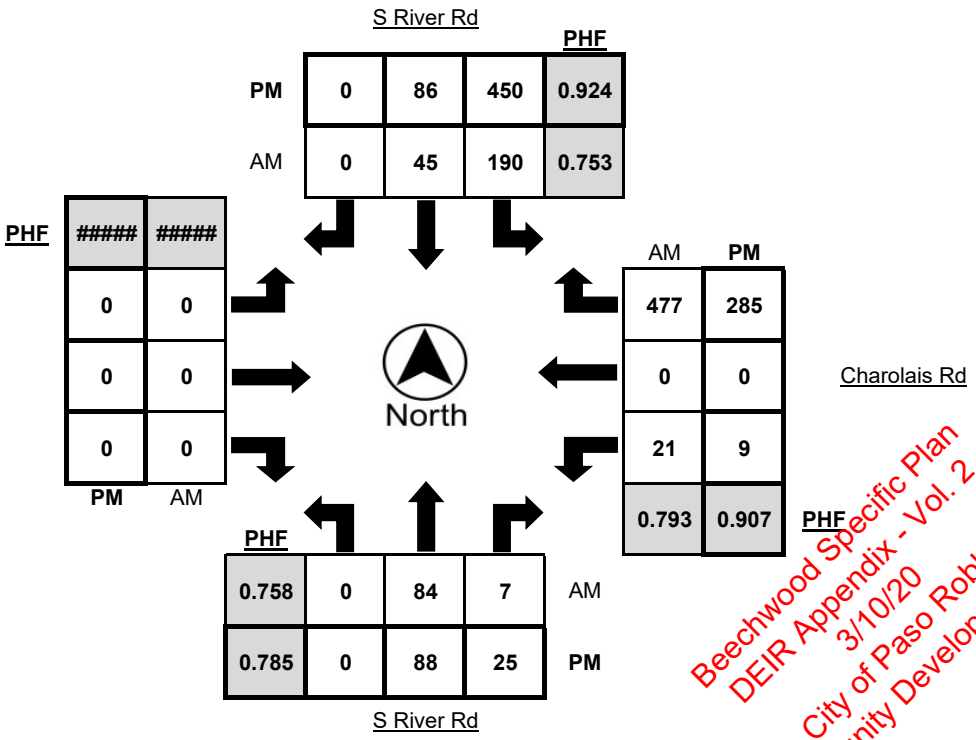
LOCATION S River Rd @ Charolais Rd
LATITUDE 35.6065
COUNTY San Luis Obispo
LONGITUDE -120.6819
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	11	1	0	17	9	0	1	0	0	0	0	3	0	64	1
7:15 AM - 7:30 AM	0	28	2	0	27	11	0	0	0	0	0	0	5	0	89	0
7:30 AM - 7:45 AM	0	25	2	0	42	9	0	4	0	0	0	0	8	0	123	2
7:45 AM - 8:00 AM	0	20	2	0	53	15	0	2	0	0	0	0	6	0	151	1
8:00 AM - 8:15 AM	0	11	1	1	68	10	0	1	0	0	0	0	2	0	114	3
8:15 AM - 8:30 AM	0	19	0	0	40	13	0	0	0	0	0	0	3	0	82	2
8:30 AM - 8:45 AM	0	22	3	0	35	13	0	0	0	0	0	0	3	0	76	0
8:45 AM - 9:00 AM	0	23	0	1	27	15	0	3	0	0	0	0	5	0	65	0
TOTAL	**0**	**159**	**11**	**2**	**309**	**95**	**0**	**11**	**0**	**0**	**0**	**0**	**35**	**0**	**764**	**9**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	19	3	0	100	33	0	1	0	0	0	0	3	0	49	0
4:15 PM - 4:30 PM	0	11	6	0	115	20	0	0	0	0	0	0	1	0	74	0
4:30 PM - 4:45 PM	0	27	9	0	95	24	0	0	0	0	0	0	5	0	64	0
4:45 PM - 5:00 PM	0	25	4	0	113	24	0	0	0	0	0	0	3	0	66	0
5:00 PM - 5:15 PM	0	25	6	0	127	18	0	1	0	0	0	0	0	0	81	0
5:15 PM - 5:30 PM	0	13	3	0	115	30	0	0	0	0	0	0	2	0	54	0
5:30 PM - 5:45 PM	0	15	3	0	111	25	0	0	0	0	0	0	7	0	62	1
5:45 PM - 6:00 PM	0	21	3	0	97	13	0	0	0	0	0	0	3	0	61	0
TOTAL	**0**	**156**	**37**	**0**	**873**	**187**	**0**	**2**	**0**	**0**	**0**	**0**	**24**	**0**	**511**	**1**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	0	84	7	1	190	45	0	7	0	0	0	0	21	0	477	6
4:15 PM - 5:15 PM	0	88	25	0	450	86	0	1	0	0	0	0	9	0	285	0

	PHF	Trucks
AM	0.834	1.7%
PM	0.917	0.1%



Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

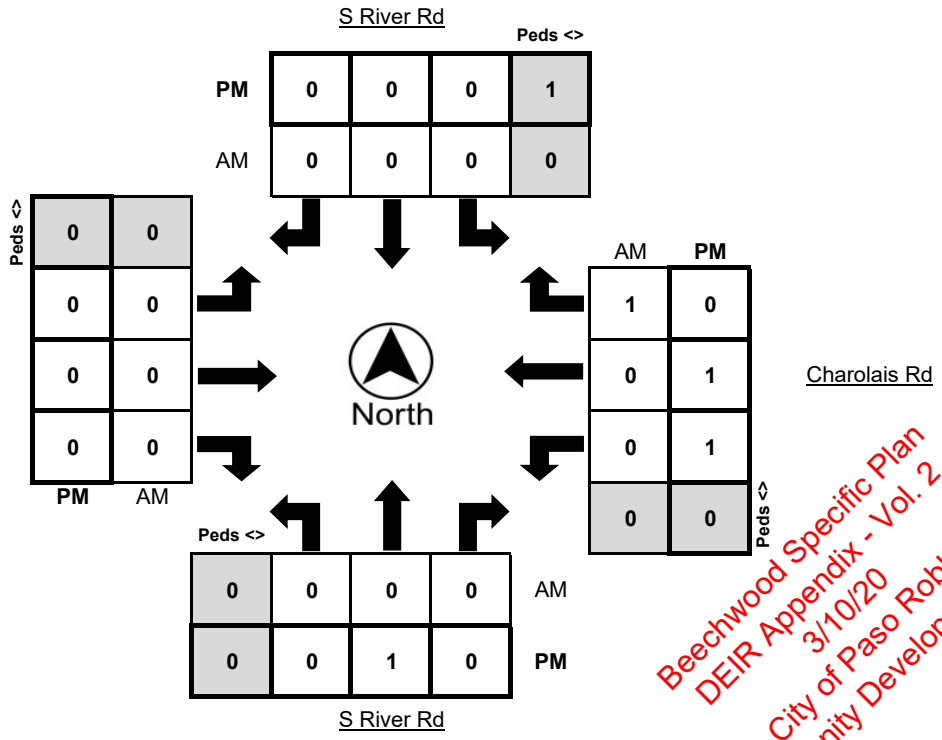
LOCATION S River Rd @ Charolais Rd
LATITUDE 35.6065
COUNTY San Luis Obispo
LONGITUDE -120.6819
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	3	0	0	0	0	0	0	0	2	0	0	0	0
TOTAL	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:45 PM - 5:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM - 5:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1	1	0	0

	Bikes	Peds
AM Peak Total	1	0
PM Peak Total	3	1



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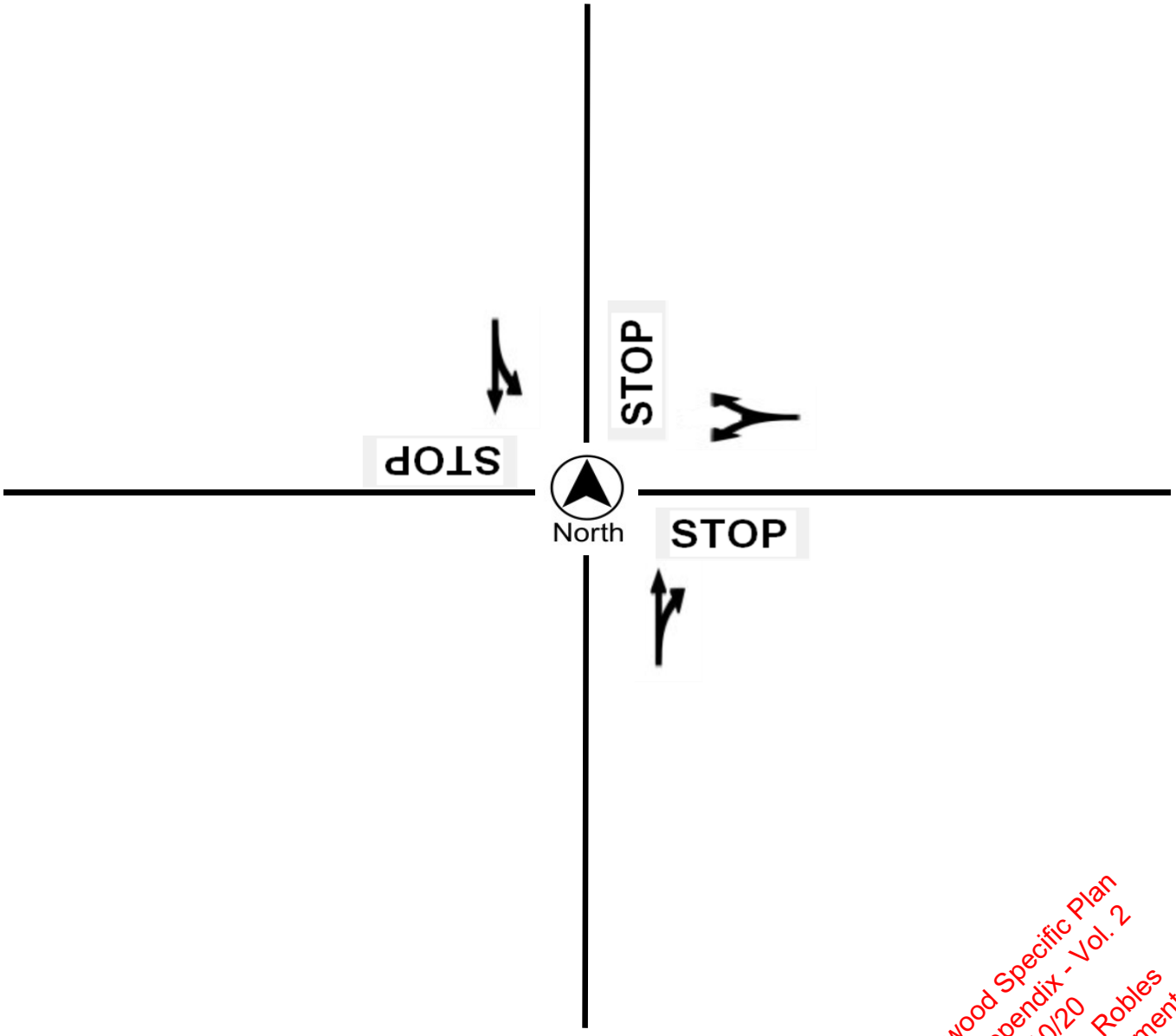
Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	S River Rd @ Charolais Rd	**N/S STREET**	S River Rd / S River Rd
COUNTY	San Luis Obispo	**E/W STREET**	Charolais Rd /
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	All-Way Stop

COMMENTS



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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

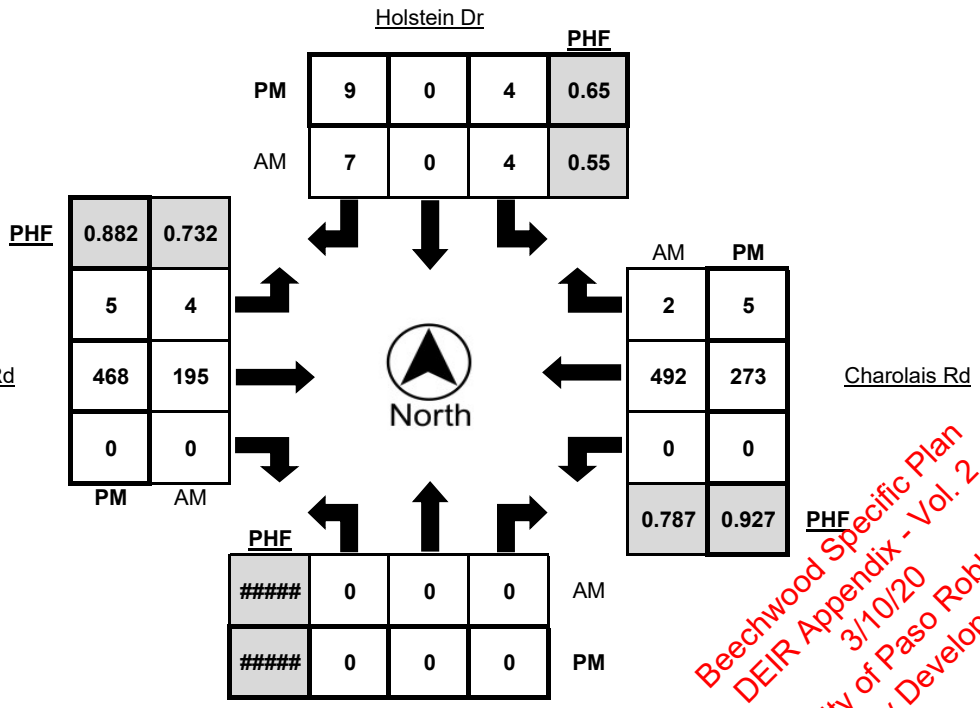
LOCATION Charolais Rd @ Holstein Dr
LATITUDE 35.6055
COUNTY San Luis Obispo
LONGITUDE -120.6763
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	2	0	0	0	1	16	0	1	0	66	0	1
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	29	0	0	0	99	0	0
7:30 AM - 7:45 AM	0	0	0	0	2	0	3	1	1	47	0	3	0	127	0	1
7:45 AM - 8:00 AM	0	0	0	0	1	0	2	0	1	53	0	1	0	156	1	0
8:00 AM - 8:15 AM	0	0	0	0	1	0	2	0	2	66	0	1	0	110	1	4
8:15 AM - 8:30 AM	0	0	0	0	3	0	1	0	0	40	0	0	0	80	1	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	3	0	1	37	0	0	0	74	1	0
8:45 AM - 9:00 AM	0	0	0	0	2	0	2	0	0	26	0	2	0	67	1	0
TOTAL	**0**	**0**	**0**	**0**	**11**	**0**	**13**	**1**	**6**	**314**	**0**	**8**	**0**	**779**	**5**	**6**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	0	0	2	0	1	103	0	0	0	56	4	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	2	0	2	117	0	0	0	66	1	0
4:30 PM - 4:45 PM	0	0	0	0	2	0	3	0	1	101	0	0	0	62	1	1
4:45 PM - 5:00 PM	0	0	0	0	2	0	2	0	1	117	0	0	0	72	3	1
5:00 PM - 5:15 PM	0	0	0	0	0	0	2	0	1	133	0	1	0	73	0	1
5:15 PM - 5:30 PM	0	0	0	0	0	0	1	0	4	113	0	0	0	53	0	0
5:30 PM - 5:45 PM	0	0	0	0	1	0	2	0	4	103	0	0	0	68	1	0
5:45 PM - 6:00 PM	0	0	0	0	3	0	1	0	0	100	0	0	0	60	1	0
TOTAL	**0**	**0**	**0**	**0**	**8**	**0**	**15**	**0**	**14**	**887**	**0**	**1**	**0**	**510**	**11**	**3**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	0	0	0	0	4	0	7	1	4	195	0	5	0	492	2	5
4:15 PM - 5:15 PM	0	0	0	0	4	0	9	0	5	468	0	1	0	273	5	3

	PHF	Trucks
AM	0.822	1.6%
PM	0.914	0.5%



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Turning Movement Report

Prepared For:
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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

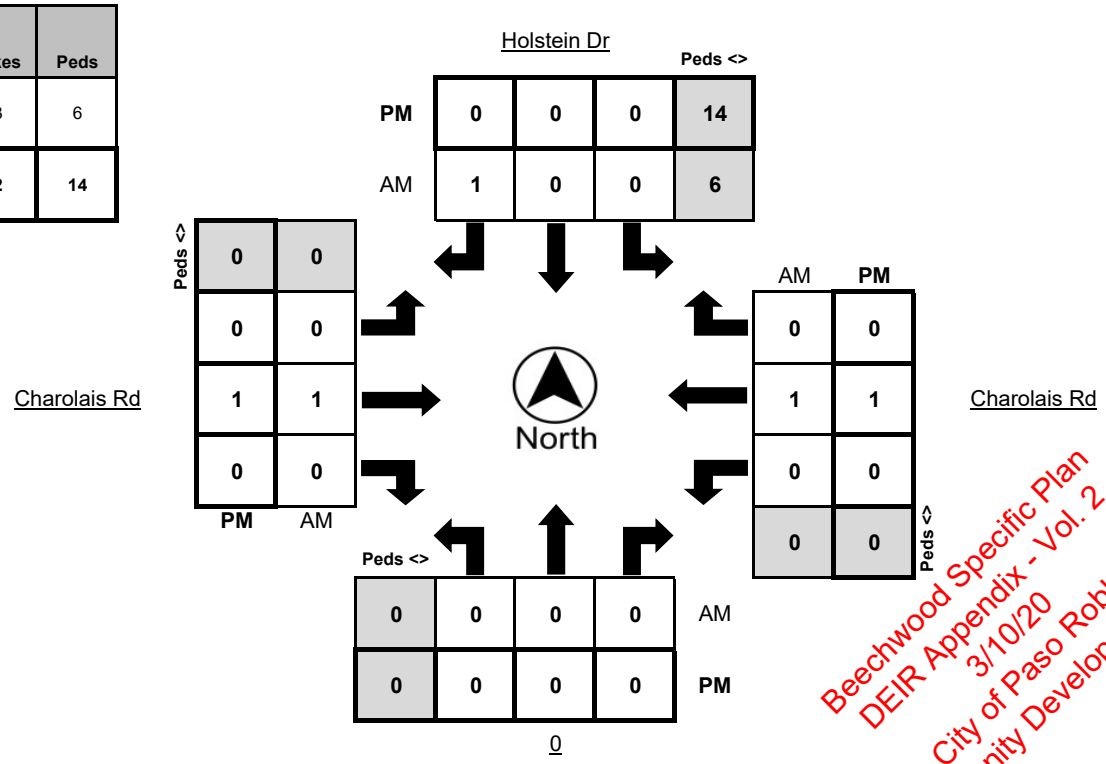
LOCATION Charolais Rd @ Holstein Dr
LATITUDE 35.6055
COUNTY San Luis Obispo
LONGITUDE -120.6763
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0
7:45 AM - 8:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**23**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	8	0	0	0	0	0	1	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0
5:00 PM - 5:15 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	6	0	0	1	0	0	1	0	0	0	1	0	0
4:15 PM - 5:15 PM	0	0	0	14	0	0	0	0	0	1	0	0	0	1	0	0

	Bikes	Peds
AM Peak Total	3	6
PM Peak Total	2	14



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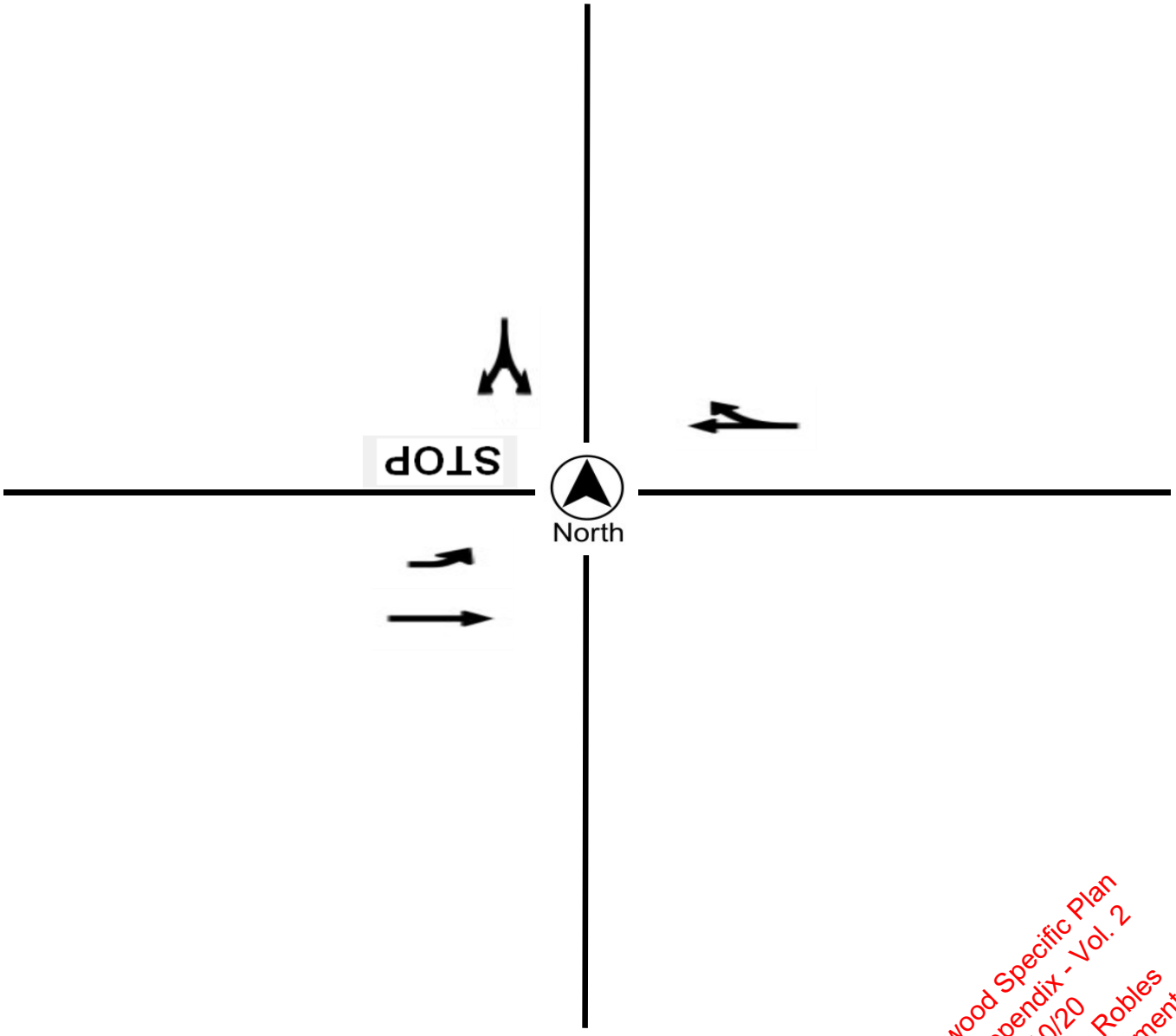
Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Charolais Rd @ Holstein Dr	**N/S STREET**	Holstein Dr /
COUNTY	San Luis Obispo	**E/W STREET**	Charolais Rd / Charolais Rd
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



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Prepared For:
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Morro Bay, CA 93442

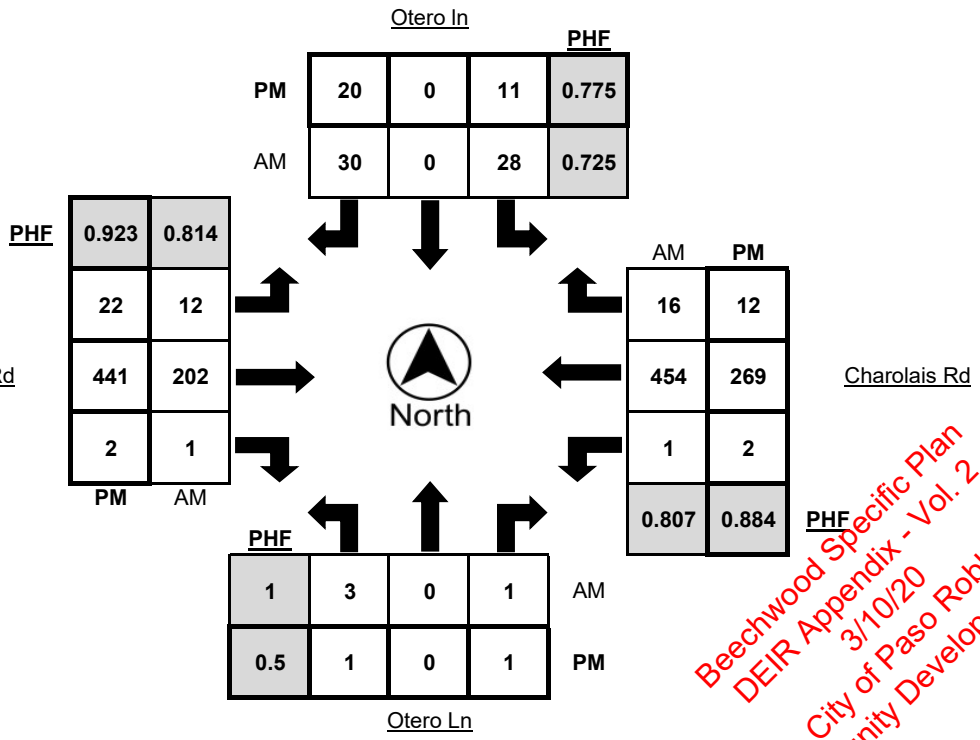
LOCATION Charolais Rd @ Otero Ln
LATITUDE 35.6048
COUNTY San Luis Obispo
LONGITUDE -120.6745
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	1	0	2	0	0	19	0	1	0	67	0	1
7:15 AM - 7:30 AM	0	0	0	0	3	0	3	0	0	27	0	0	0	93	1	0
7:30 AM - 7:45 AM	1	0	0	0	14	0	5	0	1	44	0	2	0	122	4	1
7:45 AM - 8:00 AM	1	0	0	0	9	0	11	0	1	54	1	0	0	144	2	0
8:00 AM - 8:15 AM	0	0	1	0	2	0	10	0	6	60	0	1	0	106	7	0
8:15 AM - 8:30 AM	1	0	0	0	3	0	4	0	4	44	0	1	1	82	3	3
8:30 AM - 8:45 AM	0	0	0	0	1	0	5	0	2	35	0	3	0	70	5	0
8:45 AM - 9:00 AM	0	0	0	0	2	0	1	0	0	25	0	1	0	65	3	2
TOTAL	**3**	**0**	**1**	**0**	**35**	**0**	**41**	**0**	**14**	**308**	**1**	**9**	**1**	**749**	**25**	**7**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	1	0	6	0	2	1	1	102	1	1	0	51	6	0
4:15 PM - 4:30 PM	0	0	0	0	2	0	3	0	9	103	2	2	0	76	4	2
4:30 PM - 4:45 PM	0	0	0	0	2	0	4	2	2	102	0	4	0	63	4	3
4:45 PM - 5:00 PM	0	0	1	0	6	0	4	1	3	118	0	1	2	63	3	3
5:00 PM - 5:15 PM	1	0	0	0	1	0	9	0	8	118	0	0	0	67	1	0
5:15 PM - 5:30 PM	0	0	0	0	4	0	4	0	3	113	2	0	0	51	4	0
5:30 PM - 5:45 PM	1	0	0	0	5	0	7	0	5	106	0	0	1	58	3	1
5:45 PM - 6:00 PM	0	0	0	0	2	0	3	0	4	96	0	0	0	61	1	0
TOTAL	**2**	**0**	**2**	**0**	**28**	**0**	**36**	**4**	**35**	**858**	**5**	**8**	**3**	**490**	**26**	**9**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	3	0	1	0	28	0	30	0	12	202	1	4	1	454	16	4
4:15 PM - 5:15 PM	1	0	1	0	11	0	20	3	22	441	2	7	2	269	12	8

	PHF	Trucks
AM	0.839	1.1%
PM	0.952	2.3%



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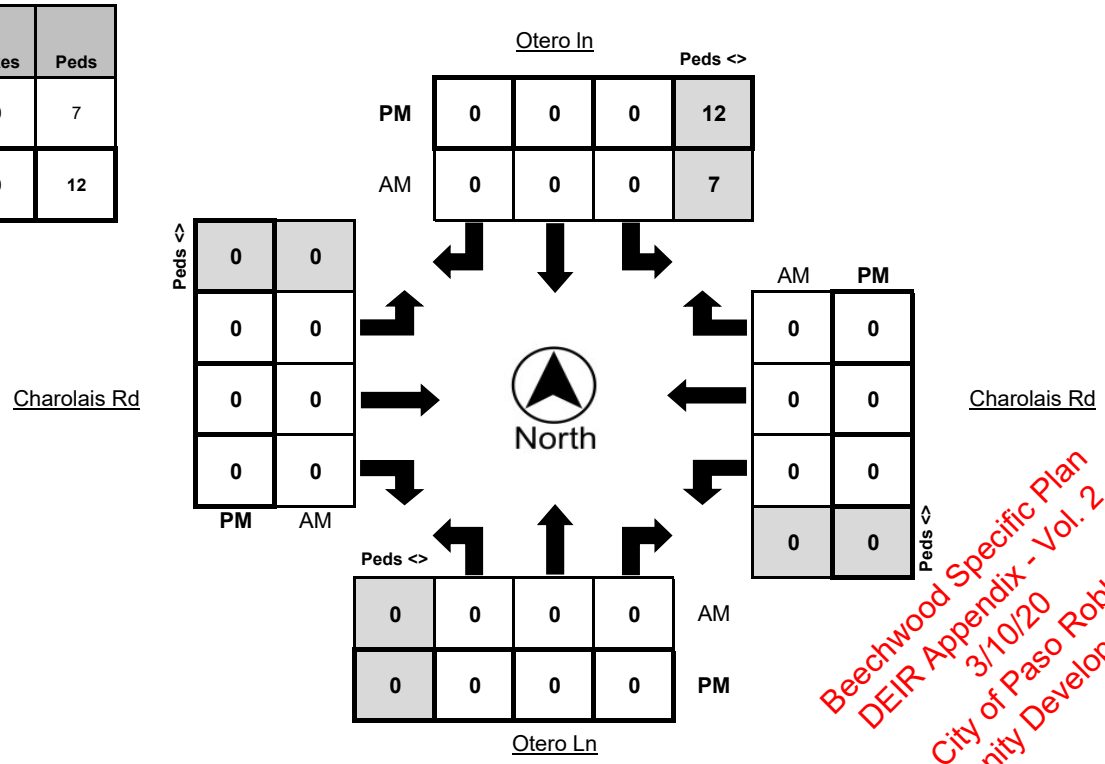
LOCATION Charolais Rd @ Otero Ln
LATITUDE 35.6048
COUNTY San Luis Obispo
LONGITUDE -120.6745
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	9	0	0	0	0	0	0	0	2	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**31**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	7
PM Peak Total	0	12



Beechwood Specific Plan
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City of Paso Robles
Community Development Dept.

Metro Traffic Data Inc.
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Hanford, CA 93230

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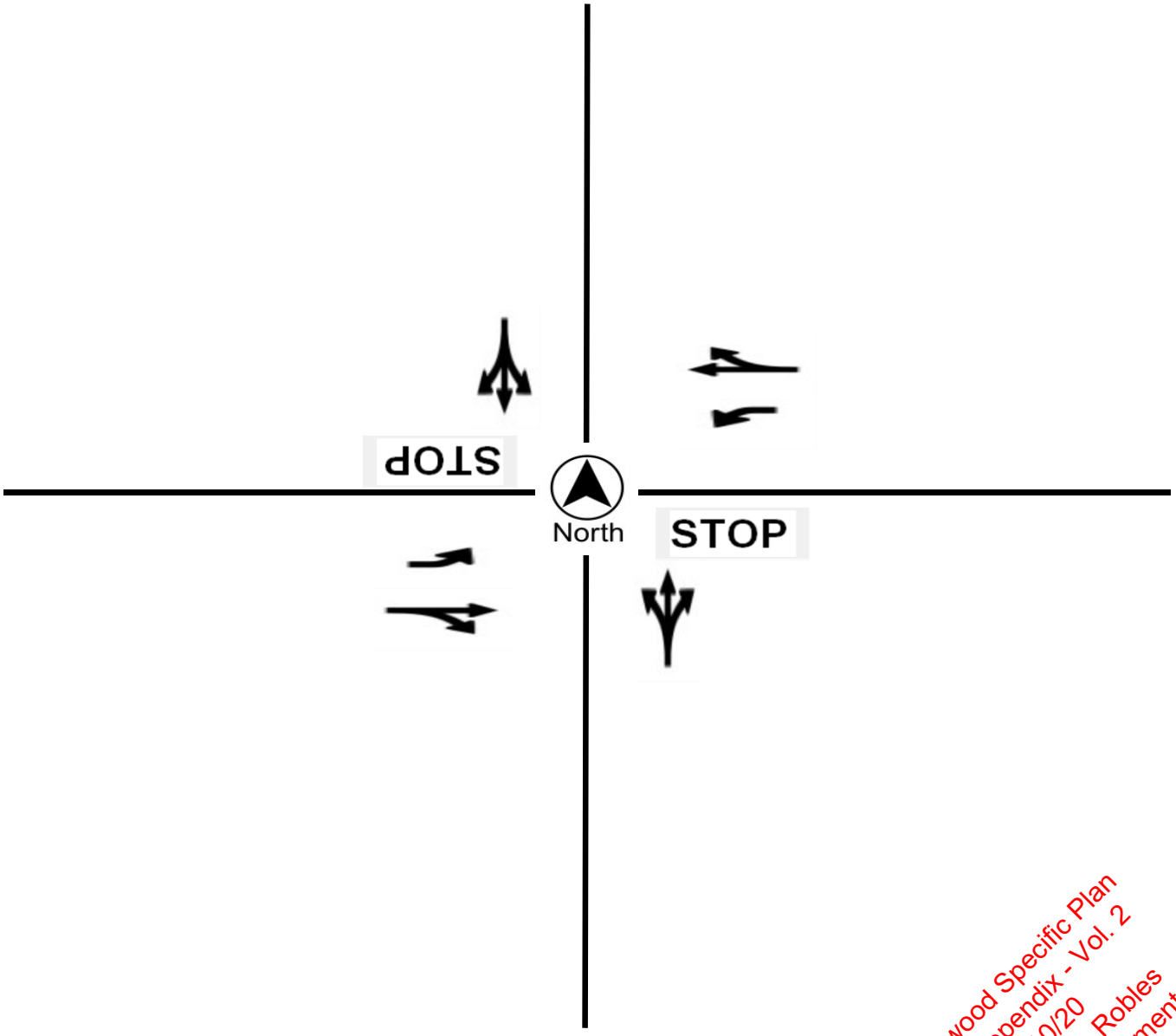
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Charolais Rd @ Otero Ln	**N/S STREET**	Otero ln / Otero Ln
COUNTY	San Luis Obispo	**E/W STREET**	Charolais Rd / Charolais Rd
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	Two-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

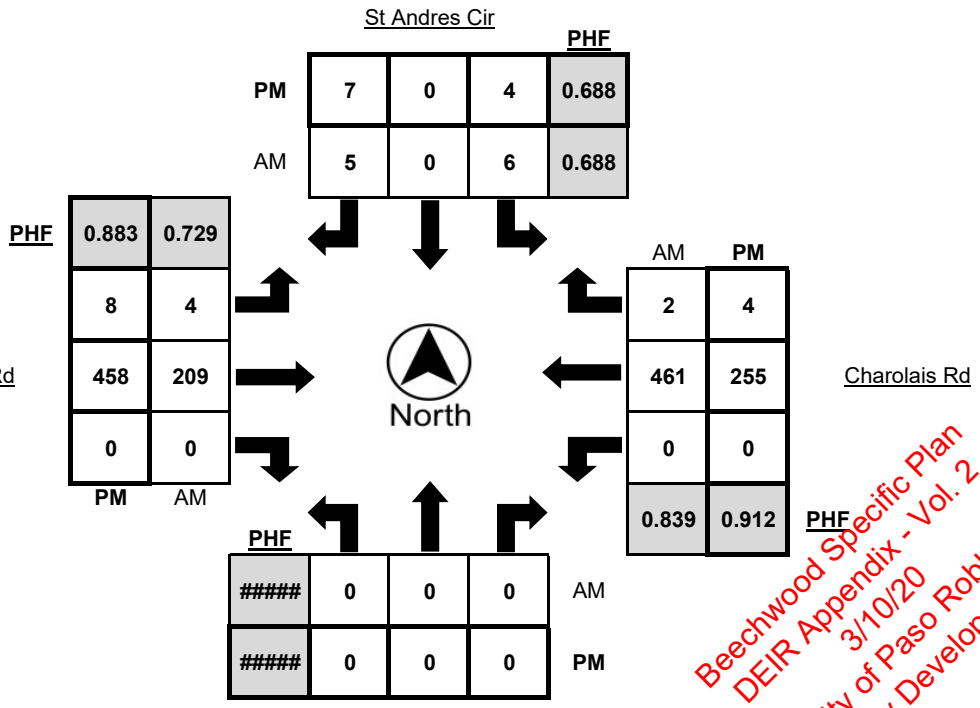
LOCATION Charolais Rd @ St Andrews Cir
LATITUDE 35.6028
COUNTY San Luis Obispo
LONGITUDE -120.6693
COLLECTION DATE Thursday, June 14, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	0	0	1	0	0	15	0	1	0	58	0	1
7:15 AM - 7:30 AM	0	0	0	0	1	0	1	0	0	35	0	1	0	95	0	0
7:30 AM - 7:45 AM	0	0	0	0	2	0	2	0	1	57	0	2	0	120	0	1
7:45 AM - 8:00 AM	0	0	0	0	1	0	1	0	3	70	0	1	0	137	1	1
8:00 AM - 8:15 AM	0	0	0	0	2	0	1	0	0	47	0	0	0	109	1	2
8:15 AM - 8:30 AM	0	0	0	0	0	0	1	0	0	48	0	0	0	79	1	1
8:30 AM - 8:45 AM	0	0	0	0	0	0	1	0	1	31	0	1	0	76	1	0
8:45 AM - 9:00 AM	0	0	0	0	2	0	1	0	1	47	0	0	0	73	1	1
TOTAL	**0**	**0**	**0**	**0**	**8**	**0**	**9**	**0**	**6**	**350**	**0**	**6**	**0**	**747**	**5**	**7**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	0	0	1	0	2	93	0	0	0	66	1	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	2	0	2	107	0	1	0	57	0	0
4:30 PM - 4:45 PM	0	0	0	0	1	0	4	0	4	103	0	1	0	68	1	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	3	0	5	104	0	0	0	62	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	1	0	1	99	0	0	0	70	1	0
5:15 PM - 5:30 PM	0	0	0	0	1	0	2	0	3	106	0	0	0	55	1	0
5:30 PM - 5:45 PM	0	0	0	0	1	0	3	0	2	130	0	1	0	63	1	0
5:45 PM - 6:00 PM	0	0	0	0	2	0	1	0	2	123	0	0	0	67	1	0
TOTAL	**0**	**0**	**0**	**0**	**5**	**0**	**17**	**0**	**21**	**865**	**0**	**3**	**0**	**508**	**6**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	0	0	0	0	6	0	5	0	4	209	0	4	0	461	2	4
5:00 PM - 6:00 PM	0	0	0	0	4	0	7	0	8	458	0	1	0	255	4	0

	PHF	Trucks
AM	0.806	1.2%
PM	0.920	0.1%



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

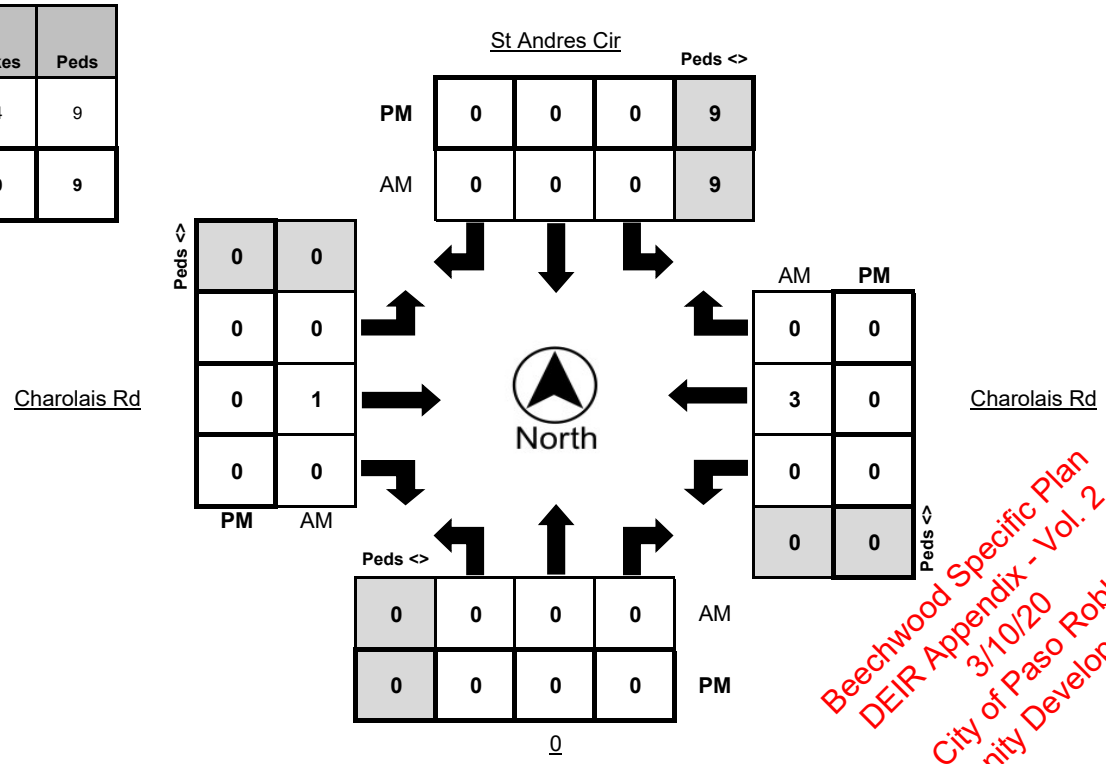
LOCATION Charolais Rd @ St Andrews Cir
LATITUDE 35.6028
COUNTY San Luis Obispo
LONGITUDE -120.6693
COLLECTION DATE Thursday, June 14, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0
7:30 AM - 7:45 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0
8:00 AM - 8:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0
8:15 AM - 8:30 AM	0	0	0	5	0	0	0	0	0	0	0	0	0	2	0	0
8:30 AM - 8:45 AM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**38**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	9	0	0	0	0	0	1	0	0	0	3	0	0
5:00 PM - 6:00 PM	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	4	9
PM Peak Total	0	9



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Community Development Dept.

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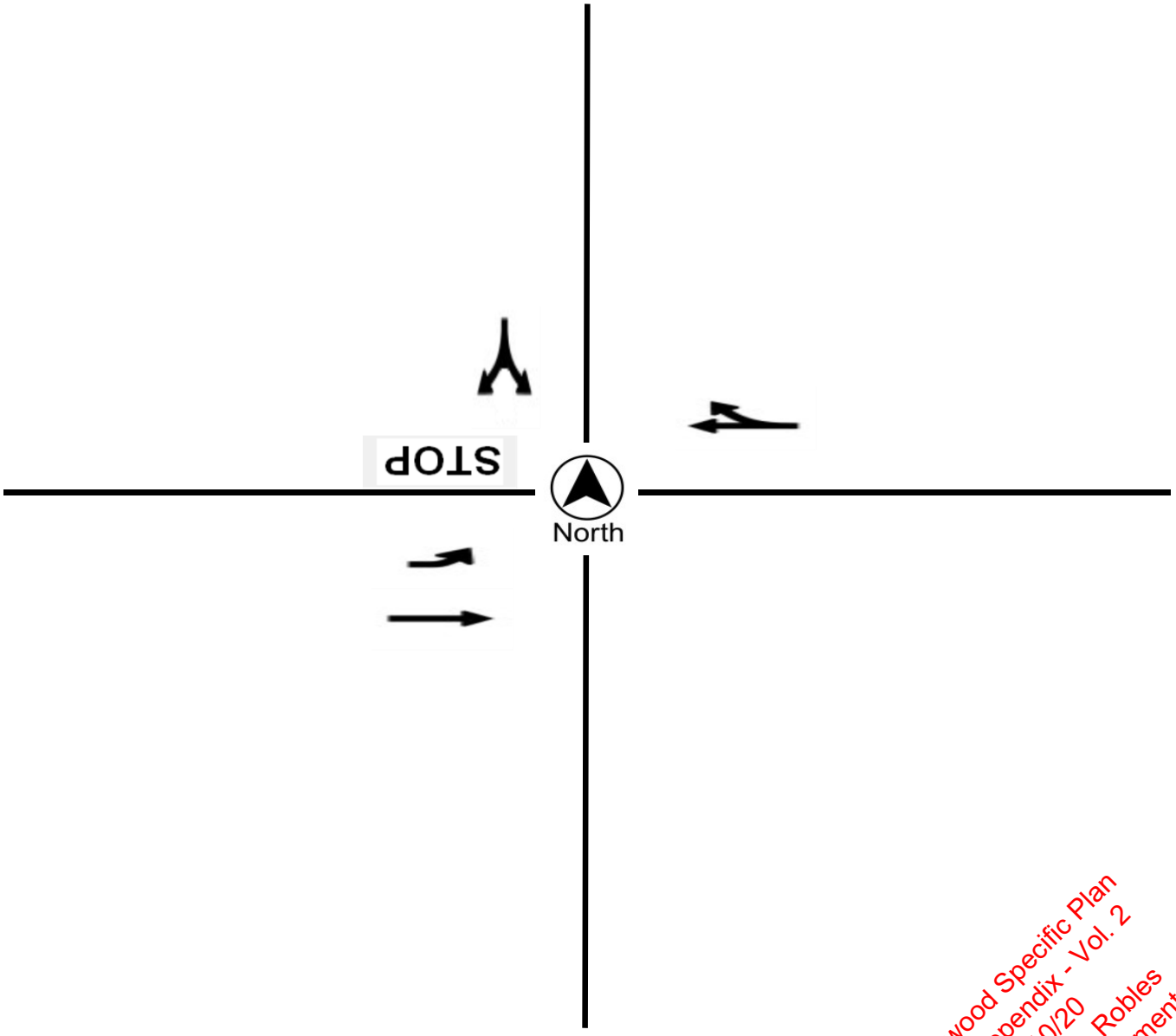
Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Charolais Rd @ St Andrews Cir	**N/S STREET**	St Andres Cir /
COUNTY	San Luis Obispo	**E/W STREET**	Charolais Rd / Charolais Rd
COLLECTION DATE	Thursday, June 14, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

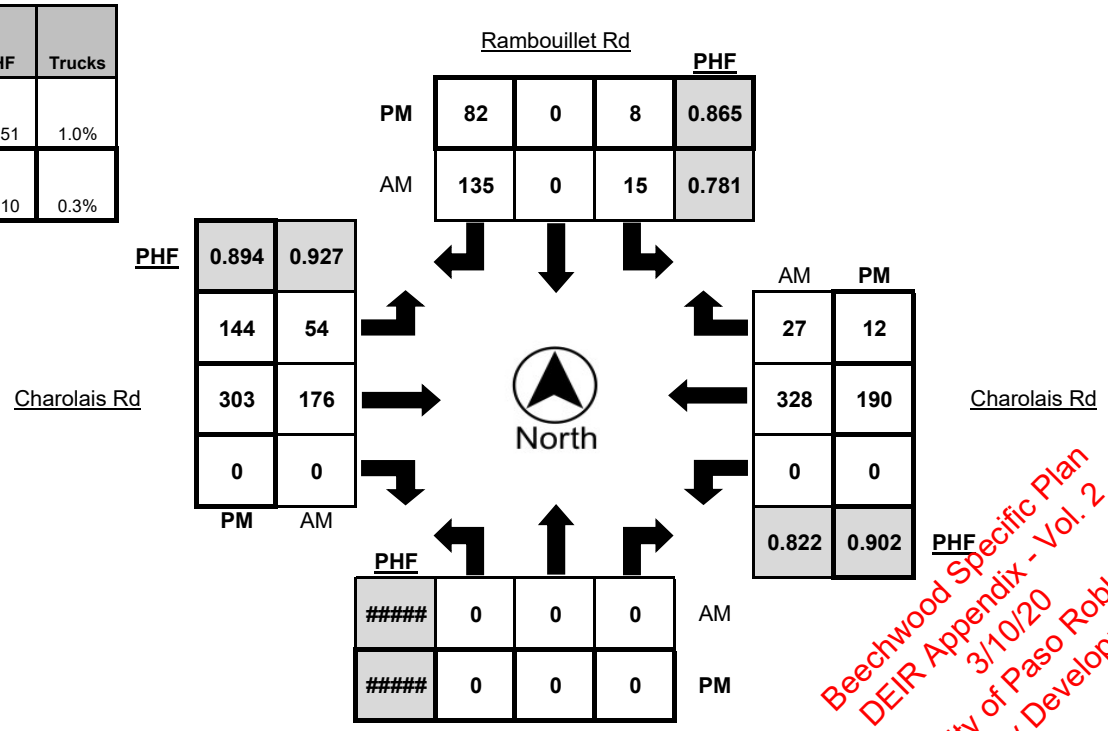
LOCATION Charolais Rd @ Rambouillet Rd
LATITUDE 35.6024
COUNTY San Luis Obispo
LONGITUDE -120.6670
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	0	0	21	0	5	18	0	1	0	44	3	2
7:15 AM - 7:30 AM	0	0	0	0	0	0	32	0	13	18	0	0	0	64	2	0
7:30 AM - 7:45 AM	0	0	0	0	3	0	37	0	18	42	0	2	0	88	11	1
7:45 AM - 8:00 AM	0	0	0	0	3	0	45	0	13	47	0	0	0	102	6	0
8:00 AM - 8:15 AM	0	0	0	0	5	0	34	0	13	49	0	1	0	73	9	2
8:15 AM - 8:30 AM	0	0	0	0	4	0	19	0	10	38	0	0	0	65	1	1
8:30 AM - 8:45 AM	0	0	0	0	1	0	21	0	8	29	0	0	0	54	0	0
8:45 AM - 9:00 AM	0	0	0	0	1	0	14	0	11	12	0	0	0	54	2	0
TOTAL	**0**	**0**	**0**	**0**	**17**	**0**	**223**	**0**	**91**	**253**	**0**	**4**	**0**	**544**	**34**	**6**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	3	0	18	0	30	75	0	0	0	41	2	0
4:15 PM - 4:30 PM	0	0	0	0	2	0	20	0	32	68	0	0	0	48	2	0
4:30 PM - 4:45 PM	0	0	0	0	1	0	25	0	30	74	0	0	0	41	3	1
4:45 PM - 5:00 PM	0	0	0	0	3	0	23	0	36	89	0	0	0	48	4	1
5:00 PM - 5:15 PM	0	0	0	0	2	0	14	0	46	72	0	0	0	53	3	0
5:15 PM - 5:30 PM	0	0	0	0	2	0	13	0	32	80	0	0	0	38	1	0
5:30 PM - 5:45 PM	0	0	0	0	3	0	25	0	29	76	0	0	0	41	1	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	23	0	36	68	0	0	0	33	0	0
TOTAL	**0**	**0**	**0**	**0**	**16**	**0**	**161**	**0**	**271**	**602**	**0**	**0**	**0**	**343**	**16**	**2**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	0	0	0	0	15	0	135	0	54	176	0	3	0	328	27	4
4:15 PM - 5:15 PM	0	0	0	0	8	0	82	0	144	303	0	0	0	190	12	2

	PHF	Trucks
AM	0.851	1.0%
PM	0.910	0.3%



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Turning Movement Report

Prepared For:
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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

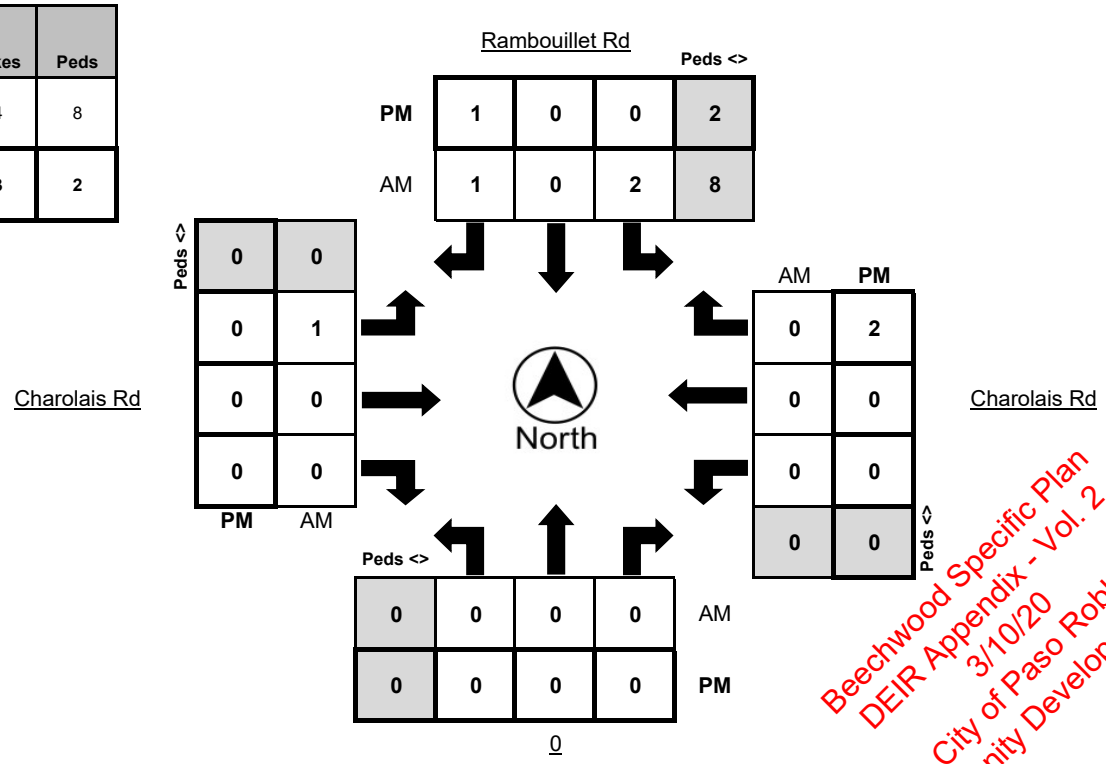
LOCATION Charolais Rd @ Rambouillet Rd
LATITUDE 35.6024
COUNTY San Luis Obispo
LONGITUDE -120.6670
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	2	2	0	1	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**17**	**2**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:15 PM - 5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	8	2	0	1	0	1	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	2	0	0	1	0	0	0	0	0	0	0	2	0

	Bikes	Peds
AM Peak Total	4	8
PM Peak Total	3	2



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Prepared For:
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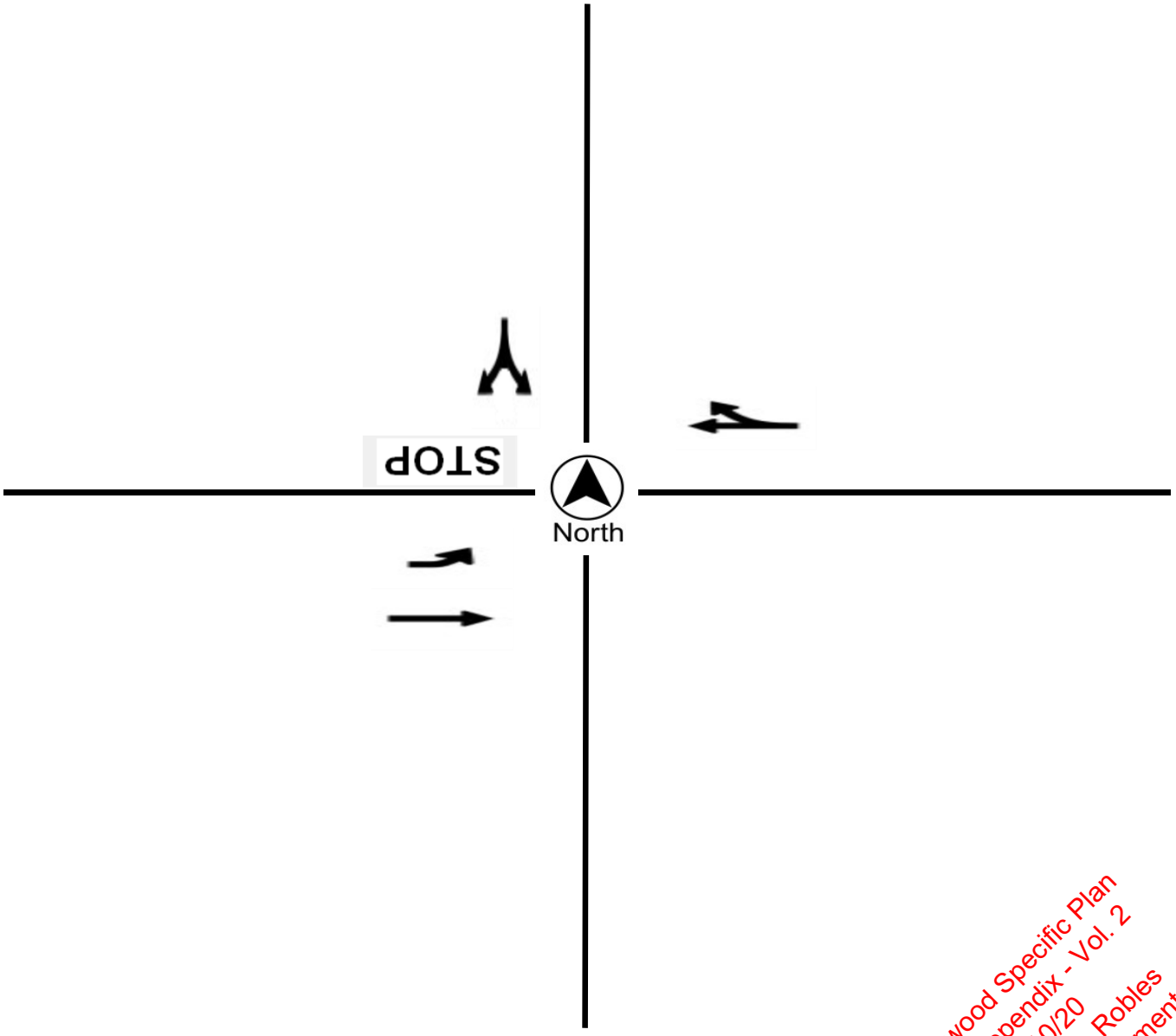
Morro Bay, CA 93442

LOCATION	Charolais Rd @ Rambouillet Rd	**N/S STREET**	Rambouillet Rd /
COUNTY	San Luis Obispo	**E/W STREET**	Charolais Rd / Charolais Rd
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

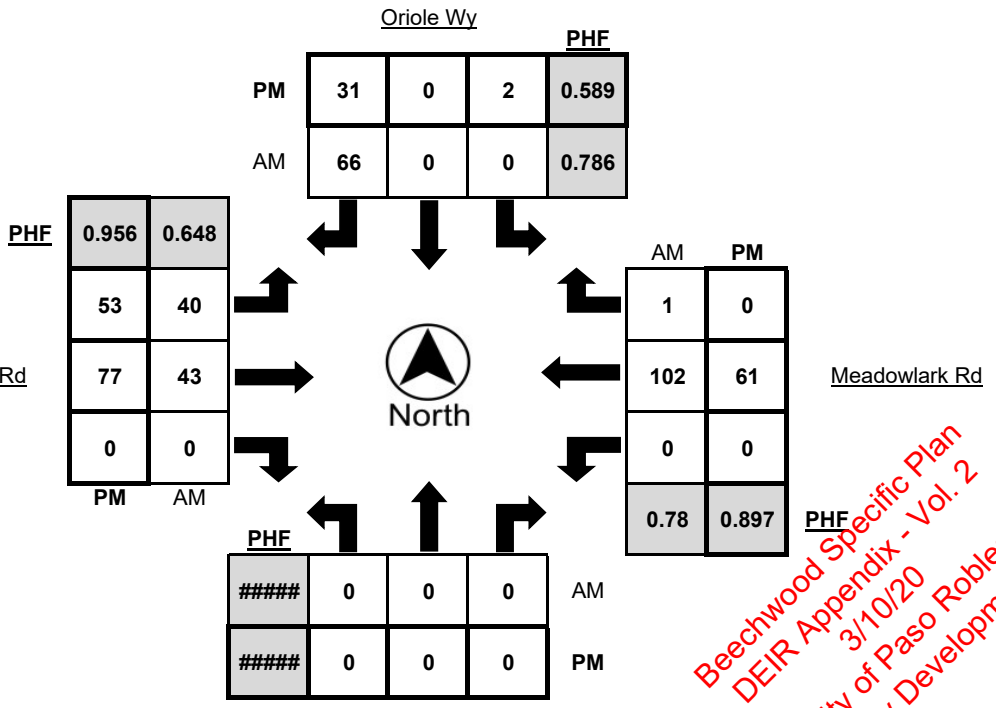
LOCATION Meadowlark Rd @ Oriole Wy
LATITUDE 35.6011
COUNTY San Luis Obispo
LONGITUDE -120.6501
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	0	0	8	0	0	6	0	0	0	21	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	16	0	2	6	0	0	0	18	1	1
7:30 AM - 7:45 AM	0	0	0	0	0	0	20	0	4	7	0	0	0	33	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	21	0	10	13	0	0	0	33	0	1
8:00 AM - 8:15 AM	0	0	0	0	0	0	15	0	16	16	0	0	0	17	1	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	10	0	10	7	0	0	0	19	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	4	0	7	8	0	0	0	14	0	0
8:45 AM - 9:00 AM	0	0	0	0	1	0	9	0	3	5	0	0	0	11	0	0
TOTAL	**0**	**0**	**0**	**0**	**1**	**0**	**103**	**0**	**52**	**68**	**0**	**0**	**0**	**166**	**2**	**2**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	0	0	5	0	16	22	0	0	0	13	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	6	0	9	15	0	0	0	13	2	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	6	0	15	18	0	0	0	17	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	7	0	16	18	0	0	0	16	0	0
5:00 PM - 5:15 PM	0	0	0	0	2	0	12	0	12	17	0	0	0	15	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	6	0	10	24	0	0	0	13	0	1
5:30 PM - 5:45 PM	0	0	0	0	0	0	8	0	7	29	0	0	0	10	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	2	0	9	20	0	0	0	10	0	0
TOTAL	**0**	**0**	**0**	**0**	**2**	**0**	**52**	**0**	**94**	**163**	**0**	**0**	**0**	**107**	**2**	**1**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	0	0	0	0	0	0	66	0	40	43	0	0	0	102	1	1
4:30 PM - 5:30 PM	0	0	0	0	2	0	31	0	53	77	0	0	0	61	0	1

	PHF	Trucks
AM	0.818	0.4%
PM	0.966	0.4%



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Community Development Dept.

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

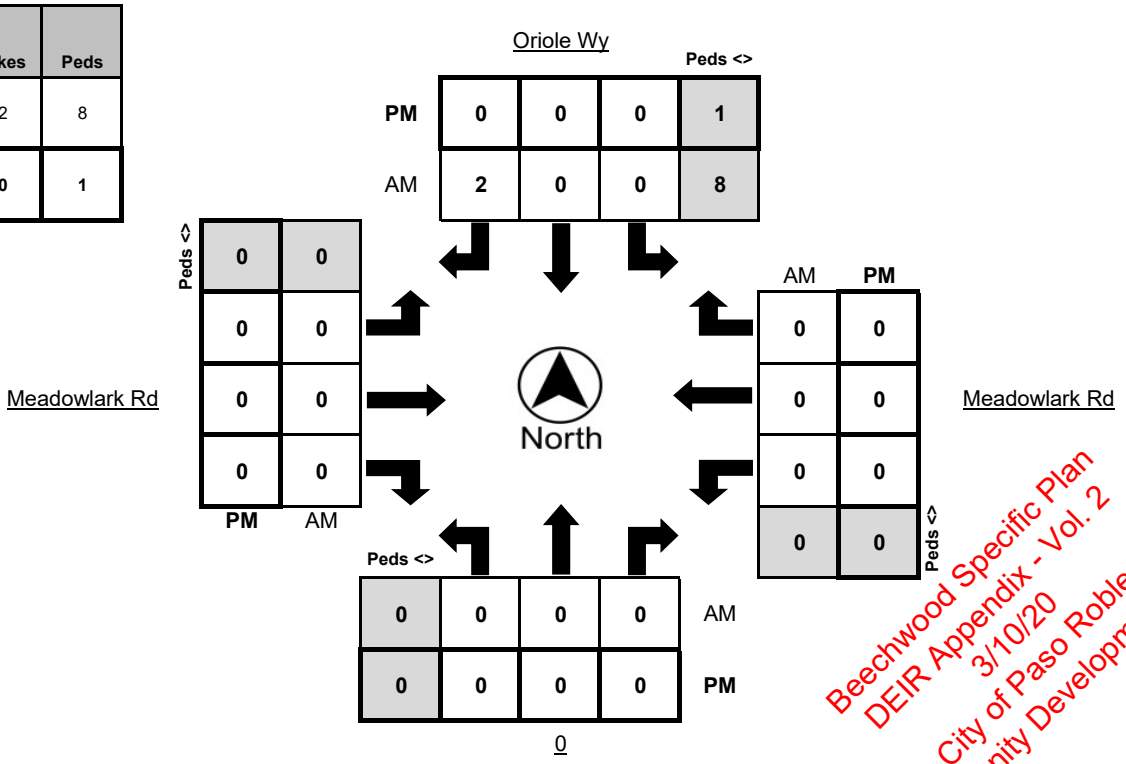
LOCATION Meadowlark Rd @ Oriole Wy
LATITUDE 35.6011
COUNTY San Luis Obispo
LONGITUDE -120.6501
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	2	0	0
7:30 AM - 7:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	3	0	0	2	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL	**0**	**0**	**0**	**18**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	8	0	0	2	0	0	0	0	0	0	0	0	0
4:30 PM - 5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	2	8
PM Peak Total	0	1



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Metro Traffic Data Inc.
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Hanford, CA 93230

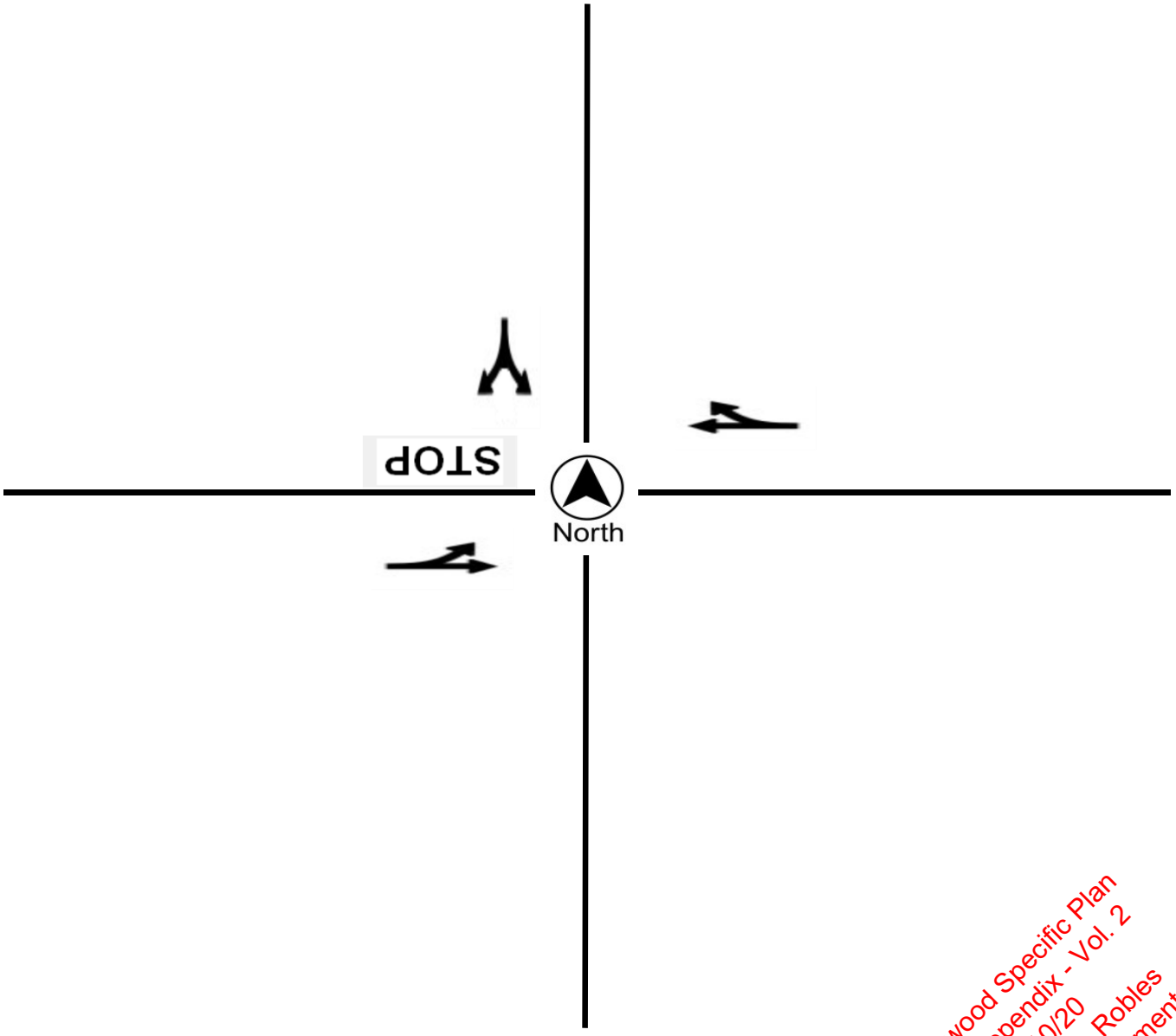
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Central Coast Transportation Consulting
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	Meadowlark Rd @ Oriole Wy	**N/S STREET**	Oriole Wy /
COUNTY	San Luis Obispo	**E/W STREET**	Meadowlark Rd / Meadowlark Rd
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:

OMNI-Means
943 Reserve Drive
Roseville, CA 95678

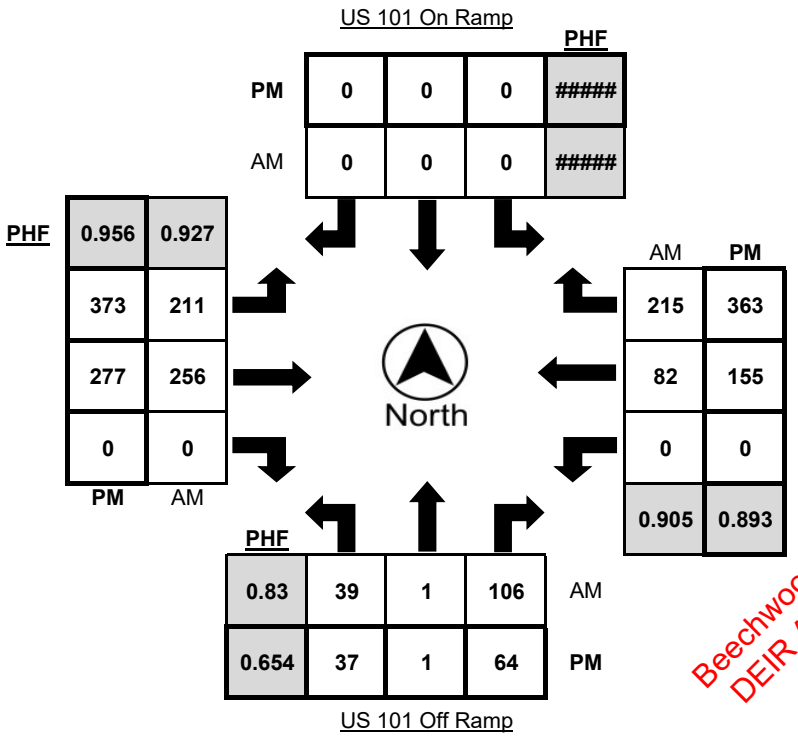
LOCATION	SR 46W @ US 101 NB Ramps	**LATITUDE**	35.5893
COUNTY	San Luis Obispo	**LONGITUDE**	-120.6950
COLLECTION DATE	Tuesday, May 22, 2018	**WEATHER**	Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	4	0	20	0	0	0	0	0	36	54	0	6	0	15	27	8
7:15 AM - 7:30 AM	4	0	37	1	0	0	0	0	22	62	0	10	0	11	35	12
7:30 AM - 7:45 AM	2	0	25	3	0	0	0	0	40	90	0	5	0	17	39	8
7:45 AM - 8:00 AM	10	1	24	3	0	0	0	0	44	91	0	8	0	18	34	7
8:00 AM - 8:15 AM	11	0	26	4	0	0	0	0	65	61	0	11	0	17	47	21
8:15 AM - 8:30 AM	9	1	34	1	0	0	0	0	55	51	0	8	0	19	60	13
8:30 AM - 8:45 AM	6	0	17	0	0	0	0	0	38	81	0	14	0	28	44	11
8:45 AM - 9:00 AM	13	0	29	3	0	0	0	0	53	63	0	10	0	18	64	17
TOTAL	**59**	**2**	**212**	**15**	**0**	**0**	**0**	**0**	**353**	**553**	**0**	**72**	**0**	**143**	**350**	**97**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	6	0	16	0	0	0	0	0	89	81	0	5	0	31	88	4
4:15 PM - 4:30 PM	13	0	26	1	0	0	0	0	90	76	0	12	0	38	75	7
4:30 PM - 4:45 PM	11	1	10	0	0	0	0	0	101	56	0	9	0	42	103	4
4:45 PM - 5:00 PM	7	0	12	0	0	0	0	0	93	64	0	7	0	44	97	8
5:00 PM - 5:15 PM	13	1	20	0	0	0	0	0	104	44	0	16	0	47	73	6
5:15 PM - 5:30 PM	17	0	11	1	0	0	0	0	103	46	0	14	0	41	79	6
5:30 PM - 5:45 PM	6	1	10	0	0	0	0	0	111	24	0	9	0	42	60	4
5:45 PM - 6:00 PM	11	0	12	0	0	0	0	0	96	29	0	4	0	24	58	4
TOTAL	**84**	**3**	**117**	**2**	**0**	**0**	**0**	**0**	**787**	**420**	**0**	**76**	**0**	**309**	**633**	**43**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
8:00 AM - 9:00 AM	39	1	106	8	0	0	0	0	211	256	0	43	0	82	215	62
4:00 PM - 5:00 PM	37	1	64	1	0	0	0	0	373	277	0	33	0	155	363	23

	PHF	Trucks
AM	0.948	12.4%
PM	0.980	4.5%



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www.metrotrafficdata.com

Turning Movement Report

Prepared For:

OMNI-Means
943 Reserve Drive
Roseville, CA 95678

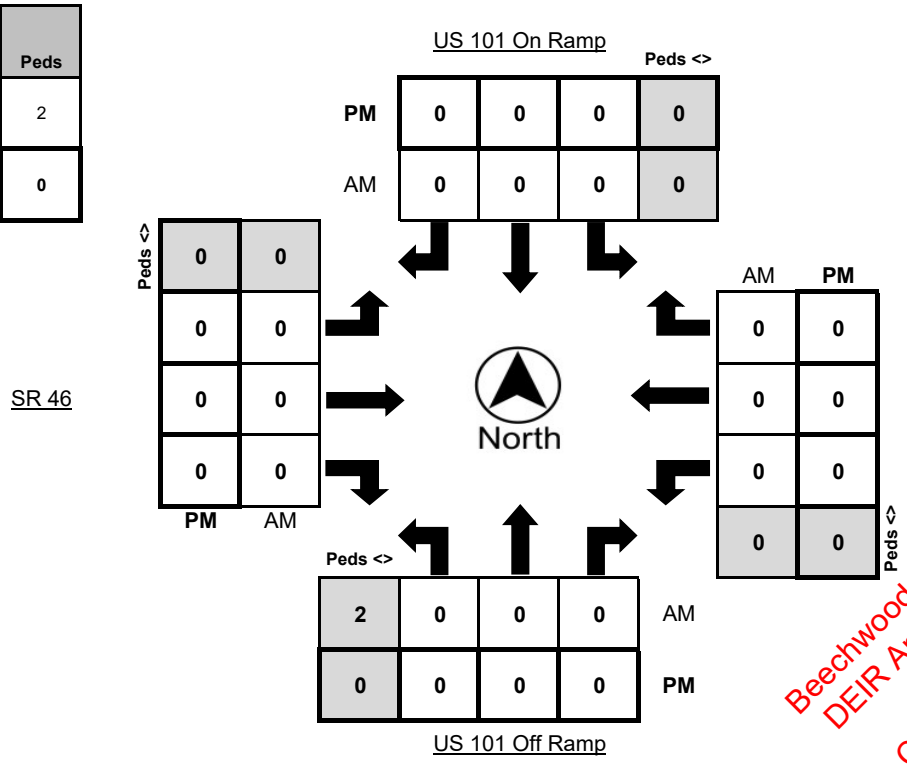
LOCATION	SR 46W @ US 101 NB Ramps	**LATITUDE**	35.5893
COUNTY	San Luis Obispo	**LONGITUDE**	-120.6950
COLLECTION DATE	Tuesday, May 22, 2018	**WEATHER**	Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:00 AM - 7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	2
PM Peak Total	**0**	**0**



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800-975-6938 Phone/Fax
www.metrotrafficdata.com

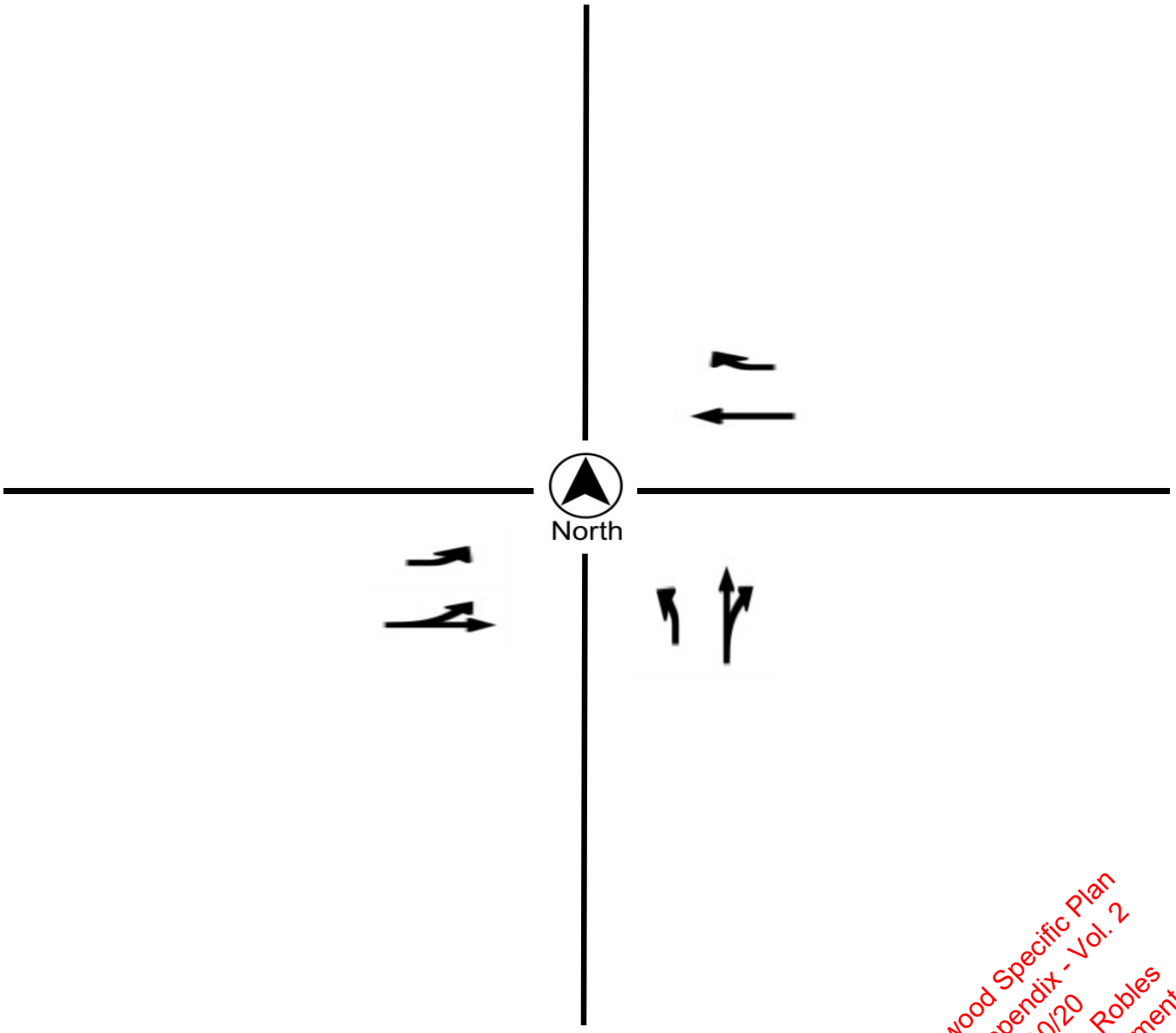
Turning Movement Report

Prepared For:

OMNI-Means
943 Reserve Drive
Roseville, CA 95678

LOCATION	SR 46W @ US 101 NB Ramps	**N/S STREET**	US 101 On Ramp / US 101 Off Ramp
COUNTY	San Luis Obispo	**E/W STREET**	SR 46 / SR 46
COLLECTION DATE	Tuesday, May 22, 2018	**WEATHER**	Clear
CYCLE TIME	98 Seconds	**CONTROL TYPE**	Signal

COMMENTS Eastbound left turns are protected.



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Turning Movement Report

Prepared For:

OMNI-Means
943 Reserve Drive
Roseville, CA 95678

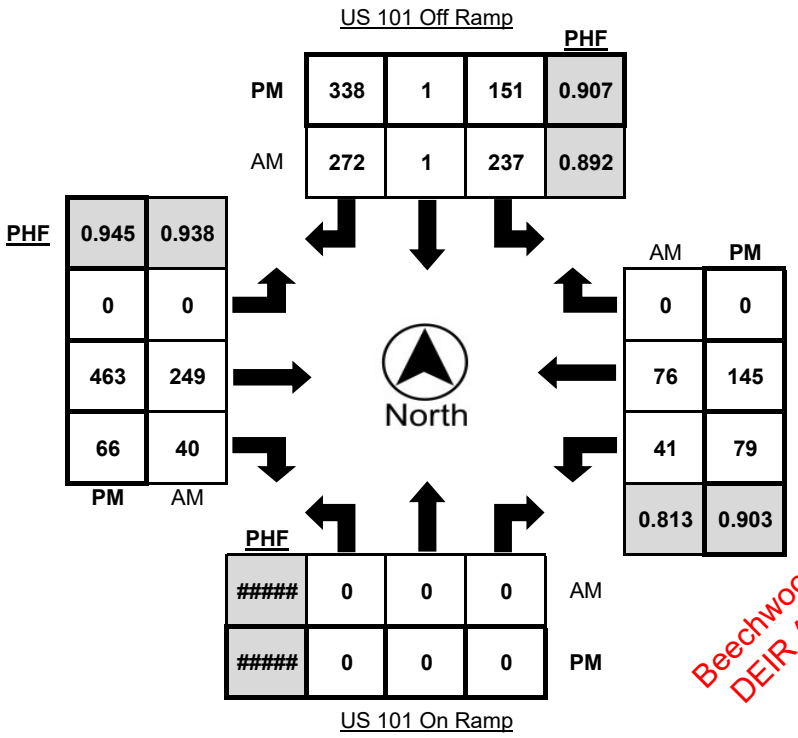
LOCATION	SR 46W @ US 101 SB Ramps	**LATITUDE**	35.5894
COUNTY	San Luis Obispo	**LONGITUDE**	-120.6961
COLLECTION DATE	Tuesday, May 22, 2018	**WEATHER**	Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	53	1	33	5	0	35	5	0	2	14	0	2
7:15 AM - 7:30 AM	0	0	0	0	51	1	49	8	0	33	21	3	5	9	0	2
7:30 AM - 7:45 AM	0	0	0	0	46	0	51	14	0	83	15	2	7	14	0	3
7:45 AM - 8:00 AM	0	0	0	0	69	0	74	7	0	66	9	1	7	20	0	3
8:00 AM - 8:15 AM	0	0	0	0	65	0	74	8	0	61	10	2	9	19	0	1
8:15 AM - 8:30 AM	0	0	0	0	54	0	69	8	0	53	13	2	9	17	0	4
8:30 AM - 8:45 AM	0	0	0	0	49	1	55	5	0	69	8	4	16	20	0	2
8:45 AM - 9:00 AM	0	0	0	0	58	0	79	14	0	57	15	5	11	23	0	1
TOTAL	**0**	**0**	**0**	**0**	**445**	**3**	**484**	**69**	**0**	**457**	**96**	**19**	**66**	**136**	**0**	**18**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	44	0	108	7	0	126	6	3	12	26	0	1
4:15 PM - 4:30 PM	0	0	0	0	44	0	89	7	0	119	15	4	18	30	0	1
4:30 PM - 4:45 PM	0	0	0	0	37	0	76	6	0	120	13	1	20	35	0	2
4:45 PM - 5:00 PM	0	0	0	0	39	0	82	5	0	120	10	3	21	28	0	0
5:00 PM - 5:15 PM	0	0	0	0	39	1	95	4	0	107	19	3	18	40	0	4
5:15 PM - 5:30 PM	0	0	0	0	36	0	85	2	0	116	24	3	20	42	0	1
5:30 PM - 5:45 PM	0	0	0	0	38	0	108	2	0	93	8	1	14	29	0	1
5:45 PM - 6:00 PM	0	0	0	0	20	0	75	3	0	105	7	2	9	24	0	2
TOTAL	**0**	**0**	**0**	**0**	**297**	**1**	**718**	**36**	**0**	**906**	**102**	**20**	**132**	**254**	**0**	**12**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:45 AM - 8:45 AM	0	0	0	0	237	1	272	28	0	249	40	9	41	76	0	10
4:30 PM - 5:30 PM	0	0	0	0	151	1	338	17	0	463	66	10	79	145	0	7

	PHF	Trucks
AM	0.935	5.1%
PM	0.962	2.7%



Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

OMNI-Means
943 Reserve Drive
Roseville, CA 95678

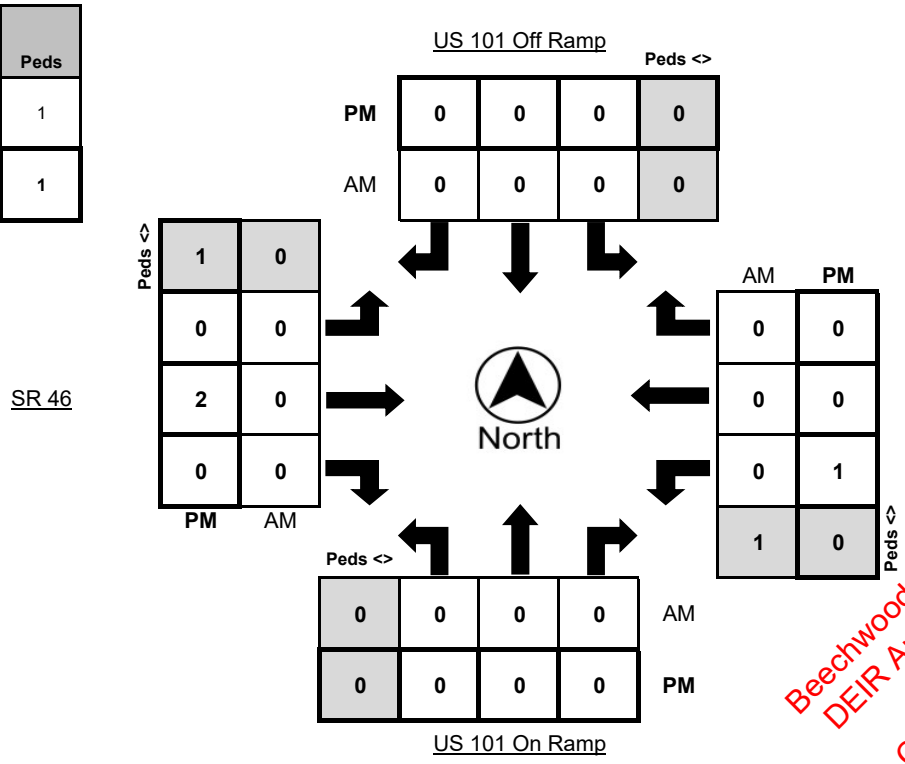
LOCATION	SR 46W @ US 101 SB Ramps	**LATITUDE**	35.5894
COUNTY	San Luis Obispo	**LONGITUDE**	-120.6961
COLLECTION DATE	Tuesday, May 22, 2018	**WEATHER**	Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1

	Bikes	Peds
AM Peak Total	0	1
PM Peak Total	**3**	**1**



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3/10/20
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Community Development Dept.

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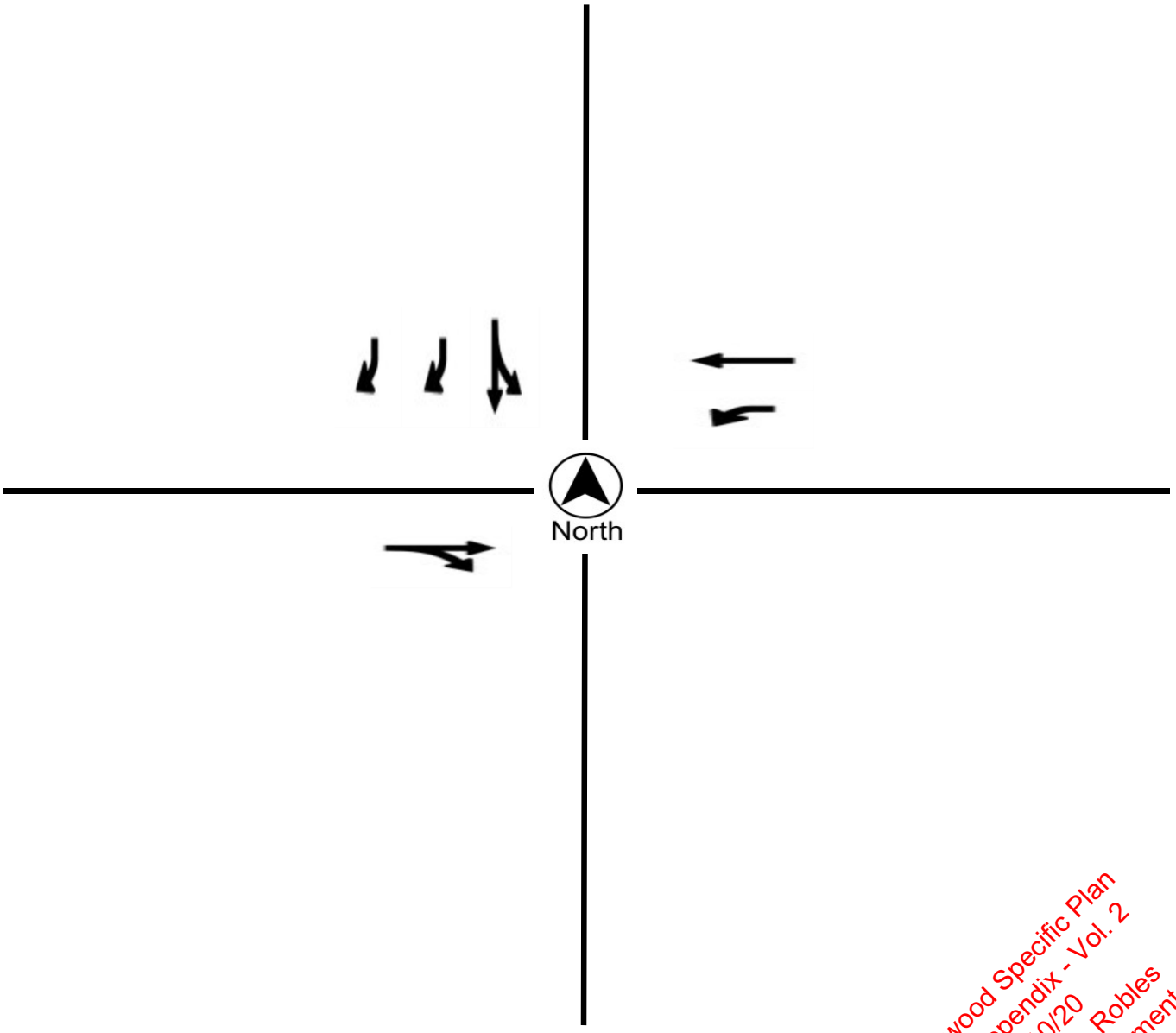
Turning Movement Report

Prepared For:

OMNI-Means
943 Reserve Drive
Roseville, CA 95678

LOCATION	SR 46W @ US 101 SB Ramps	**N/S STREET**	US 101 Off Ramp / US 101 On Ramp
COUNTY	San Luis Obispo	**E/W STREET**	SR 46 / SR 46
COLLECTION DATE	Tuesday, May 22, 2018	**WEATHER**	Clear
CYCLE TIME	71 Seconds	**CONTROL TYPE**	Signal

COMMENTS Westbound left turns are protected.



Beechwood Specific Plan
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3/10/20
City of Paso Robles
Community Development Dept.

Freeway Counts

Beechwood Specific Plan
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Community Development Dept.

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Hanford, CA 93230

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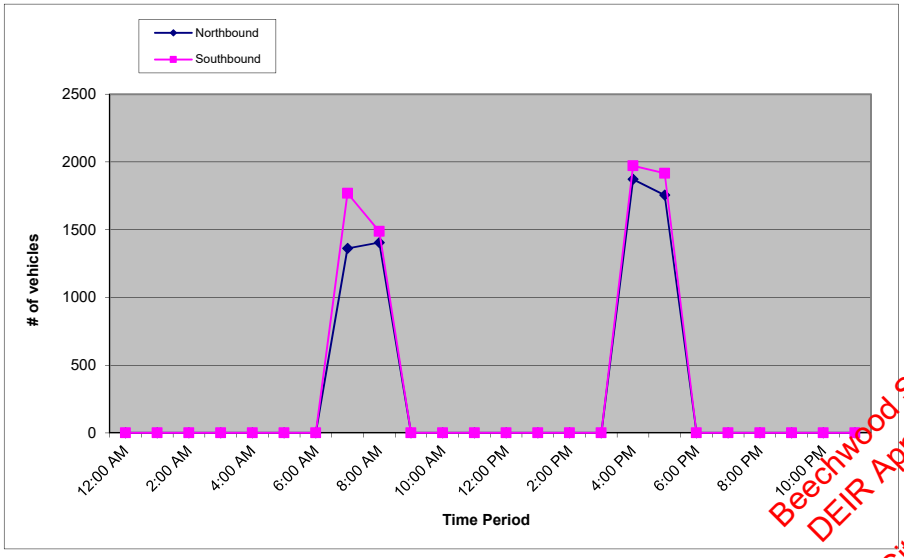
Peak Hour Volume

Prepared For: **Central Coast Trans. Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION 101 Mainline @ Niblick Rd Bridge
LATITUDE 35.6154332
COUNTY San Luis Obispo
LONGITUDE -120.688532
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear
NUMBER OF LANES 4

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
5:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
6:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 AM	237	309	395	421	**1362**	340	472	465	492	**1769**	**3131**
8:00 AM	340	366	358	341	**1405**	401	392	334	360	**1487**	**2892**
9:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
12:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 PM	414	467	497	494	**1872**	442	446	546	538	**1972**	**3844**
5:00 PM	471	482	425	377	**1755**	584	484	406	442	**1916**	**3671**
6:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
8:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
9:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
Total	**47.2%**				**6394**	**52.8%**				**7144**	
	13538										

AM%	**44.5%**	**AM Peak**	**3295**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.90**
PM%	**55.5%**	**PM Peak**	**4096**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.97**



Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

Location: US 101 Mainline at Niblick Rd Bridge
Date: 6/6/2018

	Northbound		Southbound			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
7:00 AM	237	19	340	26	**577**	**8%**
7:15 AM	309	18	472	28	**781**	**6%**
7:30 AM	395	26	465	38	**860**	**7%**
7:45 AM	421	29	492	35	**913**	**7%**
8:00 AM	340	21	401	39	**741**	**8%**
8:15 AM	366	34	392	38	**758**	**9%**
8:30 AM	358	40	334	23	**692**	**9%**
8:45 AM	341	28	360	31	**701**	**8%**
Totals:	**2767**	**215**	**3256**	**258**	**6023**	**8%**

Peak Hour Values

7:15 AM - 8:15 AM	1465	94	1830	140	3295	7%

	Northbound		Southbound			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
4:00 PM	414	22	442	30	**856**	**6%**
4:15 PM	467	25	446	32	**913**	**6%**
4:30 PM	497	24	546	28	**1043**	**5%**
4:45 PM	494	15	538	21	**1032**	**3%**
5:00 PM	471	19	584	38	**1055**	**5%**
5:15 PM	482	18	484	32	**966**	**5%**
5:30 PM	425	18	406	20	**831**	**5%**
5:45 PM	377	13	442	15	**819**	**3%**
Totals:	**3627**	**154**	**3888**	**216**	**7515**	**5%**

Peak Hour Values

4:30 PM - 5:30 PM	1944	76	2152	119	4096	5%

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Hanford, CA 93230

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www.metrotrafficdata.com

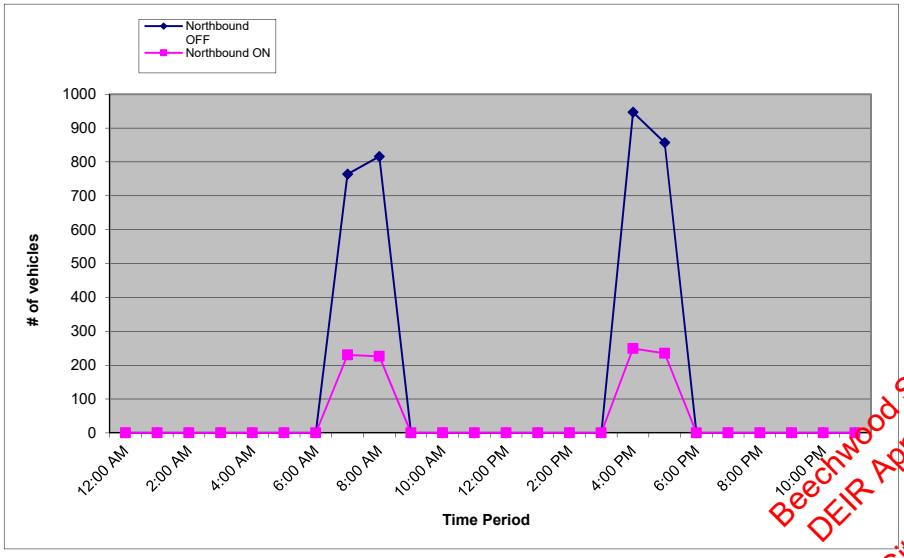
Peak Hour Volume

Prepared For: **Central Coast Trans. Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION 101 NB Ramps @ SR 46 E
LATITUDE 35.6428285
COUNTY San Luis Obispo
LONGITUDE -120.6843692
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear
NUMBER OF LANES 2 OFF / 1 ON

	Northbound OFF					Northbound ON					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
5:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
6:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 AM	135	161	205	263	**764**	44	46	55	85	**230**	**994**
8:00 AM	223	199	179	215	**816**	68	52	60	46	**226**	**1042**
9:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
12:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 PM	235	223	246	243	**947**	65	55	72	57	**249**	**1196**
5:00 PM	224	225	219	189	**857**	59	59	70	47	**235**	**1092**
6:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
8:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
9:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
Total	**78.3%**				**3384**	**21.7%**				**940**	
	4324										

AM%	**47.1%**	**AM Peak 1150**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.83**
PM%	**52.9%**	**PM Peak 1196**	**4:00 pm to 5:00 pm**	**PM P.H.F.**	**0.94**



Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

Location: 101 NB Ramps @ SR 46 E
Date: 6/6/2018

	NB OFF		NB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
7:00 AM	135	7	44	10	**179**	**9%**
7:15 AM	161	5	46	9	**207**	**7%**
7:30 AM	205	4	55	6	**260**	**4%**
7:45 AM	263	19	85	14	**348**	**9%**
8:00 AM	223	11	68	4	**291**	**5%**
8:15 AM	199	9	52	14	**251**	**9%**
8:30 AM	179	17	60	14	**239**	**13%**
8:45 AM	215	13	46	10	**261**	**9%**
Totals:	**1580**	**85**	**456**	**81**	**2036**	**8%**

Peak Hour Values

7:30 AM - 8:30 AM	890	43	260	38	1150	7%

	NB OFF		NB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
4:00 PM	235	8	65	10	**300**	**6%**
4:15 PM	223	5	55	5	**278**	**4%**
4:30 PM	246	5	72	8	**318**	**4%**
4:45 PM	243	4	57	5	**300**	**3%**
5:00 PM	224	6	59	8	**283**	**5%**
5:15 PM	225	7	59	10	**284**	**6%**
5:30 PM	219	5	70	11	**289**	**6%**
5:45 PM	189	7	47	8	**236**	**6%**
Totals:	**1804**	**47**	**484**	**65**	**2288**	**5%**

Peak Hour Values

4:00 PM - 5:00 PM	947	22	249	28	1196	4%

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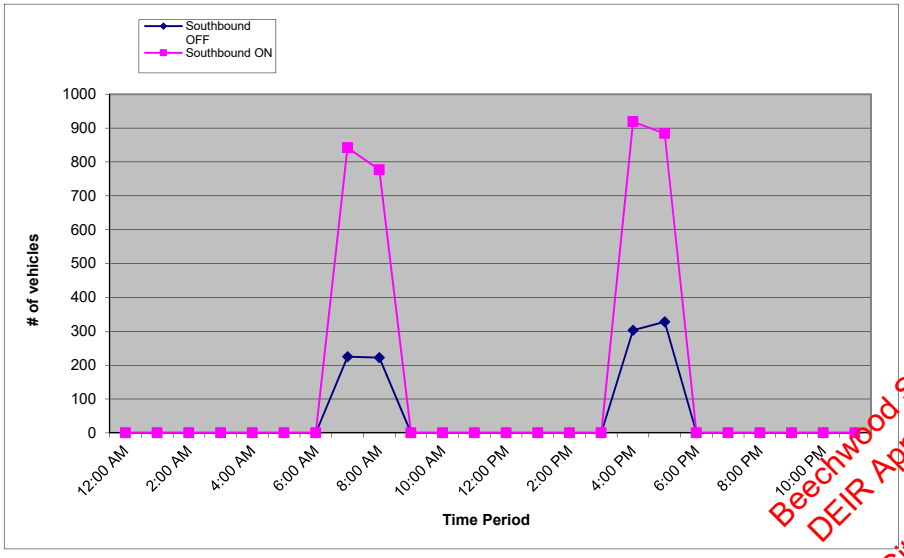
Peak Hour Volume

Prepared For: **Central Coast Trans. Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION US 101 SB Ramps @ SR 46 E
LATITUDE 35.6424274
COUNTY San Luis Obispo
LONGITUDE -120.6856352
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear
NUMBER OF LANES 2 OFF / 2 ON

	Southbound OFF					Southbound ON					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
5:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
6:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 AM	38	64	58	65	**225**	164	224	205	249	**842**	**1067**
8:00 AM	61	53	59	49	**222**	214	213	179	171	**777**	**999**
9:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
12:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 PM	67	70	75	91	**303**	230	198	245	246	**919**	**1222**
5:00 PM	79	82	91	76	**328**	246	255	160	223	**884**	**1212**
6:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
8:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
9:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
Total	**24.0%**				**1078**	**76.0%**				**3422**	
	4500										

AM%	**45.9%**	**AM Peak**	**1140**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.91**
PM%	**54.1%**	**PM Peak**	**1319**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.98**



Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

Location: US 101 SB @ SR 46 E
Date: 6/6/2018

	SB OFF		SB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
7:00 AM	38	10	164	16	**202**	**13%**
7:15 AM	64	14	224	9	**288**	**8%**
7:30 AM	58	9	205	13	**263**	**8%**
7:45 AM	65	11	249	13	**314**	**8%**
8:00 AM	61	13	214	24	**275**	**13%**
8:15 AM	53	12	213	20	**266**	**12%**
8:30 AM	59	15	179	10	**238**	**11%**
8:45 AM	49	11	171	24	**220**	**16%**
Totals:	**447**	**95**	**1619**	**129**	**2066**	**11%**

Peak Hour Values

7:15 AM - 8:15 AM	248	47	892	59	1140	9%

	SB OFF		SB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
4:00 PM	67	15	230	5	**297**	**7%**
4:15 PM	70	12	198	12	**268**	**9%**
4:30 PM	75	19	245	9	**320**	**9%**
4:45 PM	91	18	246	8	**337**	**8%**
5:00 PM	79	16	246	9	**325**	**8%**
5:15 PM	82	15	255	6	**337**	**6%**
5:30 PM	91	21	160	3	**251**	**10%**
5:45 PM	76	17	223	5	**299**	**7%**
Totals:	**631**	**133**	**1803**	**57**	**2434**	**8%**

Peak Hour Values

4:30 PM - 5:30 PM	327	68	992	32	1319	8%

Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

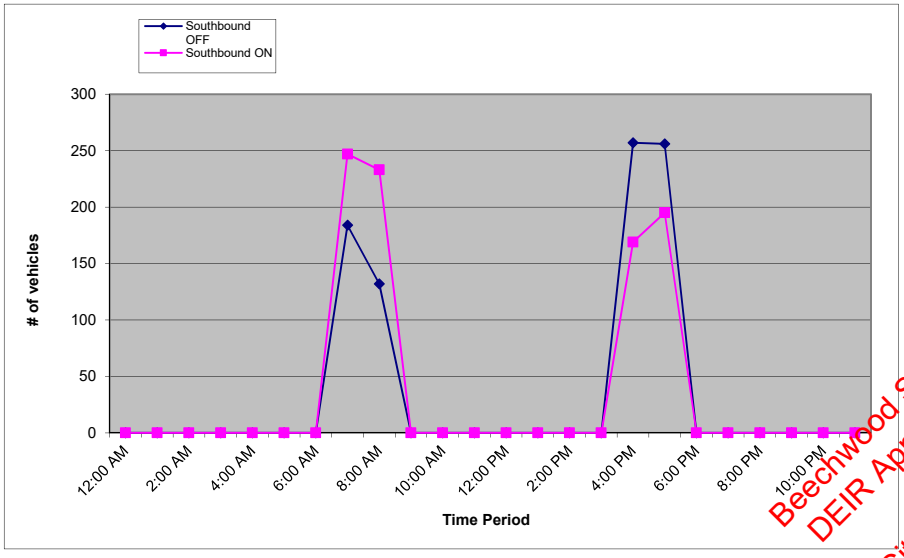
Peak Hour Volume

Prepared For: **Central Coast Trans. Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION US 101 SB Ramps @ Riverside Ave/17th St
LATITUDE 35.6320947
COUNTY San Luis Obispo
LONGITUDE -120.6873304
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear
NUMBER OF LANES 1 OFF / 1 ON

	Southbound OFF					Southbound ON					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
5:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
6:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 AM	18	44	58	64	**184**	38	57	73	79	**247**	**431**
8:00 AM	55	41	26	10	**132**	73	73	43	44	**233**	**365**
9:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
12:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 PM	43	59	60	95	**257**	34	35	54	46	**169**	**426**
5:00 PM	80	68	49	59	**256**	60	45	49	41	**195**	**451**
6:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
8:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
9:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
Total	**49.6%**				**829**	**50.4%**				**844**	
	1673										

AM%	**47.6%**	**AM Peak**	**516**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.90**
PM%	**52.4%**	**PM Peak**	**508**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.90**



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Community Development Dept.

Location: US 101 SB Ramps @ Riverside Ave/17th St
Date: 6/6/2018

	SB OFF		SB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
7:00 AM	18	0	38	3	**56**	**5%**
7:15 AM	44	0	57	5	**101**	**5%**
7:30 AM	58	0	73	1	**131**	**1%**
7:45 AM	64	0	79	1	**143**	**1%**
8:00 AM	55	0	73	1	**128**	**1%**
8:15 AM	41	0	73	1	**114**	**1%**
8:30 AM	26	0	43	1	**69**	**1%**
8:45 AM	10	1	44	0	**54**	**2%**
Totals:	**316**	**1**	**480**	**13**	**796**	**2%**

Peak Hour Values

7:30 AM - 8:30 AM	218	0	298	4	516	1%

	SB OFF		SB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
4:00 PM	43	0	34	0	**77**	**0%**
4:15 PM	59	0	35	0	**94**	**0%**
4:30 PM	60	0	54	1	**114**	**1%**
4:45 PM	95	0	46	0	**141**	**0%**
5:00 PM	80	1	60	0	**140**	**1%**
5:15 PM	68	0	45	0	**113**	**0%**
5:30 PM	49	0	49	0	**98**	**0%**
5:45 PM	59	1	41	0	**100**	**1%**
Totals:	**513**	**2**	**364**	**1**	**877**	**0%**

Peak Hour Values

4:30 PM - 5:30 PM	303	1	205	1	508	0%

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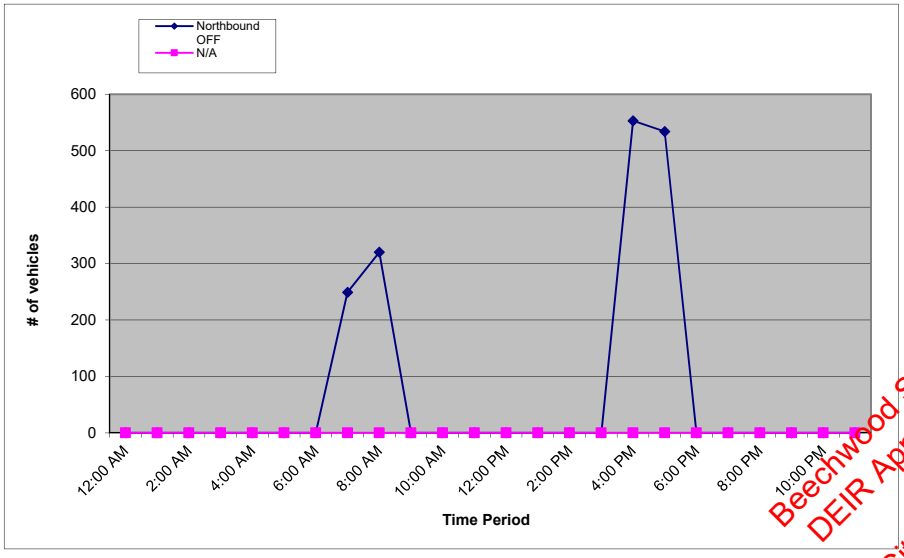
Peak Hour Volume

Prepared For: **Central Coast Trans. Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION US 101 NB Offramp @ Paso Robles St
LATITUDE 35.6210237
COUNTY San Luis Obispo
LONGITUDE -120.6854367
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear
NUMBER OF LANES 1 OFF

	Northbound OFF					N/A					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
5:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
6:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 AM	44	58	61	86	**249**	-	-	-	-	**0**	**249**
8:00 AM	86	81	70	83	**320**	-	-	-	-	**0**	**320**
9:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
12:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 PM	133	147	137	136	**553**	-	-	-	-	**0**	**553**
5:00 PM	141	147	113	133	**534**	-	-	-	-	**0**	**534**
6:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
8:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
9:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
Total	**100.0%**				**1656**	**0.0%**				**0**	
	1656										

AM%	**34.4%**	**AM Peak**	**323**	**7:45 am to 8:45 am**	**AM P.H.F.**	**0.94**
PM%	**65.6%**	**PM Peak**	**561**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.95**



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3/10/20
City of Paso Robles
Community Development Dept.

Location: US 101 NB Offramp @ Paso Robles St
Date: 6/7/2018

	NB OFF		NB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
7:00 AM	44	0	-	-	**44**	**0%**
7:15 AM	58	2	-	-	**58**	**3%**
7:30 AM	61	0	-	-	**61**	**0%**
7:45 AM	86	1	-	-	**86**	**1%**
8:00 AM	86	3	-	-	**86**	**3%**
8:15 AM	81	1	-	-	**81**	**1%**
8:30 AM	70	2	-	-	**70**	**3%**
8:45 AM	83	0	-	-	**83**	**0%**
Totals:	**569**	**9**	**-**	**-**	**569**	**2%**

Peak Hour Values

7:45 AM - 8:45 AM	323	7	-	-	323	2%

	NB OFF		NB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
4:00 PM	133	0	-	-	**133**	**0%**
4:15 PM	147	2	-	-	**147**	**1%**
4:30 PM	137	0	-	-	**137**	**0%**
4:45 PM	136	0	-	-	**136**	**0%**
5:00 PM	141	0	-	-	**141**	**0%**
5:15 PM	147	0	-	-	**147**	**0%**
5:30 PM	113	0	-	-	**113**	**0%**
5:45 PM	133	0	-	-	**133**	**0%**
Totals:	**1087**	**2**	**-**	**-**	**1087**	**0%**

Peak Hour Values

4:30 PM - 5:30 PM	561	0	-	-	561	0%

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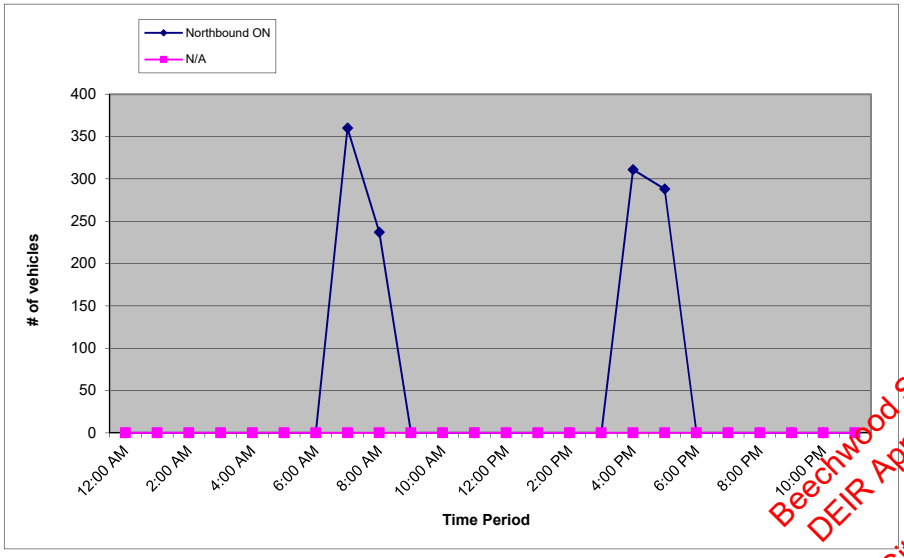
Peak Hour Volume

Prepared For: **Central Coast Trans. Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION US 101 NB Onramp @ Paso Robles St
LATITUDE 35.6298427
COUNTY San Luis Obispo
LONGITUDE -120.6864345
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear
NUMBER OF LANES 1 ON

	Northbound ON					N/A					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
5:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
6:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 AM	59	64	102	135	**360**	-	-	-	-	**0**	**360**
8:00 AM	93	43	45	56	**237**	-	-	-	-	**0**	**237**
9:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 AM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
12:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
1:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
2:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
3:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
4:00 PM	74	74	85	78	**311**	-	-	-	-	**0**	**311**
5:00 PM	84	79	74	51	**288**	-	-	-	-	**0**	**288**
6:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
7:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
8:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
9:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
10:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
11:00 PM	-	-	-	-	**0**	-	-	-	-	**0**	**0**
Total	**100.0%**				**1196**	**0.0%**				**0**	
	1196										

AM%	**49.9%**	**AM Peak 394**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.73**
PM%	**50.1%**	**PM Peak 326**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.96**



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City of Paso Robles
Community Development Dept.

Location: US 101 NB Onramp @ Paso Robles St
Date: 6/6/2018

	NB OFF		NB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
7:00 AM	-	-	59	1	**59**	**2%**
7:15 AM	-	-	64	3	**64**	**5%**
7:30 AM	-	-	102	3	**102**	**3%**
7:45 AM	-	-	135	3	**135**	**2%**
8:00 AM	-	-	93	0	**93**	**0%**
8:15 AM	-	-	43	1	**43**	**2%**
8:30 AM	-	-	45	2	**45**	**4%**
8:45 AM	-	-	56	2	**56**	**4%**
Totals:	**-**	**-**	**597**	**15**	**597**	**3%**

Peak Hour Values

7:15 AM - 8:15 AM	-	-	394	9	394	2%

	NB OFF		NB ON			
Interval	**ALL Vehicles**	**Trucks**	**All Vehicles**	**Trucks**	**TOTAL**	**Truck %**
4:00 PM	-	-	74	2	**74**	**3%**
4:15 PM	-	-	74	1	**74**	**1%**
4:30 PM	-	-	85	0	**85**	**0%**
4:45 PM	-	-	78	2	**78**	**3%**
5:00 PM	-	-	84	2	**84**	**2%**
5:15 PM	-	-	79	0	**79**	**0%**
5:30 PM	-	-	74	0	**74**	**0%**
5:45 PM	-	-	51	2	**51**	**4%**
Totals:	**-**	**-**	**599**	**9**	**599**	**2%**

Peak Hour Values

4:30 PM - 5:30 PM	-	-	326	4	326	1%

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Segment Counts

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24 Hour Count Report

Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Creston Rd e/o Ferro Ln

LATITUDE 35.6289445

COUNTY San Luis Obispo

LONGITUDE -120.6777817

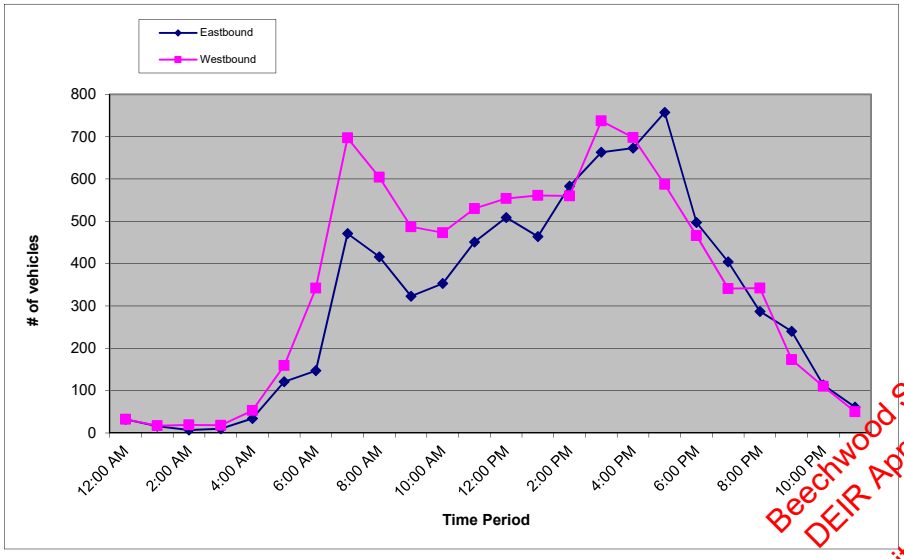
COLLECTION DATE Tuesday, June 5, 2018

WEATHER Clear

NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	9	10	5	8	**32**	15	7	3	7	**32**	**64**
1:00 AM	2	6	5	3	**16**	4	5	5	3	**17**	**33**
2:00 AM	1	1	3	2	**7**	4	6	6	3	**19**	**26**
3:00 AM	0	2	4	4	**10**	3	3	2	10	**18**	**28**
4:00 AM	3	7	7	17	**34**	6	10	16	21	**53**	**87**
5:00 AM	17	16	30	58	**121**	23	38	40	58	**159**	**280**
6:00 AM	21	34	36	56	**147**	59	79	91	113	**342**	**489**
7:00 AM	47	91	157	176	**471**	99	132	204	262	**697**	**1168**
8:00 AM	144	102	84	86	**416**	201	147	106	150	**604**	**1020**
9:00 AM	65	88	88	82	**323**	118	116	114	139	**487**	**810**
10:00 AM	84	76	74	119	**353**	127	117	106	123	**473**	**826**
11:00 AM	112	102	111	126	**451**	133	122	143	132	**530**	**981**
12:00 PM	133	139	109	128	**509**	164	139	122	129	**554**	**1063**
1:00 PM	130	105	119	110	**464**	143	127	132	159	**561**	**1025**
2:00 PM	107	131	144	201	**583**	135	132	140	153	**560**	**1143**
3:00 PM	146	190	152	175	**663**	187	210	176	164	**737**	**1400**
4:00 PM	172	152	158	191	**673**	183	183	165	167	**698**	**1371**
5:00 PM	184	213	214	146	**757**	162	153	136	136	**587**	**1344**
6:00 PM	125	131	119	122	**497**	132	117	115	102	**466**	**963**
7:00 PM	129	88	95	92	**404**	89	82	73	97	**341**	**745**
8:00 PM	82	54	74	77	**287**	98	96	82	66	**342**	**629**
9:00 PM	76	50	55	59	**240**	48	51	40	34	**173**	**413**
10:00 PM	40	33	19	21	**113**	33	31	24	22	**110**	**223**
11:00 PM	18	23	9	11	**61**	21	11	10	8	**50**	**111**
Total	**47.0%**				**7632**	**53.0%**				**8610**	
	16242										

AM%	**35.8%**	**AM Peak 1393**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.80**
PM%	**64.2%**	**PM Peak 1422**	**3:15 pm to 4:15 pm**	**PM P.H.F.**	**0.89**



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24 Hour Count Report

Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Creston Rd e/o Ferro Ln

LATITUDE 35.6289445

COUNTY San Luis Obispo

LONGITUDE -120.6777817

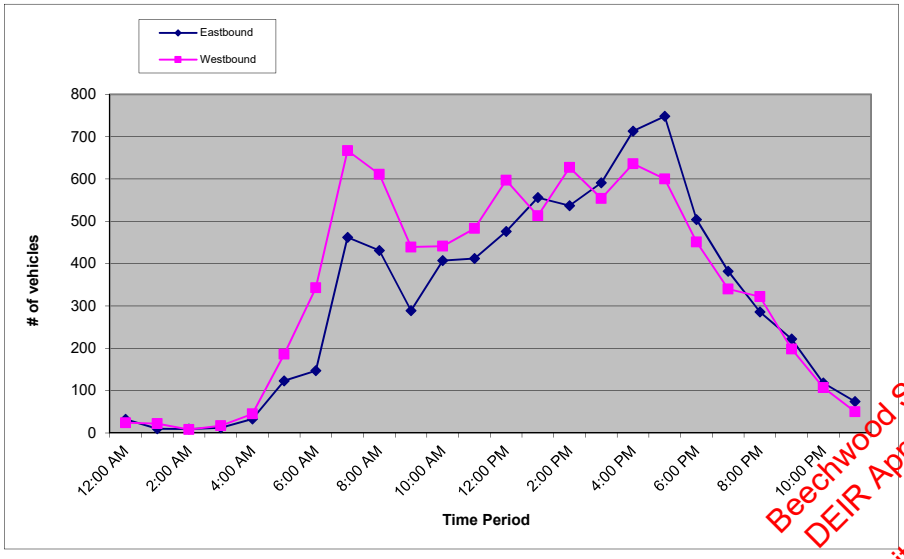
COLLECTION DATE Wednesday, June 6, 2018

WEATHER Clear

NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	9	15	7	1	**32**	10	7	3	4	**24**	**56**
1:00 AM	6	3	0	1	**10**	5	5	8	4	**22**	**32**
2:00 AM	3	2	3	1	**9**	2	2	1	3	**8**	**17**
3:00 AM	4	1	1	6	**12**	1	5	3	8	**17**	**29**
4:00 AM	2	5	12	14	**33**	5	7	12	21	**45**	**78**
5:00 AM	10	20	31	62	**123**	30	47	44	65	**186**	**309**
6:00 AM	20	35	48	44	**147**	60	63	106	114	**343**	**490**
7:00 AM	52	83	154	173	**462**	99	130	189	249	**667**	**1129**
8:00 AM	145	139	67	80	**431**	194	139	136	142	**611**	**1042**
9:00 AM	70	69	74	76	**289**	127	111	100	101	**439**	**728**
10:00 AM	99	100	100	108	**407**	111	112	102	116	**441**	**848**
11:00 AM	77	102	103	130	**412**	110	103	115	155	**483**	**895**
12:00 PM	156	107	103	110	**476**	161	183	145	108	**597**	**1073**
1:00 PM	109	120	128	199	**556**	118	157	105	133	**513**	**1069**
2:00 PM	147	138	122	130	**537**	174	161	151	141	**627**	**1164**
3:00 PM	143	142	158	148	**591**	151	142	138	123	**554**	**1145**
4:00 PM	153	197	175	188	**713**	118	160	182	176	**636**	**1349**
5:00 PM	193	221	183	151	**748**	161	147	153	139	**600**	**1348**
6:00 PM	140	139	104	121	**504**	137	108	105	101	**451**	**955**
7:00 PM	120	99	90	73	**382**	86	96	79	79	**340**	**722**
8:00 PM	74	76	75	61	**286**	83	72	81	86	**322**	**608**
9:00 PM	67	55	57	43	**222**	71	62	41	24	**198**	**420**
10:00 PM	42	28	29	19	**118**	35	22	23	27	**107**	**225**
11:00 PM	26	9	19	20	**74**	19	13	10	8	**50**	**124**
Total	**47.8%**				**7574**	**52.2%**				**8281**	
	15855										

AM%	**35.7%**	**AM Peak 1382**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.82**
PM%	**64.3%**	**PM Peak 1443**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.98**



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Community Development Dept.

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24 Hour Count Report

Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Creston Rd e/o Golden Hill Rd

LATITUDE 35.6218359

COUNTY San Luis Obispo

LONGITUDE -120.6593804

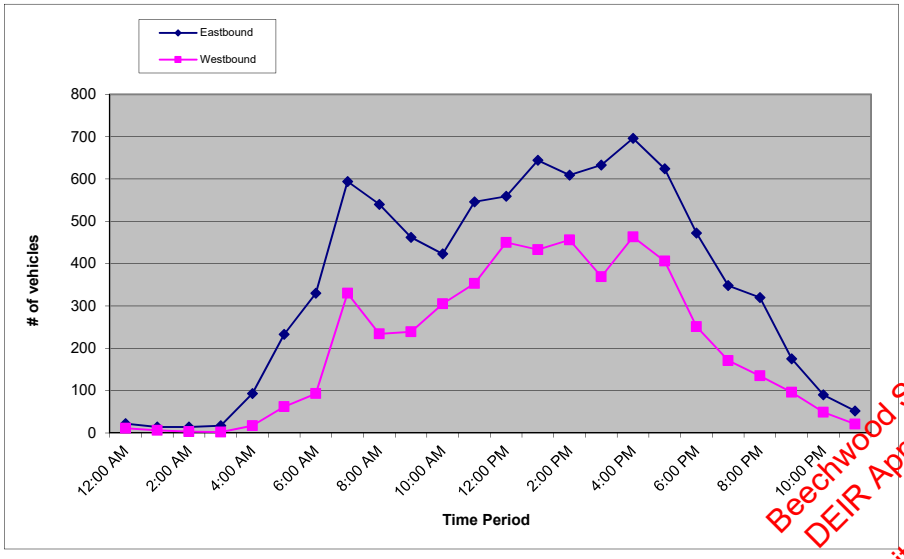
COLLECTION DATE Wednesday, June 6, 2018

WEATHER Clear

NUMBER OF LANES 4

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	9	6	3	4	**22**	1	3	5	2	**11**	**33**
1:00 AM	3	4	4	3	**14**	1	1	2	2	**6**	**20**
2:00 AM	0	3	6	5	**14**	0	1	2	0	**3**	**17**
3:00 AM	1	4	5	7	**17**	0	0	1	1	**2**	**19**
4:00 AM	15	15	26	37	**93**	1	3	6	7	**17**	**110**
5:00 AM	36	58	75	64	**233**	8	7	21	26	**62**	**295**
6:00 AM	60	76	98	96	**330**	15	13	32	33	**93**	**423**
7:00 AM	110	115	166	203	**594**	41	67	105	117	**330**	**924**
8:00 AM	170	135	106	129	**540**	89	68	35	42	**234**	**774**
9:00 AM	120	110	124	108	**462**	55	68	55	61	**239**	**701**
10:00 AM	97	97	111	118	**423**	87	72	83	63	**305**	**728**
11:00 AM	125	120	144	157	**546**	80	87	92	94	**353**	**899**
12:00 PM	133	155	137	134	**559**	112	123	109	106	**450**	**1009**
1:00 PM	144	143	170	187	**644**	103	123	87	120	**433**	**1077**
2:00 PM	177	123	171	138	**609**	118	149	102	87	**456**	**1065**
3:00 PM	171	152	177	133	**633**	75	89	105	100	**369**	**1002**
4:00 PM	162	166	197	171	**696**	98	117	111	137	**463**	**1159**
5:00 PM	168	183	138	135	**624**	125	123	88	70	**406**	**1030**
6:00 PM	141	122	100	109	**472**	84	65	49	53	**251**	**723**
7:00 PM	102	95	65	86	**348**	60	38	38	35	**171**	**519**
8:00 PM	84	81	77	78	**320**	35	16	47	37	**135**	**455**
9:00 PM	64	42	39	30	**175**	30	24	24	18	**96**	**271**
10:00 PM	30	21	27	12	**90**	14	13	14	8	**49**	**139**
11:00 PM	20	15	12	5	**52**	4	6	5	6	**21**	**73**
Total	**63.2%**				**8510**	**36.8%**				**4955**	
	13465										

AM%	**36.7%**	**AM Peak 1053**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.82**
PM%	**63.3%**	**PM Peak 1215**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.99**



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Morro Bay, CA 93442

LOCATION Creston Rd e/o Golden Hill Rd

LATITUDE 35.6218359

COUNTY San Luis Obispo

LONGITUDE -120.6593804

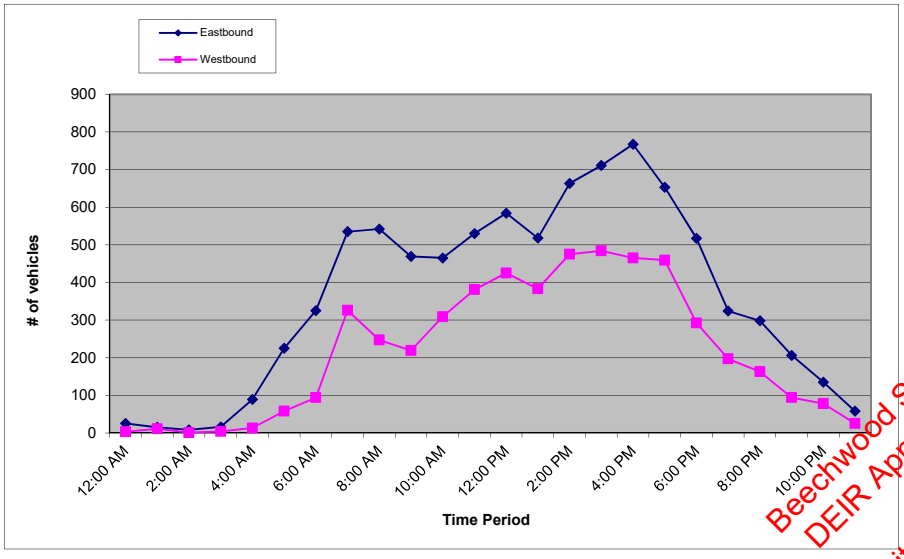
COLLECTION DATE Thursday, June 7, 2018

WEATHER Clear

NUMBER OF LANES 4

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	7	9	2	7	**25**	0	2	1	0	**3**	**28**
1:00 AM	9	0	0	6	**15**	3	6	0	2	**11**	**26**
2:00 AM	0	3	3	2	**8**	1	0	0	0	**1**	**9**
3:00 AM	2	2	6	6	**16**	1	1	0	2	**4**	**20**
4:00 AM	18	14	25	32	**89**	3	0	3	7	**13**	**102**
5:00 AM	33	55	60	77	**225**	5	9	14	30	**58**	**283**
6:00 AM	60	75	86	104	**325**	16	16	24	38	**94**	**419**
7:00 AM	97	104	143	191	**535**	38	63	103	122	**326**	**861**
8:00 AM	185	125	101	131	**542**	90	57	43	57	**247**	**789**
9:00 AM	133	104	113	119	**469**	57	61	46	55	**219**	**688**
10:00 AM	104	118	108	135	**465**	71	72	80	86	**309**	**774**
11:00 AM	102	134	144	150	**530**	88	97	89	107	**381**	**911**
12:00 PM	126	166	131	161	**584**	124	94	115	92	**425**	**1009**
1:00 PM	128	129	119	142	**518**	89	90	94	110	**383**	**901**
2:00 PM	129	141	195	198	**663**	103	112	123	137	**475**	**1138**
3:00 PM	183	166	187	175	**711**	134	117	113	120	**484**	**1195**
4:00 PM	184	214	207	162	**767**	121	108	110	126	**465**	**1232**
5:00 PM	180	168	153	152	**653**	127	126	105	101	**459**	**1112**
6:00 PM	129	139	132	117	**517**	84	80	70	58	**292**	**809**
7:00 PM	100	78	79	67	**324**	60	41	47	49	**197**	**521**
8:00 PM	75	75	72	76	**298**	45	50	41	27	**163**	**461**
9:00 PM	54	53	45	54	**206**	31	31	16	16	**94**	**300**
10:00 PM	47	33	33	22	**135**	30	16	18	14	**78**	**213**
11:00 PM	23	9	13	13	**58**	10	8	3	4	**25**	**83**
Total	**62.5%**				**8678**	**37.5%**				**5206**	
	13884										

AM%	**35.4%**	**AM Peak**	**911**	**11:00 am to 12:00 pm**	**AM P.H.F.**	**0.89**
PM%	**64.6%**	**PM Peak**	**1239**	**3:45 pm to 4:45 pm**	**PM P.H.F.**	**0.96**



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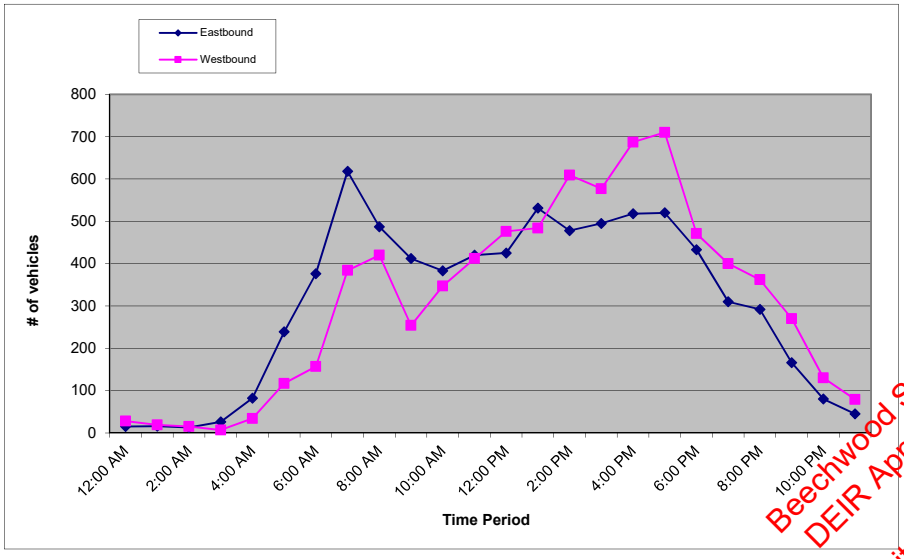
24 Hour Count Report

Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Creston Rd s/o Niblick Rd
LATITUDE 35.6146144
COUNTY San Luis Obispo
LONGITUDE -120.6590371
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear
NUMBER OF LANES 4

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	6	5	2	2	**15**	9	6	7	6	**28**	**43**
1:00 AM	4	5	4	3	**16**	3	6	7	3	**19**	**35**
2:00 AM	4	1	4	4	**13**	7	2	4	2	**15**	**28**
3:00 AM	2	8	6	10	**26**	3	2	0	2	**7**	**33**
4:00 AM	10	13	22	37	**82**	3	6	16	9	**34**	**116**
5:00 AM	41	56	71	71	**239**	16	19	47	35	**117**	**356**
6:00 AM	63	87	112	114	**376**	37	27	43	50	**157**	**533**
7:00 AM	111	160	155	192	**618**	53	70	89	172	**384**	**1002**
8:00 AM	168	111	94	114	**487**	161	115	66	78	**420**	**907**
9:00 AM	105	104	104	99	**412**	53	78	52	71	**254**	**666**
10:00 AM	99	83	103	98	**383**	77	91	89	90	**347**	**730**
11:00 AM	98	109	104	109	**420**	97	94	124	97	**412**	**832**
12:00 PM	113	104	100	108	**425**	109	132	110	125	**476**	**901**
1:00 PM	101	107	165	158	**531**	110	123	125	126	**484**	**1015**
2:00 PM	135	95	136	112	**478**	158	191	128	132	**609**	**1087**
3:00 PM	140	123	116	116	**495**	146	116	156	159	**577**	**1072**
4:00 PM	105	121	169	123	**518**	158	155	192	182	**687**	**1205**
5:00 PM	134	145	128	113	**520**	193	177	184	156	**710**	**1230**
6:00 PM	126	102	107	98	**433**	156	103	107	105	**471**	**904**
7:00 PM	86	79	76	69	**310**	103	105	97	95	**400**	**710**
8:00 PM	86	73	67	66	**292**	77	71	115	99	**362**	**654**
9:00 PM	61	47	31	27	**166**	86	63	59	62	**270**	**436**
10:00 PM	29	23	17	11	**80**	43	38	28	21	**130**	**210**
11:00 PM	16	15	6	8	**45**	21	19	25	14	**79**	**124**
Total	**49.8%**				**7380**	**50.2%**				**7449**	
	14829										

AM%	**35.6%**	**AM Peak 1167**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.80**
PM%	**64.4%**	**PM Peak 1315**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.91**



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Morro Bay, CA 93442

LOCATION Creston Rd s/o Niblick Rd

LATITUDE 35.6146144

COUNTY San Luis Obispo

LONGITUDE -120.6590371

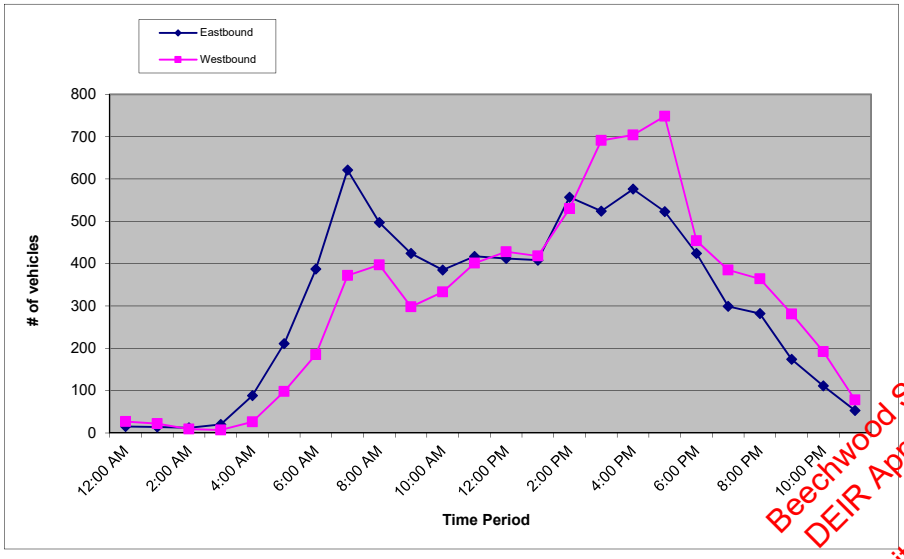
COLLECTION DATE Thursday, June 7, 2018

WEATHER Clear

NUMBER OF LANES 4

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	5	3	1	6	**15**	6	7	6	8	**27**	**42**
1:00 AM	6	3	2	3	**14**	3	10	4	5	**22**	**36**
2:00 AM	3	4	2	3	**12**	3	4	0	2	**9**	**21**
3:00 AM	3	5	6	6	**20**	3	1	1	2	**7**	**27**
4:00 AM	12	16	21	39	**88**	3	3	5	15	**26**	**114**
5:00 AM	26	58	64	63	**211**	16	19	32	31	**98**	**309**
6:00 AM	65	98	106	118	**387**	35	37	54	59	**185**	**572**
7:00 AM	112	151	182	176	**621**	48	58	114	152	**372**	**993**
8:00 AM	169	126	93	109	**497**	142	105	71	79	**397**	**894**
9:00 AM	116	92	119	97	**424**	81	64	79	74	**298**	**722**
10:00 AM	92	95	108	90	**385**	68	73	96	96	**333**	**718**
11:00 AM	97	99	99	122	**417**	90	93	92	126	**401**	**818**
12:00 PM	99	99	103	111	**412**	114	102	120	92	**428**	**840**
1:00 PM	101	102	104	101	**408**	110	96	97	115	**418**	**826**
2:00 PM	107	131	151	168	**557**	123	110	152	145	**530**	**1087**
3:00 PM	134	130	130	130	**524**	187	184	163	157	**691**	**1215**
4:00 PM	132	159	164	121	**576**	186	161	171	186	**704**	**1280**
5:00 PM	137	135	122	129	**523**	184	189	198	177	**748**	**1271**
6:00 PM	96	127	118	83	**424**	130	107	106	111	**454**	**878**
7:00 PM	95	64	78	62	**299**	94	86	100	105	**385**	**684**
8:00 PM	75	72	70	65	**282**	89	102	100	73	**364**	**646**
9:00 PM	43	43	44	44	**174**	81	78	67	55	**281**	**455**
10:00 PM	45	28	26	12	**111**	55	45	56	36	**192**	**303**
11:00 PM	17	10	14	12	**53**	33	27	10	8	**78**	**131**
Total	**50.0%**				**7434**	**50.0%**				**7448**	
	14882										

AM%	**35.4%**	**AM Peak 1166**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.89**
PM%	**64.6%**	**PM Peak 1287**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.96**



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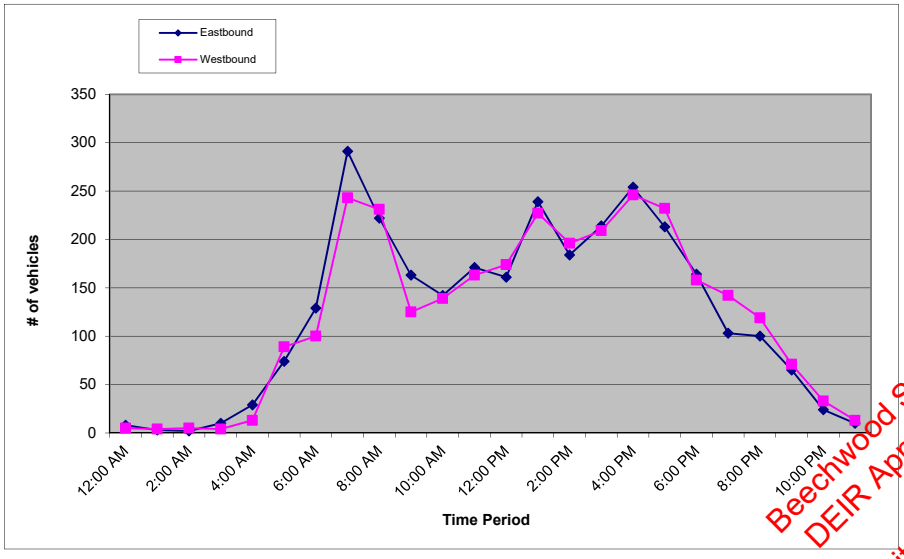
Morro Bay, CA 93442

LOCATION Creston Rd n/o Meadowlark
LATITUDE 35.6031866
COUNTY San Luis Obispo
LONGITUDE -120.6589848
COLLECTION DATE Wednesday, June 6, 2018
WEATHER Clear
NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	4	3	1	0	**8**	2	1	2	0	**5**	**13**
1:00 AM	0	2	1	0	**3**	2	2	0	0	**4**	**7**
2:00 AM	1	0	1	0	**2**	2	0	1	2	**5**	**7**
3:00 AM	0	3	4	3	**10**	1	1	0	2	**4**	**14**
4:00 AM	3	5	8	13	**29**	1	2	6	4	**13**	**42**
5:00 AM	14	18	17	25	**74**	13	13	44	19	**89**	**163**
6:00 AM	22	32	39	36	**129**	26	14	30	30	**100**	**229**
7:00 AM	50	61	92	88	**291**	29	38	74	102	**243**	**534**
8:00 AM	83	49	46	44	**222**	98	59	38	36	**231**	**453**
9:00 AM	52	36	40	35	**163**	30	32	30	33	**125**	**288**
10:00 AM	28	27	48	39	**142**	37	36	31	35	**139**	**281**
11:00 AM	44	41	42	44	**171**	33	38	42	50	**163**	**334**
12:00 PM	50	34	38	39	**161**	39	47	41	47	**174**	**335**
1:00 PM	34	45	94	66	**239**	54	69	59	45	**227**	**466**
2:00 PM	51	32	46	55	**184**	58	57	43	38	**196**	**380**
3:00 PM	57	53	50	54	**214**	43	56	59	51	**209**	**423**
4:00 PM	50	65	83	56	**254**	56	58	63	69	**246**	**500**
5:00 PM	52	63	52	46	**213**	62	50	57	63	**232**	**445**
6:00 PM	51	47	34	32	**164**	54	38	30	36	**158**	**322**
7:00 PM	26	26	23	28	**103**	38	34	31	39	**142**	**245**
8:00 PM	26	24	27	23	**100**	27	17	41	34	**119**	**219**
9:00 PM	23	20	10	12	**65**	24	21	16	10	**71**	**136**
10:00 PM	8	5	9	2	**24**	11	4	10	8	**33**	**57**
11:00 PM	1	5	0	4	**10**	0	3	8	2	**13**	**23**
Total	**50.3%**				**2975**	**49.7%**				**2941**	
	5916										

AM%	**40.0%**	**AM Peak**	**645**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.85**
PM%	**60.0%**	**PM Peak**	**508**	**4:15 pm to 5:15 pm**	**PM P.H.F.**	**0.87**



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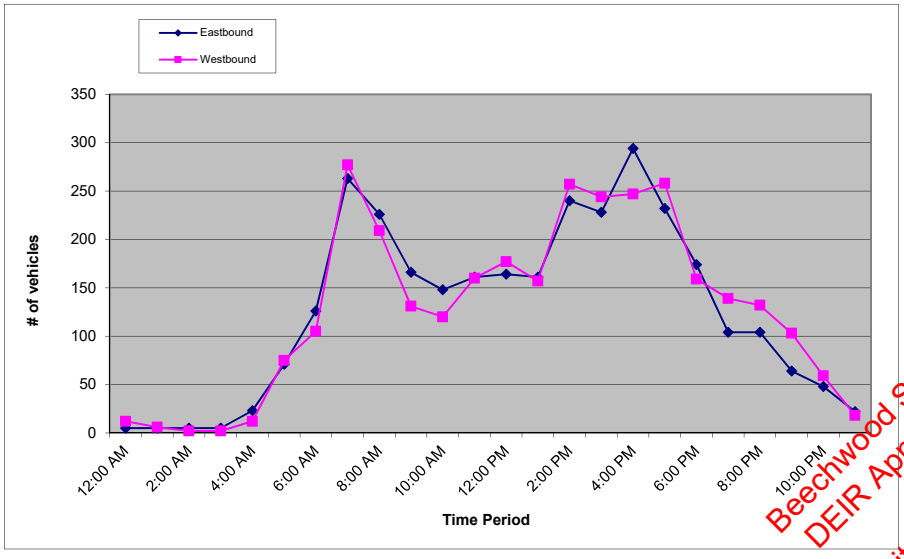
LATITUDE 35.6031866
COUNTY San Luis Obispo
LONGITUDE -120.6589848
COLLECTION DATE Thursday, June 7, 2018
WEATHER Clear
NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	1	0	3	1	**5**	5	2	2	3	**12**	**17**
1:00 AM	2	0	2	1	**5**	1	3	2	0	**6**	**11**
2:00 AM	1	1	0	3	**5**	0	0	0	2	**2**	**7**
3:00 AM	0	2	1	2	**5**	1	1	0	0	**2**	**7**
4:00 AM	6	3	5	9	**23**	3	1	1	7	**12**	**35**
5:00 AM	11	22	16	22	**71**	11	11	29	24	**75**	**146**
6:00 AM	19	30	36	41	**126**	21	24	24	36	**105**	**231**
7:00 AM	41	58	87	77	**263**	33	54	79	111	**277**	**540**
8:00 AM	83	64	31	48	**226**	82	54	36	37	**209**	**435**
9:00 AM	44	47	42	33	**166**	36	23	33	39	**131**	**297**
10:00 AM	40	33	46	29	**148**	21	34	41	24	**120**	**268**
11:00 AM	33	38	47	43	**161**	33	39	37	51	**160**	**321**
12:00 PM	50	36	41	37	**164**	45	29	54	49	**177**	**341**
1:00 PM	44	34	39	44	**161**	49	36	28	44	**157**	**318**
2:00 PM	46	37	91	66	**240**	51	59	85	62	**257**	**497**
3:00 PM	67	44	55	62	**228**	62	57	64	61	**244**	**472**
4:00 PM	87	67	83	57	**294**	60	47	61	79	**247**	**541**
5:00 PM	63	61	58	50	**232**	66	77	64	51	**258**	**490**
6:00 PM	39	47	50	38	**174**	44	44	29	42	**159**	**333**
7:00 PM	26	24	33	21	**104**	39	24	42	34	**139**	**243**
8:00 PM	33	19	25	27	**104**	29	39	36	28	**132**	**236**
9:00 PM	17	16	14	17	**64**	27	27	31	18	**103**	**167**
10:00 PM	17	12	12	7	**48**	26	12	11	10	**59**	**107**
11:00 PM	4	5	8	5	**22**	9	6	1	2	**18**	**40**
Total	**49.8%**				**3039**	**50.2%**				**3061**	
	6100										

AM%	**38.0%**	**AM Peak**	**637**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.85**
PM%	**62.0%**	**PM Peak**	**547**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.95**



Beechwood Specific Plan
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Community Development Dept.

Metro Traffic Data Inc.
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Hanford, CA 93230

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24 Hour Count Report

Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Golden Hill Rd s/o Union Rd

LATITUDE 35.6388503

COUNTY San Luis Obispo

LONGITUDE -120.6581385

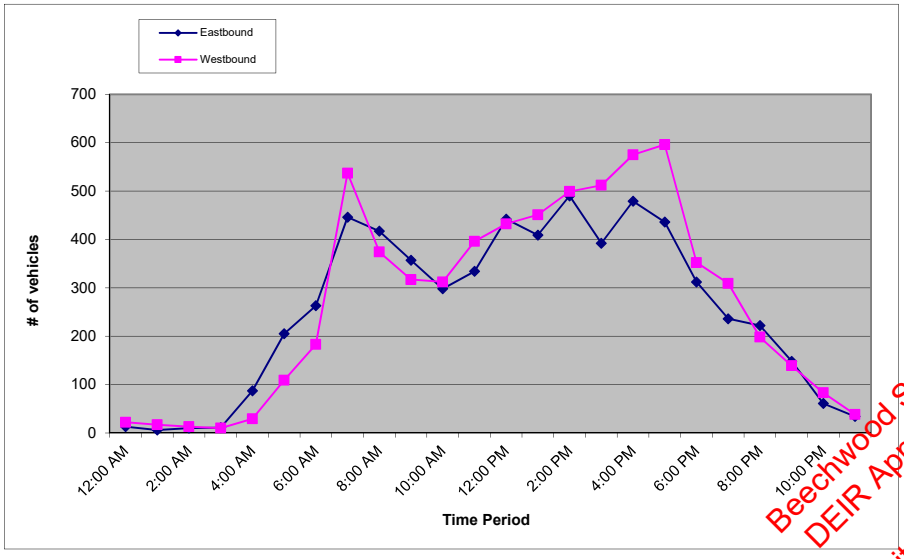
COLLECTION DATE Wednesday, June 6, 2018

WEATHER Clear

NUMBER OF LANES 3

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	6	4	2	1	**13**	5	4	8	5	**22**	**35**
1:00 AM	1	1	3	1	**6**	2	2	9	4	**17**	**23**
2:00 AM	0	2	3	5	**10**	6	4	1	2	**13**	**23**
3:00 AM	2	2	3	4	**11**	3	1	3	3	**10**	**21**
4:00 AM	14	11	27	35	**87**	3	3	16	7	**29**	**116**
5:00 AM	23	58	61	63	**205**	16	20	34	39	**109**	**314**
6:00 AM	52	50	62	99	**263**	35	32	53	63	**183**	**446**
7:00 AM	70	96	113	167	**446**	72	117	164	184	**537**	**983**
8:00 AM	169	111	56	81	**417**	130	117	69	58	**374**	**791**
9:00 AM	91	91	77	98	**357**	64	96	83	74	**317**	**674**
10:00 AM	75	76	72	75	**298**	81	77	72	82	**312**	**610**
11:00 AM	87	79	72	96	**334**	85	97	112	102	**396**	**730**
12:00 PM	105	134	88	115	**442**	114	113	97	108	**432**	**874**
1:00 PM	79	106	106	118	**409**	115	108	96	132	**451**	**860**
2:00 PM	136	147	103	104	**490**	125	141	122	111	**499**	**989**
3:00 PM	101	105	98	88	**392**	96	125	161	130	**512**	**904**
4:00 PM	131	109	117	122	**479**	139	119	159	158	**575**	**1054**
5:00 PM	117	110	95	114	**436**	172	179	133	112	**596**	**1032**
6:00 PM	82	91	72	67	**312**	113	75	85	79	**352**	**664**
7:00 PM	63	61	61	51	**236**	104	85	49	71	**309**	**545**
8:00 PM	48	58	59	57	**222**	51	29	64	54	**198**	**420**
9:00 PM	48	28	48	24	**148**	53	24	42	20	**139**	**287**
10:00 PM	24	17	13	7	**61**	28	24	13	18	**83**	**144**
11:00 PM	8	8	10	8	**34**	8	10	13	7	**38**	**72**
Total	**48.4%**				**6108**	**51.6%**				**6503**	
	12611										

AM%	**37.8%**	**AM Peak 1155**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.82**
PM%	**62.2%**	**PM Peak 1134**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.98**



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24 Hour Count Report

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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Golden Hill Rd s/o Union Rd

LATITUDE 35.6388503

COUNTY San Luis Obispo

LONGITUDE -120.6581385

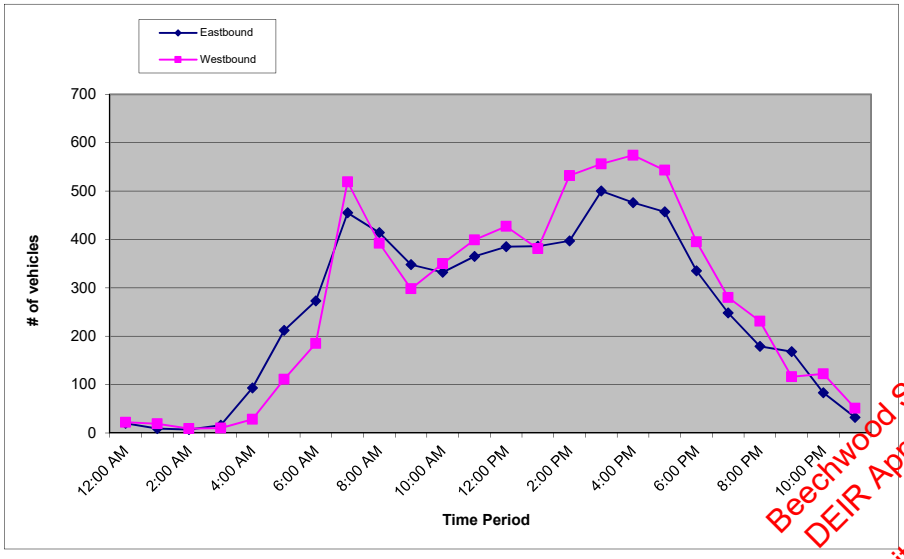
COLLECTION DATE Thursday, June 7, 2018

WEATHER Clear

NUMBER OF LANES 3

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	4	7	5	4	**20**	8	6	3	5	**22**	**42**
1:00 AM	0	3	2	4	**9**	3	5	6	5	**19**	**28**
2:00 AM	0	1	4	2	**7**	4	2	1	2	**9**	**16**
3:00 AM	1	1	8	6	**16**	5	2	1	2	**10**	**26**
4:00 AM	10	22	20	41	**93**	6	1	11	10	**28**	**121**
5:00 AM	24	56	60	72	**212**	10	15	36	50	**111**	**323**
6:00 AM	57	58	62	96	**273**	25	32	55	73	**185**	**458**
7:00 AM	85	86	112	172	**455**	63	112	172	172	**519**	**974**
8:00 AM	137	122	78	77	**414**	147	99	75	71	**392**	**806**
9:00 AM	83	96	82	87	**348**	93	78	64	63	**298**	**646**
10:00 AM	78	83	79	92	**332**	72	86	107	85	**350**	**682**
11:00 AM	75	80	112	98	**365**	94	104	89	112	**399**	**764**
12:00 PM	77	120	83	105	**385**	129	95	96	107	**427**	**812**
1:00 PM	107	95	83	101	**386**	95	84	88	114	**381**	**767**
2:00 PM	111	82	98	106	**397**	115	114	138	165	**532**	**929**
3:00 PM	132	131	127	110	**500**	147	127	151	131	**556**	**1056**
4:00 PM	127	113	121	115	**476**	131	128	144	171	**574**	**1050**
5:00 PM	112	116	115	114	**457**	159	150	147	87	**543**	**1000**
6:00 PM	84	77	96	78	**335**	101	91	112	91	**395**	**730**
7:00 PM	76	61	54	57	**248**	79	69	57	75	**280**	**528**
8:00 PM	39	48	52	40	**179**	60	57	67	47	**231**	**410**
9:00 PM	48	48	35	37	**168**	37	25	27	27	**116**	**284**
10:00 PM	34	16	18	15	**83**	41	36	28	17	**122**	**205**
11:00 PM	10	12	6	4	**32**	20	15	6	10	**51**	**83**
Total	**48.6%**				**6190**	**51.4%**				**6550**	
	12740										

AM%	**38.4%**	**AM Peak 1133**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.82**
PM%	**61.6%**	**PM Peak 1086**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.97**



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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Golden Hill Rd n/o Union Rd

LATITUDE 35.6409015

COUNTY San Luis Obispo

LONGITUDE -120.6581332

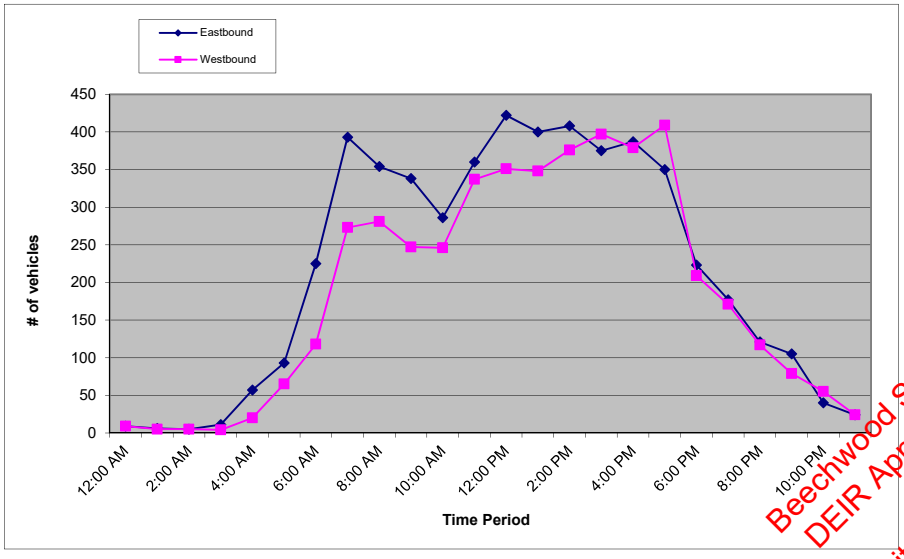
COLLECTION DATE Wednesday, June 6, 2018

WEATHER Clear

NUMBER OF LANES 3

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	2	5	1	1	**9**	2	2	0	5	**9**	**18**
1:00 AM	2	1	2	1	**6**	2	1	2	0	**5**	**11**
2:00 AM	0	1	2	2	**5**	2	1	1	1	**5**	**10**
3:00 AM	1	1	4	5	**11**	1	0	1	2	**4**	**15**
4:00 AM	10	16	15	16	**57**	3	4	8	5	**20**	**77**
5:00 AM	17	21	18	37	**93**	7	15	15	28	**65**	**158**
6:00 AM	38	49	61	77	**225**	21	21	29	47	**118**	**343**
7:00 AM	55	81	99	158	**393**	43	51	70	109	**273**	**666**
8:00 AM	126	90	69	69	**354**	91	87	58	45	**281**	**635**
9:00 AM	61	108	73	96	**338**	58	72	63	54	**247**	**585**
10:00 AM	77	76	64	69	**286**	67	62	57	60	**246**	**532**
11:00 AM	90	93	83	94	**360**	65	82	102	88	**337**	**697**
12:00 PM	82	111	123	106	**422**	92	89	82	88	**351**	**773**
1:00 PM	99	109	94	98	**400**	90	79	66	113	**348**	**748**
2:00 PM	111	98	105	94	**408**	106	97	91	82	**376**	**784**
3:00 PM	94	105	100	76	**375**	85	104	107	101	**397**	**772**
4:00 PM	82	88	107	110	**387**	91	77	119	92	**379**	**766**
5:00 PM	104	104	78	64	**350**	111	117	97	84	**409**	**759**
6:00 PM	71	66	50	36	**223**	68	38	53	50	**209**	**432**
7:00 PM	54	50	32	41	**177**	53	47	24	47	**171**	**348**
8:00 PM	18	36	40	27	**121**	26	18	39	34	**117**	**238**
9:00 PM	35	20	32	18	**105**	24	17	26	12	**79**	**184**
10:00 PM	17	10	6	7	**40**	20	14	9	12	**55**	**95**
11:00 PM	4	7	6	7	**24**	6	6	7	5	**24**	**48**
Total	**53.3%**				**5169**	**46.7%**				**4525**	
	9694										

AM%	**38.7%**	**AM Peak**	**697**	**11:00 am to 12:00 pm**	**AM P.H.F.**	**0.94**
PM%	**61.3%**	**PM Peak**	**819**	**1:45 pm to 2:45 pm**	**PM P.H.F.**	**0.94**



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LOCATION Golden Hill Rd n/o Union Rd

LATITUDE 35.6409015

COUNTY San Luis Obispo

LONGITUDE -120.6581332

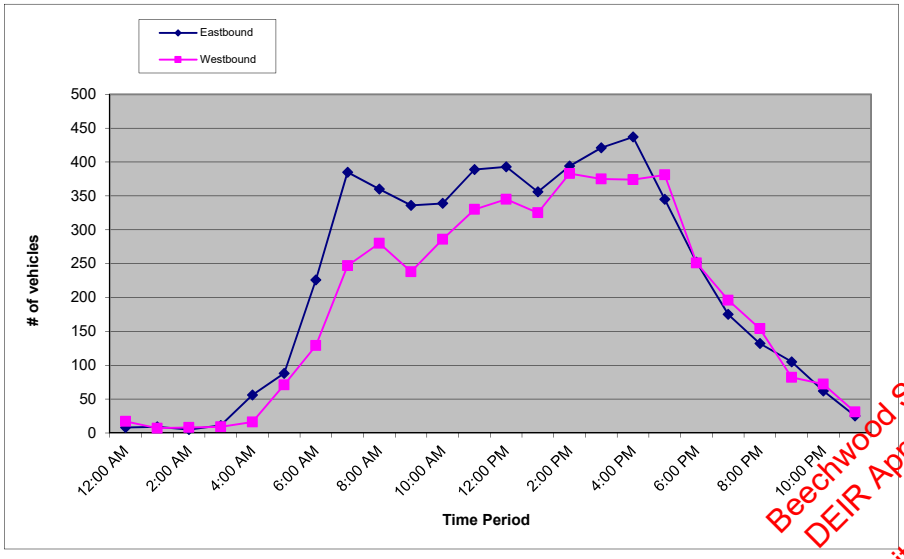
COLLECTION DATE Thursday, June 7, 2018

WEATHER Clear

NUMBER OF LANES 3

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	3	2	2	1	**8**	7	5	0	5	**17**	**25**
1:00 AM	0	3	1	5	**9**	0	2	2	3	**7**	**16**
2:00 AM	1	1	2	1	**5**	4	2	1	1	**8**	**13**
3:00 AM	2	0	4	5	**11**	4	2	1	2	**9**	**20**
4:00 AM	7	15	12	22	**56**	3	2	5	6	**16**	**72**
5:00 AM	13	17	22	36	**88**	5	18	18	30	**71**	**159**
6:00 AM	41	45	64	76	**226**	26	23	36	44	**129**	**355**
7:00 AM	78	70	95	142	**385**	31	55	69	92	**247**	**632**
8:00 AM	107	101	89	63	**360**	88	68	66	58	**280**	**640**
9:00 AM	70	76	97	93	**336**	68	54	64	52	**238**	**574**
10:00 AM	99	68	79	93	**339**	65	73	79	69	**286**	**625**
11:00 AM	82	85	126	96	**389**	68	84	85	93	**330**	**719**
12:00 PM	102	111	79	101	**393**	103	69	96	77	**345**	**738**
1:00 PM	95	95	83	83	**356**	74	87	84	80	**325**	**681**
2:00 PM	115	106	83	90	**394**	86	83	100	114	**383**	**777**
3:00 PM	109	114	101	97	**421**	118	86	78	93	**375**	**796**
4:00 PM	99	113	124	101	**437**	90	77	99	108	**374**	**811**
5:00 PM	100	92	91	62	**345**	104	99	90	88	**381**	**726**
6:00 PM	64	61	63	64	**252**	68	59	68	56	**251**	**503**
7:00 PM	56	34	46	39	**175**	48	58	36	54	**196**	**371**
8:00 PM	31	32	34	35	**132**	42	41	39	32	**154**	**286**
9:00 PM	26	31	22	26	**105**	21	21	23	17	**82**	**187**
10:00 PM	23	21	7	11	**62**	30	9	17	16	**72**	**134**
11:00 PM	8	10	2	5	**25**	10	11	1	9	**31**	**56**
Total	**53.5%**				**5309**	**46.5%**				**4607**	
	9916										

AM%	**38.8%**	**AM Peak 719**	**11:00 am to 12:00 pm**	**AM P.H.F.**	**0.85**
PM%	**61.2%**	**PM Peak 827**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.93**



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24 Hour Count Report

Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Niblick Rd e/o Spring St

LATITUDE 35.6151235

COUNTY San Luis Obispo

LONGITUDE -120.6849338

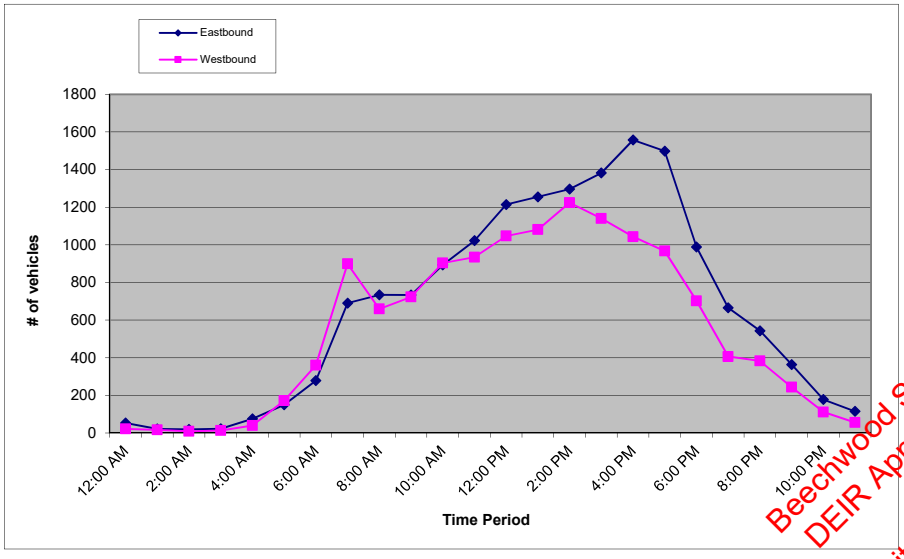
COLLECTION DATE Wednesday, June 6, 2018

WEATHER Clear

NUMBER OF LANES 4

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	15	20	10	8	**53**	6	4	6	5	**21**	**74**
1:00 AM	5	11	2	3	**21**	5	4	4	3	**16**	**37**
2:00 AM	4	3	6	6	**19**	2	1	5	1	**9**	**28**
3:00 AM	4	5	7	6	**22**	2	6	1	4	**13**	**35**
4:00 AM	3	17	15	40	**75**	4	9	13	13	**39**	**114**
5:00 AM	25	27	53	45	**150**	34	41	41	56	**172**	**322**
6:00 AM	45	57	75	101	**278**	74	65	117	104	**360**	**638**
7:00 AM	97	145	223	225	**690**	136	166	264	333	**899**	**1589**
8:00 AM	190	187	171	186	**734**	191	177	151	140	**659**	**1393**
9:00 AM	156	191	190	196	**733**	151	153	208	211	**723**	**1456**
10:00 AM	226	206	216	245	**893**	228	204	241	230	**903**	**1796**
11:00 AM	254	257	262	249	**1022**	226	233	235	240	**934**	**1956**
12:00 PM	312	287	278	337	**1214**	283	247	246	271	**1047**	**2261**
1:00 PM	331	290	317	317	**1255**	231	275	283	292	**1081**	**2336**
2:00 PM	310	341	317	328	**1296**	326	354	288	256	**1224**	**2520**
3:00 PM	321	346	358	357	**1382**	297	293	282	268	**1140**	**2522**
4:00 PM	371	381	383	422	**1557**	260	261	293	229	**1043**	**2600**
5:00 PM	444	405	377	272	**1498**	234	260	267	206	**967**	**2465**
6:00 PM	312	256	220	200	**988**	194	193	173	142	**702**	**1690**
7:00 PM	171	170	164	160	**665**	121	105	94	86	**406**	**1071**
8:00 PM	129	149	137	128	**543**	111	92	103	77	**383**	**926**
9:00 PM	139	84	78	62	**363**	82	51	63	47	**243**	**606**
10:00 PM	52	58	35	33	**178**	45	31	20	15	**111**	**289**
11:00 PM	41	30	27	17	**115**	19	20	10	6	**55**	**170**
Total	**54.5%**				**15744**	**45.5%**				**13150**	
	28894										

AM%	**32.7%**	**AM Peak 1956**	**11:00 am to 12:00 pm**	**AM P.H.F.**	**0.98**
PM%	**67.3%**	**PM Peak 2670**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.98**



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Morro Bay, CA 93442

LOCATION Niblick Rd e/o Spring St

LATITUDE 35.6151235

COUNTY San Luis Obispo

LONGITUDE -120.6849338

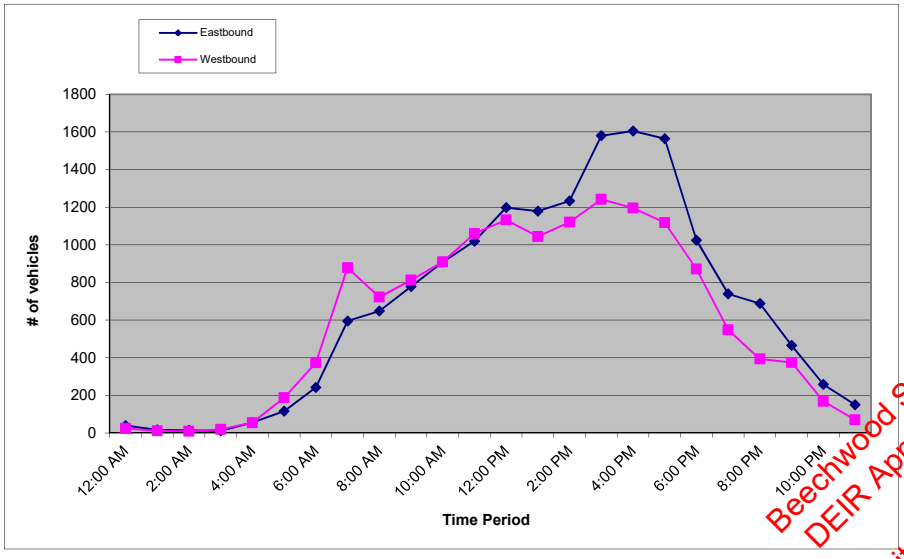
COLLECTION DATE Thursday, June 7, 2018

WEATHER Clear

NUMBER OF LANES 4

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	8	12	7	12	**39**	5	10	3	6	**24**	**63**
1:00 AM	3	3	6	4	**16**	3	3	2	3	**11**	**27**
2:00 AM	3	2	3	6	**14**	4	2	3	0	**9**	**23**
3:00 AM	1	5	0	5	**11**	5	2	5	7	**19**	**30**
4:00 AM	4	13	13	25	**55**	7	7	12	28	**54**	**109**
5:00 AM	12	24	47	33	**116**	28	35	58	66	**187**	**303**
6:00 AM	36	53	60	93	**242**	70	77	119	107	**373**	**615**
7:00 AM	78	135	201	181	**595**	150	178	264	286	**878**	**1473**
8:00 AM	177	180	140	151	**648**	213	182	183	144	**722**	**1370**
9:00 AM	183	201	183	211	**778**	164	186	235	227	**812**	**1590**
10:00 AM	226	240	208	234	**908**	229	230	225	225	**909**	**1817**
11:00 AM	232	245	264	278	**1019**	272	234	268	286	**1060**	**2079**
12:00 PM	317	313	281	287	**1198**	289	267	304	272	**1132**	**2330**
1:00 PM	284	283	299	313	**1179**	244	290	224	286	**1044**	**2223**
2:00 PM	288	307	293	345	**1233**	275	259	293	293	**1120**	**2353**
3:00 PM	362	390	419	409	**1580**	321	345	305	271	**1242**	**2822**
4:00 PM	392	404	415	394	**1605**	294	292	303	306	**1195**	**2800**
5:00 PM	458	427	343	336	**1564**	337	277	250	254	**1118**	**2682**
6:00 PM	280	258	259	227	**1024**	236	244	187	204	**871**	**1895**
7:00 PM	199	191	174	175	**739**	165	135	123	125	**548**	**1287**
8:00 PM	180	198	164	146	**688**	104	108	108	73	**393**	**1081**
9:00 PM	133	123	118	91	**465**	98	93	113	70	**374**	**839**
10:00 PM	79	79	64	36	**258**	57	45	41	25	**168**	**426**
11:00 PM	47	46	41	16	**150**	24	24	12	10	**70**	**220**
Total	**52.9%**				**16124**	**47.1%**				**14333**	
	30457										

AM%	**31.2%**	**AM Peak**	**2079**	**11:00 am to 12:00 pm**	**AM P.H.F.**	**0.92**
PM%	**68.8%**	**PM Peak**	**2825**	**3:15 pm to 4:15 pm**	**PM P.H.F.**	**0.96**



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City of Paso Robles
Community Development Dept.

Metro Traffic Data Inc.
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Hanford, CA 93230

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24 Hour Count Report

Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Niblick Rd e/o Quarterhorse

LATITUDE 35.6157842

COUNTY San Luis Obispo

LONGITUDE -120.6766149

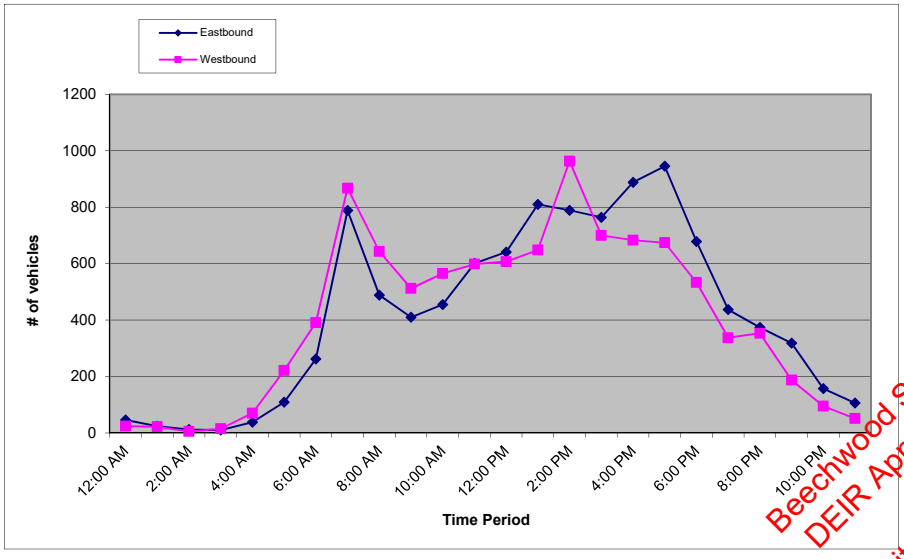
COLLECTION DATE Wednesday, June 6, 2018

WEATHER Clear

NUMBER OF LANES 4

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	11	13	15	7	**46**	8	6	5	5	**24**	**70**
1:00 AM	5	8	4	7	**24**	10	3	4	5	**22**	**46**
2:00 AM	2	2	4	4	**12**	1	1	2	1	**5**	**17**
3:00 AM	3	1	2	4	**10**	2	7	1	5	**15**	**25**
4:00 AM	4	6	12	16	**38**	9	16	17	28	**70**	**108**
5:00 AM	13	13	38	45	**109**	40	49	55	77	**221**	**330**
6:00 AM	45	43	82	92	**262**	68	81	113	129	**391**	**653**
7:00 AM	73	209	259	247	**788**	134	178	282	273	**867**	**1655**
8:00 AM	149	131	106	102	**488**	210	170	141	122	**643**	**1131**
9:00 AM	92	105	111	102	**410**	133	121	135	123	**512**	**922**
10:00 AM	129	111	101	114	**455**	169	126	148	122	**565**	**1020**
11:00 AM	145	147	168	141	**601**	130	137	168	163	**598**	**1199**
12:00 PM	154	144	168	175	**641**	156	151	146	154	**607**	**1248**
1:00 PM	199	194	185	232	**810**	136	124	189	199	**648**	**1458**
2:00 PM	215	197	186	191	**789**	372	239	192	160	**963**	**1752**
3:00 PM	201	153	195	215	**764**	165	187	185	163	**700**	**1464**
4:00 PM	213	214	224	237	**888**	179	137	221	146	**683**	**1571**
5:00 PM	240	261	232	212	**945**	177	180	170	147	**674**	**1619**
6:00 PM	174	174	164	166	**678**	150	131	139	113	**533**	**1211**
7:00 PM	106	131	102	98	**437**	89	95	64	89	**337**	**774**
8:00 PM	96	84	98	96	**374**	83	87	90	93	**353**	**727**
9:00 PM	99	80	77	62	**318**	58	54	45	30	**187**	**505**
10:00 PM	50	51	26	30	**157**	23	33	21	18	**95**	**252**
11:00 PM	36	27	21	22	**106**	13	18	13	7	**51**	**157**
Total	**51.0%**				**10150**	**49.0%**				**9764**	
	19914										

AM%	**36.0%**	**AM Peak**	**1807**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.84**
PM%	**64.0%**	**PM Peak**	**1832**	**1:45 pm to 2:45 pm**	**PM P.H.F.**	**0.78**



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Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Niblick Rd e/o Quarterhorse

LATITUDE 35.6157842

COUNTY San Luis Obispo

LONGITUDE -120.6766149

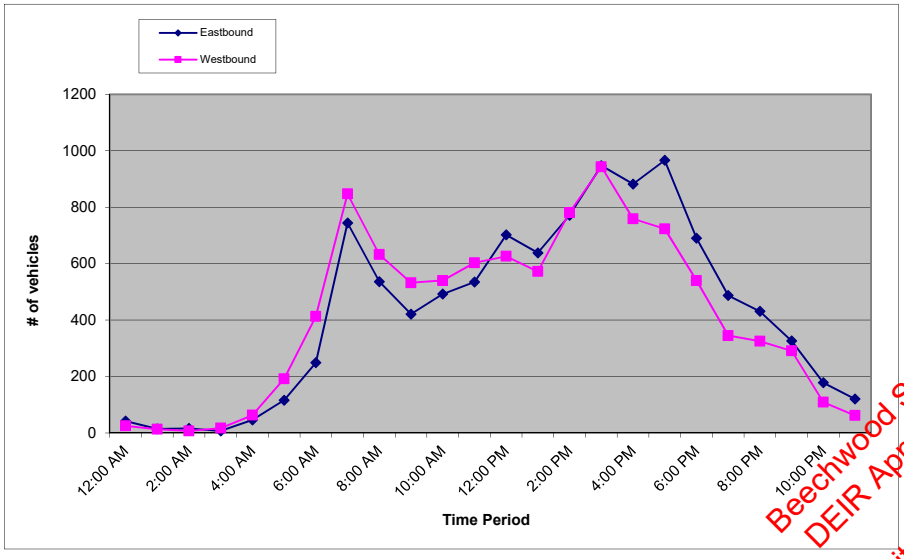
COLLECTION DATE Thursday, June 7, 2018

WEATHER Clear

NUMBER OF LANES 4

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	12	18	8	4	**42**	10	5	4	6	**25**	**67**
1:00 AM	3	4	4	3	**14**	3	4	3	3	**13**	**27**
2:00 AM	3	3	4	6	**16**	3	4	0	0	**7**	**23**
3:00 AM	1	0	2	4	**7**	4	4	4	5	**17**	**24**
4:00 AM	3	5	15	23	**46**	6	11	14	32	**63**	**109**
5:00 AM	15	22	38	41	**116**	32	40	53	67	**192**	**308**
6:00 AM	38	48	68	95	**249**	71	101	120	121	**413**	**662**
7:00 AM	96	200	255	193	**744**	132	188	288	239	**847**	**1591**
8:00 AM	168	150	122	96	**536**	179	163	154	136	**632**	**1168**
9:00 AM	107	96	105	113	**421**	129	121	148	134	**532**	**953**
10:00 AM	124	116	123	129	**492**	138	117	158	127	**540**	**1032**
11:00 AM	127	126	146	136	**535**	147	145	157	154	**603**	**1138**
12:00 PM	186	171	172	173	**702**	153	172	160	141	**626**	**1328**
1:00 PM	157	141	165	175	**638**	143	147	126	156	**572**	**1210**
2:00 PM	175	152	208	236	**771**	184	159	241	197	**781**	**1552**
3:00 PM	242	231	218	256	**947**	324	237	202	180	**943**	**1890**
4:00 PM	211	214	235	222	**882**	180	177	205	197	**759**	**1641**
5:00 PM	244	262	226	234	**966**	196	181	154	192	**723**	**1689**
6:00 PM	157	180	179	174	**690**	147	162	122	109	**540**	**1230**
7:00 PM	135	122	109	121	**487**	104	87	74	80	**345**	**832**
8:00 PM	99	125	108	99	**431**	85	85	89	66	**325**	**756**
9:00 PM	101	87	68	70	**326**	58	80	111	42	**291**	**617**
10:00 PM	60	37	54	27	**178**	42	30	24	13	**109**	**287**
11:00 PM	39	39	30	12	**120**	20	17	11	14	**62**	**182**
Total	**51.0%**				**10356**	**49.0%**				**9960**	
	20316										

AM%	**35.0%**	**AM Peak 1710**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.79**
PM%	**65.0%**	**PM Peak 1916**	**2:30 pm to 3:30 pm**	**PM P.H.F.**	**0.85**



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24 Hour Count Report

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895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Charolais Rd e/o S River Rd

LATITUDE 35.6063695

COUNTY San Luis Obispo

LONGITUDE -120.6811345

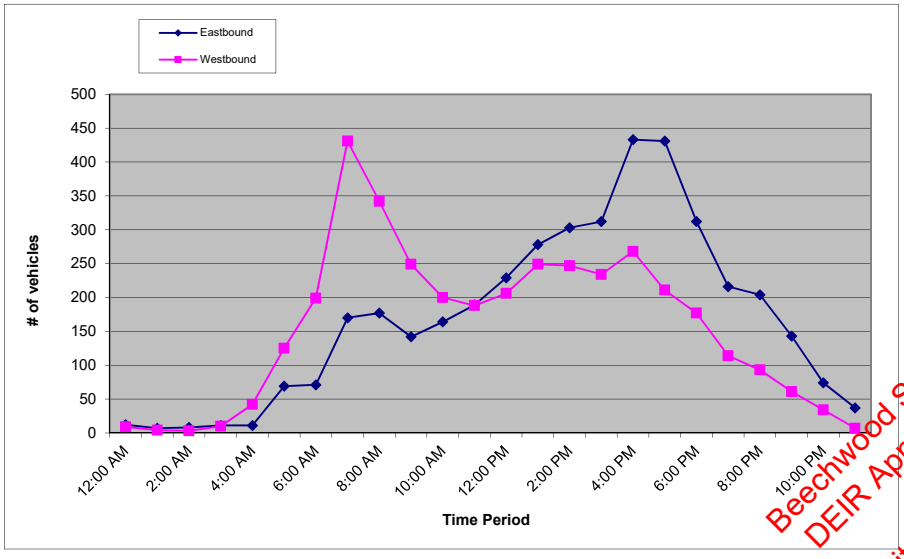
COLLECTION DATE Wednesday, June 6, 2018

WEATHER Clear

NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	2	5	3	2	**12**	2	5	2	0	**9**	**21**
1:00 AM	2	3	1	1	**7**	2	0	0	2	**4**	**11**
2:00 AM	3	1	2	2	**8**	0	1	1	1	**3**	**11**
3:00 AM	2	6	2	1	**11**	0	2	4	4	**10**	**21**
4:00 AM	2	3	1	5	**11**	7	9	9	17	**42**	**53**
5:00 AM	9	16	30	14	**69**	24	23	39	39	**125**	**194**
6:00 AM	10	12	22	27	**71**	38	37	64	60	**199**	**270**
7:00 AM	24	34	49	63	**170**	66	93	139	133	**431**	**601**
8:00 AM	51	41	42	43	**177**	96	78	85	83	**342**	**519**
9:00 AM	45	28	32	37	**142**	50	60	74	65	**249**	**391**
10:00 AM	36	41	41	46	**164**	51	43	47	59	**200**	**364**
11:00 AM	45	49	44	51	**189**	45	48	49	46	**188**	**377**
12:00 PM	64	57	48	60	**229**	43	47	53	63	**206**	**435**
1:00 PM	62	72	81	63	**278**	48	60	67	74	**249**	**527**
2:00 PM	75	77	78	73	**303**	56	52	67	72	**247**	**550**
3:00 PM	76	74	73	89	**312**	67	47	52	68	**234**	**546**
4:00 PM	104	111	110	108	**433**	50	82	65	71	**268**	**701**
5:00 PM	118	125	112	76	**431**	55	53	52	51	**211**	**642**
6:00 PM	87	91	62	72	**312**	43	55	41	38	**177**	**489**
7:00 PM	49	58	59	50	**216**	28	33	33	20	**114**	**330**
8:00 PM	43	59	56	46	**204**	24	20	25	24	**93**	**297**
9:00 PM	57	38	32	16	**143**	23	10	11	17	**61**	**204**
10:00 PM	23	20	21	10	**74**	9	11	7	7	**34**	**108**
11:00 PM	17	7	10	3	**37**	3	3	0	1	**7**	**44**
Total	**51.9%**				**4003**	**48.1%**				**3703**	
	7706										

AM%	**36.8%**	**AM Peak**	**658**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.84**
PM%	**63.2%**	**PM Peak**	**720**	**4:15 pm to 5:15 pm**	**PM P.H.F.**	**0.93**



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LOCATION Charolais Rd e/o S River Rd

LATITUDE 35.6063695

COUNTY San Luis Obispo

LONGITUDE -120.6811345

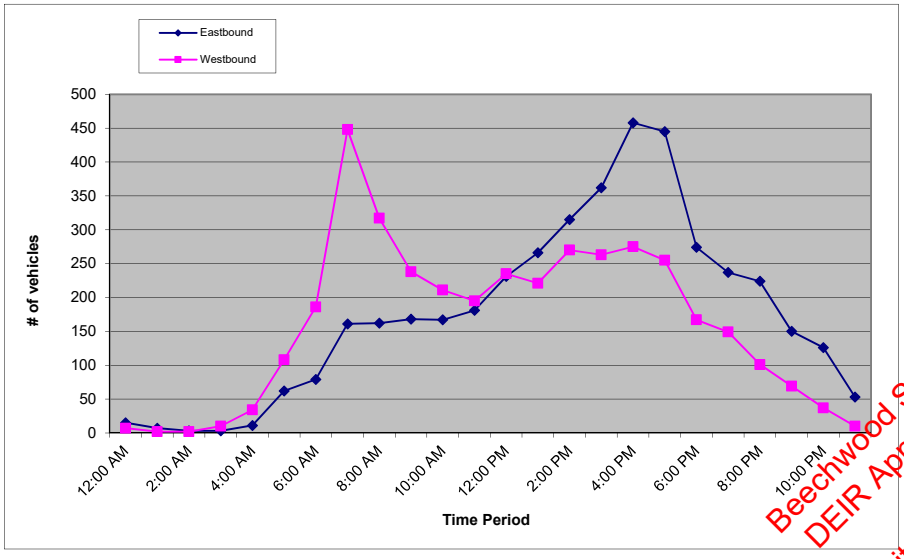
COLLECTION DATE Thursday, June 7, 2018

WEATHER Clear

NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	3	3	2	7	**15**	4	3	0	0	**7**	**22**
1:00 AM	2	1	3	1	**7**	1	1	0	0	**2**	**9**
2:00 AM	0	0	1	2	**3**	0	1	1	0	**2**	**5**
3:00 AM	0	0	1	2	**3**	3	2	1	4	**10**	**13**
4:00 AM	2	2	4	3	**11**	7	3	6	18	**34**	**45**
5:00 AM	12	10	28	12	**62**	21	21	33	33	**108**	**170**
6:00 AM	10	21	27	21	**79**	33	34	52	67	**186**	**265**
7:00 AM	24	29	47	61	**161**	70	97	132	149	**448**	**609**
8:00 AM	62	37	40	23	**162**	100	75	73	69	**317**	**479**
9:00 AM	32	50	40	46	**168**	57	64	65	52	**238**	**406**
10:00 AM	45	41	43	38	**167**	52	52	49	58	**211**	**378**
11:00 AM	47	47	42	45	**181**	44	56	41	54	**195**	**376**
12:00 PM	61	54	48	68	**231**	66	62	56	51	**235**	**466**
1:00 PM	73	61	61	71	**266**	53	53	47	68	**221**	**487**
2:00 PM	76	79	80	80	**315**	58	68	68	76	**270**	**585**
3:00 PM	96	77	105	84	**362**	69	56	68	70	**263**	**625**
4:00 PM	113	115	110	120	**458**	62	67	72	74	**275**	**733**
5:00 PM	126	119	105	95	**445**	72	53	67	63	**255**	**700**
6:00 PM	94	67	56	57	**274**	35	50	36	46	**167**	**441**
7:00 PM	76	54	50	57	**237**	40	40	34	35	**149**	**386**
8:00 PM	52	55	59	58	**224**	35	21	20	25	**101**	**325**
9:00 PM	50	44	32	24	**150**	26	18	10	15	**69**	**219**
10:00 PM	39	35	34	18	**126**	9	8	9	11	**37**	**163**
11:00 PM	16	17	11	9	**53**	2	3	5	0	**10**	**63**
Total	**52.2%**				**4160**	**47.8%**				**3810**	
	7970										

AM%	**34.8%**	**AM Peak 677**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.81**
PM%	**65.2%**	**PM Peak 756**	**4:15 pm to 5:15 pm**	**PM P.H.F.**	**0.95**



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Morro Bay, CA 93442

LOCATION S River Rd n/o Charolais Rd

LATITUDE 35.6069877

COUNTY San Luis Obispo

LONGITUDE -120.6818426

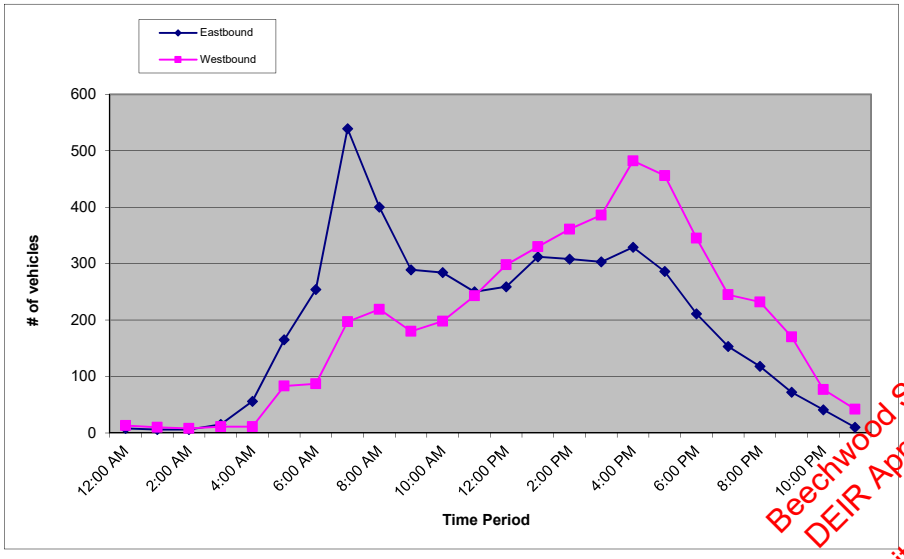
COLLECTION DATE Wednesday, June 6, 2018

WEATHER Clear

NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	2	4	2	0	**8**	1	5	4	3	**13**	**21**
1:00 AM	3	1	0	2	**6**	4	3	2	1	**10**	**16**
2:00 AM	1	1	2	2	**6**	3	1	3	1	**8**	**14**
3:00 AM	0	3	6	6	**15**	2	6	2	1	**11**	**26**
4:00 AM	8	9	15	24	**56**	2	3	1	5	**11**	**67**
5:00 AM	28	29	57	51	**165**	10	19	35	19	**83**	**248**
6:00 AM	47	52	75	80	**254**	10	19	20	38	**87**	**341**
7:00 AM	77	115	168	179	**539**	32	42	57	66	**197**	**736**
8:00 AM	112	95	101	92	**400**	71	45	51	52	**219**	**619**
9:00 AM	61	66	85	77	**289**	51	43	42	44	**180**	**469**
10:00 AM	74	63	71	76	**284**	49	45	49	55	**198**	**482**
11:00 AM	59	68	65	58	**250**	64	57	60	62	**243**	**493**
12:00 PM	52	70	61	76	**259**	92	68	67	71	**298**	**557**
1:00 PM	63	80	79	90	**312**	75	87	97	71	**330**	**642**
2:00 PM	79	67	71	91	**308**	91	90	97	83	**361**	**669**
3:00 PM	82	70	72	79	**303**	92	90	89	115	**386**	**689**
4:00 PM	65	101	76	87	**329**	123	114	127	118	**482**	**811**
5:00 PM	79	66	73	68	**286**	128	124	116	88	**456**	**742**
6:00 PM	53	65	51	42	**211**	102	95	67	81	**345**	**556**
7:00 PM	37	43	40	33	**153**	53	63	70	59	**245**	**398**
8:00 PM	34	21	33	30	**118**	52	66	60	54	**232**	**350**
9:00 PM	29	13	12	18	**72**	68	37	39	26	**170**	**242**
10:00 PM	12	12	9	8	**41**	27	20	20	10	**77**	**118**
11:00 PM	4	5	0	1	**10**	18	9	13	2	**42**	**52**
Total	**49.9%**				**4674**	**50.1%**				**4684**	
	9358										

AM%	**37.7%**	**AM Peak 810**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.83**
PM%	**62.3%**	**PM Peak 830**	**4:15 pm to 5:15 pm**	**PM P.H.F.**	**0.97**



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24 Hour Count Report

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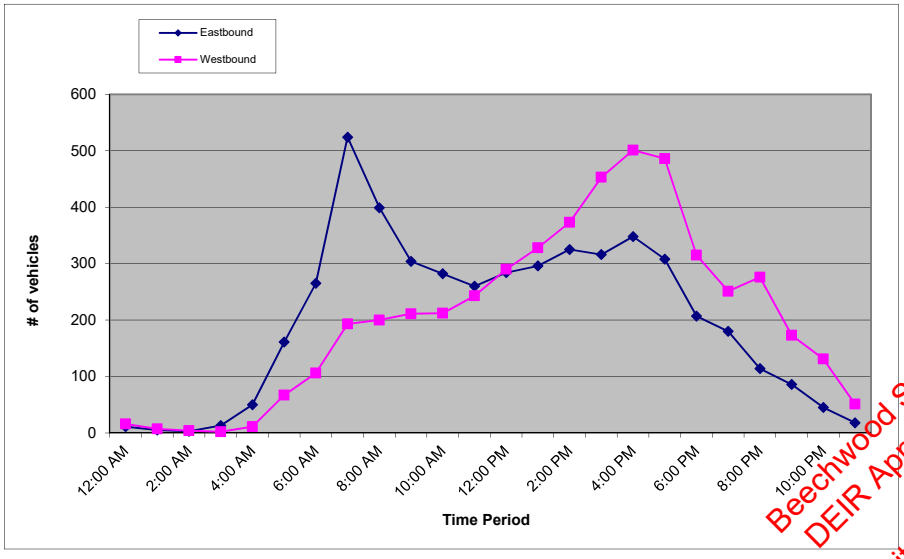
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION	S River Rd n/o Charolais Rd	**LATITUDE**	35.6069877
COUNTY	San Luis Obispo	**LONGITUDE**	-120.6818426
COLLECTION DATE	Thursday, June 7, 2018	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	3	7	0	1	**11**	4	3	2	7	**16**	**27**
1:00 AM	1	1	2	1	**5**	1	1	3	2	**7**	**12**
2:00 AM	0	1	1	1	**3**	0	1	1	2	**4**	**7**
3:00 AM	3	2	1	7	**13**	0	0	0	2	**2**	**15**
4:00 AM	6	7	12	25	**50**	2	3	3	3	**11**	**61**
5:00 AM	29	32	49	51	**161**	13	12	30	12	**67**	**228**
6:00 AM	46	59	76	84	**265**	18	22	30	36	**106**	**371**
7:00 AM	82	118	159	165	**524**	30	42	48	73	**193**	**717**
8:00 AM	117	98	100	84	**399**	69	51	46	34	**200**	**599**
9:00 AM	78	73	77	76	**304**	41	64	51	55	**211**	**515**
10:00 AM	73	77	59	73	**282**	52	52	60	48	**212**	**494**
11:00 AM	59	72	52	77	**260**	65	63	60	55	**243**	**503**
12:00 PM	82	70	69	63	**284**	76	68	70	76	**290**	**574**
1:00 PM	72	77	63	84	**296**	92	70	76	90	**328**	**624**
2:00 PM	68	80	84	93	**325**	98	89	93	93	**373**	**698**
3:00 PM	83	70	85	78	**316**	110	114	112	117	**453**	**769**
4:00 PM	85	82	94	87	**348**	127	132	113	129	**501**	**849**
5:00 PM	89	61	82	76	**308**	132	135	118	101	**486**	**794**
6:00 PM	42	67	46	52	**207**	109	71	63	72	**315**	**522**
7:00 PM	47	55	37	41	**180**	78	61	49	63	**251**	**431**
8:00 PM	37	21	30	26	**114**	72	70	68	66	**276**	**390**
9:00 PM	25	27	16	18	**86**	55	50	36	32	**173**	**259**
10:00 PM	13	11	13	8	**45**	41	38	34	18	**131**	**176**
11:00 PM	3	6	6	3	**18**	17	16	10	8	**51**	**69**
Total	**49.5%**				**4804**	**50.5%**				**4900**	
	9704										

AM%	**36.6%**	**AM Peak 791**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.83**
PM%	**63.4%**	**PM Peak 858**	**4:15 pm to 5:15 pm**	**PM P.H.F.**	**0.97**



Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

24 Hour Count Report

Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Barley Grain Rd s/o Creston Rd

LATITUDE 35.5952153

COUNTY San Luis Obispo

LONGITUDE -120.6566848

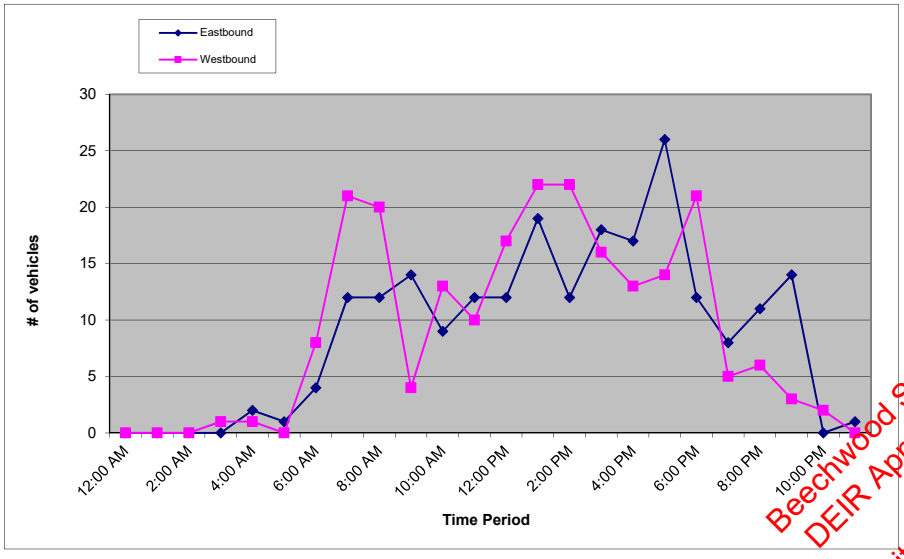
COLLECTION DATE Wednesday, June 6, 2018

WEATHER Clear

NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**
1:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**
2:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**
3:00 AM	0	0	0	0	**0**	0	0	1	0	**1**	**1**
4:00 AM	1	0	0	1	**2**	1	0	0	0	**1**	**3**
5:00 AM	0	0	0	1	**1**	0	0	0	0	**0**	**1**
6:00 AM	1	2	1	0	**4**	2	1	3	2	**8**	**12**
7:00 AM	2	4	4	2	**12**	4	2	11	4	**21**	**33**
8:00 AM	4	4	1	3	**12**	5	5	6	4	**20**	**32**
9:00 AM	4	4	4	2	**14**	1	2	1	0	**4**	**18**
10:00 AM	0	2	5	2	**9**	3	3	0	7	**13**	**22**
11:00 AM	2	4	1	5	**12**	1	5	3	1	**10**	**22**
12:00 PM	5	4	2	1	**12**	2	8	4	3	**17**	**29**
1:00 PM	8	4	1	6	**19**	6	5	7	4	**22**	**41**
2:00 PM	1	3	5	3	**12**	3	8	6	5	**22**	**34**
3:00 PM	3	3	6	6	**18**	3	6	3	4	**16**	**34**
4:00 PM	6	2	7	2	**17**	2	1	5	5	**13**	**30**
5:00 PM	8	8	4	6	**26**	1	5	4	4	**14**	**40**
6:00 PM	5	1	5	1	**12**	4	4	5	8	**21**	**33**
7:00 PM	1	3	1	3	**8**	4	0	0	1	**5**	**13**
8:00 PM	1	2	2	6	**11**	1	2	2	1	**6**	**17**
9:00 PM	6	3	3	2	**14**	0	1	1	1	**3**	**17**
10:00 PM	0	0	0	0	**0**	0	1	0	1	**2**	**2**
11:00 PM	0	0	1	0	**1**	0	0	0	0	**0**	**1**
Total	**49.7%**				**216**	**50.3%**				**219**	
	435										

AM%	**33.1%**	**AM Peak 39**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.65**
PM%	**66.9%**	**PM Peak 41**	**1:00 pm to 2:00 pm**	**PM P.H.F.**	**0.73**



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24 Hour Count Report

Prepared For: **Central Coast Transportation Consulting**
895 Napa Avenue, Suite A-6
Morro Bay, CA 93442

LOCATION Barley Grain Rd s/o Creston Rd

LATITUDE 35.5952153

COUNTY San Luis Obispo

LONGITUDE -120.6566848

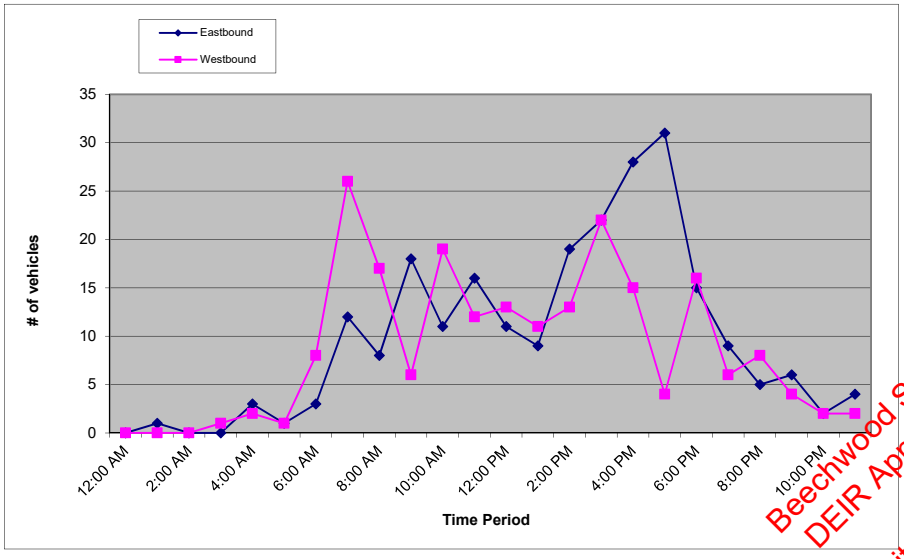
COLLECTION DATE Thursday, June 7, 2018

WEATHER Clear

NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**
1:00 AM	0	0	1	0	**1**	0	0	0	0	**0**	**1**
2:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**
3:00 AM	0	0	0	0	**0**	0	0	1	0	**1**	**1**
4:00 AM	3	0	0	0	**3**	2	0	0	0	**2**	**5**
5:00 AM	0	0	0	1	**1**	0	0	1	0	**1**	**2**
6:00 AM	0	1	1	1	**3**	1	2	2	3	**8**	**11**
7:00 AM	1	5	3	3	**12**	9	1	8	8	**26**	**38**
8:00 AM	2	2	1	3	**8**	4	4	7	2	**17**	**25**
9:00 AM	2	8	3	5	**18**	1	4	0	1	**6**	**24**
10:00 AM	2	4	1	4	**11**	4	6	6	3	**19**	**30**
11:00 AM	5	5	3	3	**16**	0	4	3	5	**12**	**28**
12:00 PM	3	1	5	2	**11**	4	1	2	6	**13**	**24**
1:00 PM	4	2	3	0	**9**	2	1	3	5	**11**	**20**
2:00 PM	6	3	3	7	**19**	1	2	5	5	**13**	**32**
3:00 PM	5	7	2	8	**22**	8	5	4	5	**22**	**44**
4:00 PM	5	5	12	6	**28**	3	7	2	3	**15**	**43**
5:00 PM	7	9	10	5	**31**	0	3	0	1	**4**	**35**
6:00 PM	6	4	2	3	**15**	4	4	5	3	**16**	**31**
7:00 PM	6	1	1	1	**9**	1	2	2	1	**6**	**15**
8:00 PM	1	1	2	1	**5**	1	3	1	3	**8**	**13**
9:00 PM	3	2	0	1	**6**	1	1	1	1	**4**	**10**
10:00 PM	1	1	0	0	**2**	2	0	0	0	**2**	**4**
11:00 PM	2	0	1	1	**4**	0	1	1	0	**2**	**6**
Total	**52.9%**				**234**	**47.1%**				**208**	
	442										

AM%	**37.3%**	**AM Peak**	**38**	**7:00 am to 8:00 am**	**AM P.H.F.**	**0.86**
PM%	**62.7%**	**PM Peak**	**47**	**3:45 pm to 4:45 pm**	**PM P.H.F.**	**0.84**



Beechwood Specific Plan
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Appendix B: Intersection LOS & Queue Calculation Sheets

Beechwood Specific Plan
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Existing

Beechwood Specific Plan
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Community Development Dept.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	265	1168	1125	101	128	238
v/c Ratio	0.66	0.36	0.80	0.15	0.54	0.35
Control Delay	43.8	0.3	29.0	4.2	50.5	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	0.3	29.0	4.2	50.5	14.9
Queue Length 50th (ft)	145	0	306	0	74	63
Queue Length 95th (ft)	248	0	378	21	137	121
Internal Link Dist (ft)		942	856		514	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	520	3223	2885	1301	520	1015
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.36	0.39	0.08	0.25	0.23

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	209	923	889	80	101	188
Future Volume (vph)	209	923	889	80	101	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1612	3223	3223	1442	1612	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1612	3223	3223	1442	1612	1442
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	265	1168	1125	101	128	238
RTOR Reduction (vph)	0	0	0	56	0	39
Lane Group Flow (vph)	265	1168	1125	45	128	199
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	24.5	96.4	42.5	42.5	14.4	42.9
Effective Green, g (s)	24.5	96.4	42.5	42.5	14.4	42.9
Actuated g/C Ratio	0.25	1.00	0.44	0.44	0.15	0.45
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	409	3223	1420	635	240	641
v/s Ratio Prot	c0.16	0.36	c0.35		c0.08	0.14
v/s Ratio Perm				0.03		
v/c Ratio	0.65	0.36	0.79	0.07	0.53	0.31
Uniform Delay, d1	32.1	0.0	23.2	15.5	37.9	17.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.3	3.3	0.1	2.6	0.3
Delay (s)	35.6	0.3	26.5	15.6	40.5	17.5
Level of Service	D	A	C	B	D	B
Approach Delay (s)		6.8	25.6		25.5	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	96.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	234	771	300	39	841	180	270	281	98	169	163
v/c Ratio	0.54	0.59	0.39	0.11	0.78	0.30	0.57	0.39	0.34	0.60	0.43
Control Delay	48.2	29.7	5.0	43.1	36.6	5.4	47.4	35.7	51.0	50.8	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	29.7	5.0	43.1	36.6	5.4	47.4	35.7	51.0	50.8	10.5
Queue Length 50th (ft)	72	226	0	11	248	0	82	78	30	100	0
Queue Length 95th (ft)	127	326	43	29	354	37	142	131	63	186	46
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	591	2373	1142	600	2373	1110	658	1376	658	731	715
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.32	0.26	0.07	0.35	0.16	0.41	0.20	0.15	0.23	0.23

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	640	249	32	698	149	224	217	17	81	140	135
Future Volume (veh/h)	194	640	249	32	698	149	224	217	17	81	140	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	234	771	300	39	841	180	270	261	20	98	169	163
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	334	1069	477	252	1133	505	377	678	52	167	266	225
Arrive On Green	0.10	0.32	0.32	0.08	0.34	0.34	0.12	0.22	0.22	0.05	0.15	0.15
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	3105	236	3209	1737	1472
Grp Volume(v), veh/h	234	771	300	39	841	180	270	138	143	98	169	163
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1691	1605	1737	1472
Q Serve(g_s), s	5.1	15.1	7.6	0.8	16.4	6.7	5.9	5.2	5.3	2.2	6.7	7.7
Cycle Q Clear(g_c), s	5.1	15.1	7.6	0.8	16.4	6.7	5.9	5.2	5.3	2.2	6.7	7.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	334	1069	477	252	1133	505	377	360	369	167	266	225
V/C Ratio(X)	0.70	0.72	0.63	0.15	0.74	0.36	0.72	0.38	0.39	0.59	0.64	0.72
Avail Cap(c_a), veh/h	791	3163	1411	791	3163	1411	879	926	949	879	975	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	21.8	7.5	31.4	21.1	17.9	31.0	24.3	24.4	33.9	29.0	29.5
Incr Delay (d2), s/veh	2.7	0.9	1.4	0.1	1.0	0.4	2.5	0.7	0.7	3.3	2.5	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.0	3.7	0.3	5.4	2.1	2.3	1.9	2.0	0.9	2.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	22.7	8.9	31.5	22.1	18.4	33.6	25.0	25.0	37.1	31.6	33.9
LnGrp LOS	C	C	A	C	C	B	C	C	C	D	C	C
Approach Vol, veh/h		1305			1060			551			430	
Approach Delay, s/veh		21.6			21.8			29.2			33.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	30.9	12.6	16.5	11.6	32.4	7.8	21.3
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	8.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	7.3	17.1	7.9	9.7	7.1	18.4	4.2	7.3
Green Ext Time (p_c), s	0.0	6.6	0.7	1.5	0.5	6.7	0.2	1.6

Intersection Summary

HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	705	27	251	891	0	5	0	222	0	0	0
Future Vol, veh/h	1	705	27	251	891	0	5	0	222	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	1	860	33	306	1087	0	6	0	271	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1087	0	0	893	0	0	2035	2578	447	2131	2594	544
Stage 1	-	-	-	-	-	-	879	879	-	1699	1699	-
Stage 2	-	-	-	-	-	-	1156	1699	-	432	895	-
Critical Hdwy	4.32	-	-	4.32	-	-	7.72	6.72	7.12	7.72	6.72	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Follow-up Hdwy	2.31	-	-	2.31	-	-	3.61	4.11	3.41	3.61	4.11	3.41
Pot Cap-1 Maneuver	587	-	-	701	-	-	30	22	535	25	22	461
Stage 1	-	-	-	-	-	-	291	343	-	87	133	-
Stage 2	-	-	-	-	-	-	195	133	-	549	337	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	587	-	-	701	-	-	20	12	535	8	12	461
Mov Cap-2 Maneuver	-	-	-	-	-	-	20	12	-	8	12	-
Stage 1	-	-	-	-	-	-	290	342	-	87	75	-
Stage 2	-	-	-	-	-	-	110	75	-	271	336	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.1	23.5	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	20	535	587	-	-	701	-	-	-	-
HCM Lane V/C Ratio	0.305	0.506	0.002	-	-	0.437	-	-	-	-
HCM Control Delay (s)	250.3	18.4	11.1	-	-	14.1	-	-	0	0
HCM Lane LOS	F	C	B	-	-	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	2.8	0	-	-	2.2	-	-	-	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	329	591	939	17	5	170
Future Vol, veh/h	329	591	939	17	5	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	392	704	1118	20	6	202

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	1138	0	-	0	2254	559	
Stage 1	-	-	-	-	1118	-	
Stage 2	-	-	-	-	1136	-	
Critical Hdwy	4.3	-	-	-	7	7.1	
Critical Hdwy Stg 1	-	-	-	-	6	-	
Critical Hdwy Stg 2	-	-	-	-	6	-	
Follow-up Hdwy	2.3	-	-	-	3.6	3.4	
Pot Cap-1 Maneuver	566	-	-	-	31	453	
Stage 1	-	-	-	-	258	-	
Stage 2	-	-	-	-	252	-	
Platoon blocked, %		-	-	-			
Mov Cap-1 Maneuver	566	-	-	-	10	453	
Mov Cap-2 Maneuver	-	-	-	-	71	-	
Stage 1	-	-	-	-	79	-	
Stage 2	-	-	-	-	252	-	

Approach	EB	WB	SB
HCM Control Delay, s	8.7	0	20.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	566	-	-	-	71	453
HCM Lane V/C Ratio	0.692	-	-	-	0.084	0.447
HCM Control Delay (s)	24.4	-	-	-	60.3	19.2
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	5.4	-	-	-	0.3	2.3

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Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	545	18	2	1008	0	8	0	1	0	0	0
Future Vol, veh/h	0	545	18	2	1008	0	8	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	13	13	13	13	13	13	13	13	13	13	13	13
Mvmt Flow	0	626	21	2	1159	0	9	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1159	0	0	647	0	0	1210	1789	313	1476	1810	580
Stage 1	-	-	-	-	-	-	626	626	-	1163	1163	-
Stage 2	-	-	-	-	-	-	584	1163	-	313	647	-
Critical Hdwy	4.36	-	-	4.36	-	-	7.76	6.76	7.16	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Follow-up Hdwy	2.33	-	-	2.33	-	-	3.63	4.13	3.43	3.63	4.13	3.43
Pot Cap-1 Maneuver	540	-	-	864	-	-	126	71	651	79	69	431
Stage 1	-	-	-	-	-	-	413	449	-	190	246	-
Stage 2	-	-	-	-	-	-	438	246	-	643	439	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	540	-	-	864	-	-	126	71	651	79	69	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	212	-	177	211	-
Stage 1	-	-	-	-	-	-	413	449	-	190	246	-
Stage 2	-	-	-	-	-	-	437	246	-	642	439	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	16.3	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	651	540	-	-	864	-	-	-
HCM Lane V/C Ratio	0.03	0.002	-	-	-	0.003	-	-	-
HCM Control Delay (s)	17	10.5	0	-	-	9.2	-	-	0
HCM Lane LOS	C	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	51.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	113	92	246	96	66	40	288	182	39	260	50
Future Vol, veh/h	87	113	92	246	96	66	40	288	182	39	260	50
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	107	140	114	304	119	81	49	356	225	48	321	62
Number of Lanes	1	1	0	1	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	2
HCM Control Delay	37	55	68.5	33.8
HCM LOS	E	F	F	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%	23%	0%
Vol Thru, %	0%	100%	0%	0%	55%	0%	59%	77%	72%
Vol Right, %	0%	0%	100%	0%	45%	0%	41%	0%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	288	182	87	205	246	162	169	180
LT Vol	40	0	0	87	0	246	0	39	0
Through Vol	0	288	0	0	113	0	96	130	130
RT Vol	0	0	182	0	92	0	66	0	50
Lane Flow Rate	49	356	225	107	253	304	200	209	222
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.155	1.064	0.627	0.35	0.772	0.944	0.582	0.646	0.675
Departure Headway (Hd)	11.297	10.773	10.039	12.15	11.296	11.613	10.792	11.578	11.25
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	319	338	362	298	321	316	336	315	322
Service Time	9.025	8.501	7.767	9.85	8.996	9.313	8.492	9.278	8.95
HCM Lane V/C Ratio	0.154	1.053	0.622	0.359	0.788	0.962	0.595	0.663	0.689
HCM Control Delay	16.1	101.2	28.3	21.3	43.7	73.1	27.5	33.2	34.4
HCM Lane LOS	C	F	D	C	E	F	D	D	D
HCM 95th-tile Q	0.5	12.9	4.1	1.5	6.1	9.4	3.5	4.2	4.6

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	329	373	393	644	7	22	151	292	297	35
v/c Ratio	0.01	0.57	0.76	0.44	0.59	0.05	0.14	0.56	0.71	0.71	0.07
Control Delay	49.0	38.6	41.8	18.2	4.0	44.2	45.1	16.3	42.1	41.9	0.3
Queue Delay	0.0	0.0	0.2	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	38.6	42.0	18.6	4.3	44.2	45.1	16.3	42.1	41.9	0.3
Queue Length 50th (ft)	1	85	182	127	0	4	11	0	149	152	0
Queue Length 95th (ft)	6	146	332	268	44	18	38	51	286	289	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	106	963	689	1131	1210	382	402	454	574	585	612
Starvation Cap Reductn	0	0	33	329	163	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.34	0.57	0.49	0.62	0.02	0.05	0.33	0.51	0.51	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	252	28	317	334	547	6	19	128	414	87	30
Future Volume (veh/h)	1	252	28	317	334	547	6	19	128	414	87	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	296	33	373	393	644	7	22	151	560	0	35
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	706	78	423	852	722	212	223	188	712	0	313
Arrive On Green	0.00	0.22	0.22	0.24	0.46	0.46	0.12	0.12	0.12	0.20	0.00	0.20
Sat Flow, veh/h	1767	3194	353	1767	1856	1572	1767	1856	1569	3534	0	1553
Grp Volume(v), veh/h	1	162	167	373	393	644	7	22	151	560	0	35
Grp Sat Flow(s),veh/h/ln	1767	1763	1784	1767	1856	1572	1767	1856	1569	1767	0	1553
Q Serve(g_s), s	0.0	6.5	6.6	16.8	12.0	31.0	0.3	0.9	7.7	12.4	0.0	1.5
Cycle Q Clear(g_c), s	0.0	6.5	6.6	16.8	12.0	31.0	0.3	0.9	7.7	12.4	0.0	1.5
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	389	394	423	852	722	212	223	188	712	0	313
V/C Ratio(X)	0.41	0.42	0.42	0.88	0.46	0.89	0.03	0.10	0.80	0.79	0.00	0.11
Avail Cap(c_a), veh/h	107	491	497	695	1134	961	385	404	342	1219	0	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.2	27.6	27.7	30.3	15.3	20.5	32.1	32.4	35.4	31.3	0.0	26.9
Incr Delay (d2), s/veh	85.0	0.7	0.7	7.5	0.4	8.5	0.1	0.2	7.7	2.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.8	2.9	7.8	4.8	12.1	0.1	0.4	3.3	5.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.2	28.3	28.4	37.8	15.7	28.9	32.2	32.6	43.1	33.3	0.0	27.1
LnGrp LOS	F	C	C	D	B	C	C	C	D	C	A	C
Approach Vol, veh/h		330			1410			180			595	
Approach Delay, s/veh		28.7			27.6			41.4			32.9	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.3	22.8		21.2	4.6	42.4		14.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	32.5	23.0		28.5	5.0	50.5		18.0
Max Q Clear Time (g_c+I1), s	18.8	8.6		14.4	2.0	33.0		9.7
Green Ext Time (p_c), s	1.0	1.7		1.9	0.0	4.9		0.3

Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	903	56	1216	395	251	14	273	6	9
v/c Ratio	0.40	0.51	0.32	0.70	0.44	0.70	0.03	0.46	0.02	0.02
Control Delay	48.1	16.1	47.4	20.2	6.7	42.7	27.1	7.1	27.0	0.0
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	16.4	47.4	20.2	6.7	42.7	27.1	7.1	27.0	0.0
Queue Length 50th (ft)	43	173	32	274	36	135	6	4	3	0
Queue Length 95th (ft)	85	227	67	342	78	200	19	42	12	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	250	2243	226	2237	1075	578	769	807	575	772
Starvation Cap Reductn	0	611	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.55	0.25	0.54	0.37	0.43	0.02	0.34	0.01	0.01

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	676	46	45	973	316	201	11	218	5	0	7
Future Volume (veh/h)	61	676	46	45	973	316	201	11	218	5	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	845	58	56	1216	0	251	14	272	6	0	9
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	105	1660	114	89	1718		437	433	367	364	0	367
Arrive On Green	0.06	0.50	0.50	0.05	0.49	0.00	0.23	0.23	0.23	0.23	0.00	0.23
Sat Flow, veh/h	1767	3346	230	1767	3526	1572	1395	1856	1572	1085	0	1572
Grp Volume(v), veh/h	76	445	458	56	1216	0	251	14	272	6	0	9
Grp Sat Flow(s),veh/h/ln	1767	1763	1813	1767	1763	1572	1395	1856	1572	1085	0	1572
Q Serve(g_s), s	2.6	10.4	10.4	1.9	16.5	0.0	10.4	0.4	9.8	0.3	0.0	0.3
Cycle Q Clear(g_c), s	2.6	10.4	10.4	1.9	16.5	0.0	10.6	0.4	9.8	0.6	0.0	0.3
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	875	900	89	1718		437	433	367	364	0	367
V/C Ratio(X)	0.73	0.51	0.51	0.63	0.71		0.57	0.03	0.74	0.02	0.00	0.02
Avail Cap(c_a), veh/h	303	1476	1517	274	2894		810	930	788	655	0	788
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.3	10.4	10.4	28.5	12.3	0.0	22.2	18.1	21.8	18.4	0.0	18.1
Incr Delay (d2), s/veh	9.2	0.5	0.4	7.2	0.5	0.0	1.2	0.0	3.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.5	3.6	0.9	5.6	0.0	3.2	0.1	3.6	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	10.9	10.8	35.8	12.8	0.0	23.4	18.2	24.7	18.4	0.0	18.1
LnGrp LOS	D	B	B	D	B		C	B	C	B	A	B
Approach Vol, veh/h		979			1272	A		537			15	
Approach Delay, s/veh		12.9			13.9			24.0			18.2	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	34.9		18.8	8.1	34.4		18.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	9.5	51.3		30.7	10.5	50.3		30.7				
Max Q Clear Time (g_c+I1), s	3.9	12.4		2.6	4.6	18.5		12.6				
Green Ext Time (p_c), s	0.0	7.0		0.0	0.1	11.3		1.7				

Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	224	897	70	952	406	211	56	148	637
v/c Ratio	0.59	0.66	0.46	0.80	0.71	0.26	0.13	0.62	0.89dr
Control Delay	53.4	27.2	59.5	36.5	49.8	35.1	2.4	56.7	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	27.2	59.5	36.5	49.8	35.1	2.4	56.7	36.3
Queue Length 50th (ft)	75	245	46	304	136	61	0	97	153
Queue Length 95th (ft)	113	290	89	348	182	93	2	155	198
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	433	1583	187	1534	711	989	510	330	968
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.57	0.37	0.62	0.57	0.21	0.11	0.45	0.66

Intersection Summary

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	471	246	56	674	87	325	169	45	118	173	337
Future Volume (veh/h)	179	471	246	56	674	87	325	169	45	118	173	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	224	589	0	70	842	109	406	211	56	148	216	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	1444		98	1150	149	550	557	248	191	373	
Arrive On Green	0.10	0.41	0.00	0.05	0.36	0.36	0.16	0.16	0.16	0.11	0.11	0.00
Sat Flow, veh/h	3456	3647	0	1781	3159	409	3456	3554	1585	1781	3647	0
Grp Volume(v), veh/h	224	589	0	70	474	477	406	211	56	148	216	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1791	1728	1777	1585	1781	1777	0
Q Serve(g_s), s	4.1	7.7	0.0	2.5	15.2	15.2	7.3	3.5	2.0	5.3	3.8	0.0
Cycle Q Clear(g_c), s	4.1	7.7	0.0	2.5	15.2	15.2	7.3	3.5	2.0	5.3	3.8	0.0
Prop In Lane	1.00		0.00	1.00		0.23	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	336	1444		98	647	652	550	557	248	191	373	
V/C Ratio(X)	0.67	0.41		0.72	0.73	0.73	0.74	0.38	0.23	0.77	0.58	
Avail Cap(c_a), veh/h	659	2466		285	1179	1188	1081	1491	665	503	1382	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.6	13.8	0.0	30.5	18.1	18.1	26.3	24.8	24.2	28.5	28.0	0.0
Incr Delay (d2), s/veh	2.3	0.2	0.0	9.3	1.6	1.6	2.0	0.4	0.5	6.5	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.8	0.0	1.3	5.8	5.8	2.9	1.4	0.7	2.4	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	14.0	0.0	39.8	19.7	19.7	28.2	25.2	24.6	35.0	29.4	0.0
LnGrp LOS	C	B		D	B	B	C	C	C	C	C	
Approach Vol, veh/h		813	A		1021			673			364	A
Approach Delay, s/veh		18.7			21.1			27.0			31.7	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	31.1	14.9	11.4	10.9	28.4	11.5	14.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	45.5	20.5	25.5	12.5	43.5	18.5	27.5
Max Q Clear Time (g_c+I1), s	4.5	9.7	9.3	5.8	6.1	17.2	7.3	5.5
Green Ext Time (p_c), s	0.1	4.5	1.1	1.1	0.4	6.6	0.3	1.3

Intersection Summary

HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	75	405	925	480	105
v/c Ratio	0.31	0.22	0.68	0.57	0.22
Control Delay	39.2	10.0	19.1	29.6	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	10.0	19.1	29.6	8.7
Queue Length 50th (ft)	26	31	114	79	0
Queue Length 95th (ft)	103	126	332	230	43
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	329	2930	2245	1431	720
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.14	0.41	0.34	0.15

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	352	447	358	418	91
Future Volume (vph)	65	352	447	358	418	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	3250		3400	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	3250		3400	1568
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	75	405	514	411	480	105
RTOR Reduction (vph)	0	0	117	0	0	80
Lane Group Flow (vph)	75	405	808	0	480	25
Confl. Peds. (#/hr)				3		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	6.9	37.1	25.7		16.7	16.7
Effective Green, g (s)	6.9	37.1	25.7		16.7	16.7
Actuated g/C Ratio	0.10	0.53	0.37		0.24	0.24
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	171	1849	1188		807	372
v/s Ratio Prot	c0.04	0.12	c0.25			
v/s Ratio Perm					c0.14	0.02
v/c Ratio	0.44	0.22	0.68		0.59	0.07
Uniform Delay, d1	29.9	8.9	18.8		23.8	20.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.8	0.1	1.6		1.2	0.1
Delay (s)	31.7	8.9	20.5		25.0	20.8
Level of Service	C	A	C		C	C
Approach Delay (s)		12.5	20.5		24.2	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	150	245	128	48	587	194	544	184	639
v/c Ratio	0.59	0.41	0.22	0.32	0.74	0.65	0.69	0.64	0.68
Control Delay	43.4	25.2	5.9	43.3	25.4	42.3	32.1	43.1	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	25.2	5.9	43.3	25.4	42.3	32.1	43.1	18.8
Queue Length 50th (ft)	70	102	0	23	94	90	128	86	78
Queue Length 95th (ft)	128	164	31	56	141	156	175	150	122
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	320	665	638	163	1013	392	1081	368	1159
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.37	0.20	0.29	0.58	0.49	0.50	0.50	0.55

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	201	105	39	272	209	159	418	28	151	246	278
Future Volume (veh/h)	123	201	105	39	272	209	159	418	28	151	246	278
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.92	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	150	245	128	48	332	255	194	510	34	184	300	339
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	189	554	463	75	442	331	239	886	59	227	457	405
Arrive On Green	0.11	0.30	0.30	0.04	0.24	0.24	0.14	0.27	0.27	0.13	0.26	0.26
Sat Flow, veh/h	1739	1826	1526	1739	1858	1392	1739	3281	218	1739	1735	1537
Grp Volume(v), veh/h	150	245	128	48	309	278	194	269	275	184	300	339
Grp Sat Flow(s),veh/h/ln	1739	1826	1526	1739	1735	1515	1739	1735	1764	1739	1735	1537
Q Serve(g_s), s	6.0	7.7	4.5	1.9	11.8	12.2	7.7	9.5	9.6	7.3	11.0	14.9
Cycle Q Clear(g_c), s	6.0	7.7	4.5	1.9	11.8	12.2	7.7	9.5	9.6	7.3	11.0	14.9
Prop In Lane	1.00		1.00	1.00		0.92	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	189	554	463	75	413	361	239	468	476	227	457	405
V/C Ratio(X)	0.79	0.44	0.28	0.64	0.75	0.77	0.81	0.57	0.58	0.81	0.66	0.84
Avail Cap(c_a), veh/h	329	682	570	168	487	425	403	560	570	378	536	475
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	20.0	18.9	33.5	25.2	25.3	29.8	22.5	22.5	30.1	23.4	24.8
Incr Delay (d2), s/veh	7.4	0.6	0.3	8.8	5.3	7.1	6.5	1.1	1.1	6.7	2.3	11.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.0	1.5	1.0	5.0	4.7	3.5	3.8	3.8	3.3	4.5	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.3	20.5	19.2	42.4	30.5	32.4	36.4	23.6	23.6	36.8	25.7	35.8
LnGrp LOS	D	C	B	D	C	C	D	C	C	D	C	D
Approach Vol, veh/h		523			635			738			823	
Approach Delay, s/veh		25.3			32.2			27.0			32.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	23.7	7.6	26.1	14.3	23.3	12.2	21.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	23.0	6.9	26.6	16.5	22.0	13.5	20.0
Max Q Clear Time (g_c+I1), s	9.3	11.6	3.9	9.7	9.7	16.9	8.0	14.2
Green Ext Time (p_c), s	0.2	2.4	0.0	1.6	0.3	1.8	0.2	1.7

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

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Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	6	37	7	15	95	27	274	3	33	287	76
Future Vol, veh/h	92	6	37	7	15	95	27	274	3	33	287	76
Conflicting Peds, #/hr	1	0	0	0	0	1	6	0	2	2	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	110	7	44	8	18	113	32	326	4	39	342	90

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	885	822	348	885	910	331	438	0	0	332	0	0
Stage 1	426	426	-	394	394	-	-	-	-	-	-	-
Stage 2	459	396	-	491	516	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	266	309	695	266	275	711	1122	-	-	1227	-	-
Stage 1	606	586	-	631	605	-	-	-	-	-	-	-
Stage 2	582	604	-	559	534	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	201	288	691	233	256	709	1116	-	-	1225	-	-
Mov Cap-2 Maneuver	201	288	-	233	256	-	-	-	-	-	-	-
Stage 1	585	564	-	611	586	-	-	-	-	-	-	-
Stage 2	460	585	-	500	514	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.8	14.3	0.7	0.7
HCM LOS	E	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1116	-	-	254	526	1225	-	-
HCM Lane V/C Ratio	0.029	-	-	0.633	0.265	0.032	-	-
HCM Control Delay (s)	8.3	-	-	40.8	14.3	8	-	-
HCM Lane LOS	A	-	-	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.9	1.1	0.1	-	-

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	9	5	134	5	119	0	4	165	72	156	161
Future Vol, veh/h	20	9	5	134	5	119	0	4	165	72	156	161
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	11	6	158	6	140	0	5	194	85	184	189
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	9.9	13.5	11.2	13.5
HCM LOS	A	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	0%	59%	52%	66%	0%
Vol Thru, %	98%	0%	26%	2%	34%	89%
Vol Right, %	0%	100%	15%	46%	0%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	169	72	34	258	237	91
LT Vol	4	0	20	134	156	0
Through Vol	165	0	9	5	81	81
RT Vol	0	72	5	119	0	10
Lane Flow Rate	199	85	40	304	278	106
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.34	0.128	0.071	0.471	0.487	0.174
Departure Headway (Hd)	6.149	5.425	6.376	5.582	6.304	5.891
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	585	659	559	643	570	608
Service Time	3.899	3.174	4.447	3.631	4.051	3.637
HCM Lane V/C Ratio	0.34	0.129	0.072	0.473	0.488	0.174
HCM Control Delay	12.1	9	9.9	13.5	14.9	9.9
HCM Lane LOS	B	A	A	B	B	A
HCM 95th-tile Q	1.5	0.4	0.2	2.5	2.7	0.6

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	10
Future Vol, veh/h	10
Peak Hour Factor	0.85
Heavy Vehicles, %	2
Mvmt Flow	12
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	111	81	123	129	88	211
Future Vol, veh/h	111	81	123	129	88	211
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	129	94	143	150	102	245

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	463	102	347	0	-	0
Stage 1	102	-	-	-	-	-
Stage 2	361	-	-	-	-	-
Critical Hdwy	6.645	6.245	4.145	-	-	-
Critical Hdwy Stg 1	5.445	-	-	-	-	-
Critical Hdwy Stg 2	5.845	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	540	950	1204	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	476	950	1204	-	-	-
Mov Cap-2 Maneuver	476	-	-	-	-	-
Stage 1	810	-	-	-	-	-
Stage 2	674	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	4.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1204	-	476	950	-	-
HCM Lane V/C Ratio	0.119	-	0.271	0.099	-	-
HCM Control Delay (s)	8.4	-	15.4	9.2	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	1.1	0.3	-	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	24	1	83	9	0	0	0	0	324	15
Future Volume (Veh/h)	27	0	24	1	83	9	0	0	0	0	324	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	30	0	26	1	91	10	0	0	0	0	356	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	414	364	364	390	372	0	372			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	414	364	364	390	372	0	372			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	96	100	84	99	100			100		
cM capacity (veh/h)	475	564	681	547	558	1085	1186			1623		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	56	102	372
Volume Left	30	1	0
Volume Right	26	10	16
cSH	553	619	1700
Volume to Capacity	0.10	0.16	0.22
Queue Length 95th (ft)	8	15	0
Control Delay (s)	12.2	12.3	0.0
Lane LOS	B	B	
Approach Delay (s)	12.2	12.3	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		3.7		
Intersection Capacity Utilization		34.3%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	337	1045	225	477	77	308	514	319	280
v/c Ratio	0.10	0.69	0.73	0.29	0.44	0.51	0.63	0.31	0.63	0.35
Control Delay	54.6	46.0	34.1	25.9	2.6	71.9	58.1	4.6	56.9	42.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	46.0	34.1	25.9	2.6	71.9	58.1	4.6	56.9	42.0
Queue Length 50th (ft)	15	98	347	115	5	60	124	30	125	98
Queue Length 95th (ft)	43	157	473	196	34	122	186	48	187	147
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	314	667	1839	997	1161	187	714	1904	725	1065
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.51	0.57	0.23	0.41	0.41	0.43	0.27	0.44	0.26

Intersection Summary

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16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	168	115	878	189	401	65	259	432	268	197	38
Future Volume (veh/h)	18	168	115	878	189	401	65	259	432	268	197	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	200	137	1045	225	477	77	308	514	319	235	45
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	275	179	1315	711	785	100	555	1497	413	623	117
Arrive On Green	0.13	0.13	0.13	0.38	0.38	0.38	0.06	0.16	0.16	0.12	0.21	0.21
Sat Flow, veh/h	1781	2061	1344	3456	1870	1564	1781	3554	2790	3456	2983	562
Grp Volume(v), veh/h	21	171	166	1045	225	477	77	308	514	319	138	142
Grp Sat Flow(s),veh/h/ln	1781	1777	1628	1728	1870	1564	1781	1777	1395	1728	1777	1768
Q Serve(g_s), s	1.0	9.0	9.6	26.2	8.3	21.4	4.2	7.8	10.2	8.7	6.5	6.7
Cycle Q Clear(g_c), s	1.0	9.0	9.6	26.2	8.3	21.4	4.2	7.8	10.2	8.7	6.5	6.7
Prop In Lane	1.00		0.83	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	237	237	217	1315	711	785	100	555	1497	413	371	369
V/C Ratio(X)	0.09	0.72	0.76	0.79	0.32	0.61	0.77	0.55	0.34	0.77	0.37	0.38
Avail Cap(c_a), veh/h	373	372	341	2186	1183	1179	223	846	1726	862	644	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	40.5	40.7	26.8	21.3	17.5	45.4	38.0	12.8	41.6	33.1	33.1
Incr Delay (d2), s/veh	0.2	4.1	5.5	1.1	0.3	0.8	11.9	0.9	0.1	3.1	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.2	4.2	10.3	3.5	7.2	2.1	3.3	6.1	3.9	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	44.6	46.3	27.9	21.5	18.3	57.3	38.8	13.0	44.7	33.7	33.8
LnGrp LOS	D	D	D	C	C	B	E	D	B	D	C	C
Approach Vol, veh/h		358			1747			899			599	
Approach Delay, s/veh		45.0			24.5			25.6			39.6	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.3	21.0		17.6	11.2	26.1		42.4
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 24	23.2		20.4	12.2	* 35		61.6
Max Q Clear Time (g_c+I1), s	10.7	12.2		11.6	6.2	8.7		28.2
Green Ext Time (p_c), s	0.9	3.0		1.4	0.1	1.6		8.9

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

17: S. River Road & Niblick Road

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	115	595	231	101	1132	571	342	291	426
v/c Ratio	0.52	0.49	0.33	0.55	0.85	0.78	0.59	0.79	0.70
Control Delay	59.3	29.6	5.2	57.9	36.0	48.1	44.1	56.4	40.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	29.6	5.2	57.9	36.0	48.1	44.1	56.4	40.0
Queue Length 50th (ft)	40	166	0	67	351	192	114	190	120
Queue Length 95th (ft)	73	242	50	126	475	264	158	#315	170
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	220	1312	732	236	1507	826	898	440	958
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.45	0.32	0.43	0.75	0.69	0.38	0.66	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	518	201	88	764	221	497	260	37	253	237	134
Future Volume (veh/h)	100	518	201	88	764	221	497	260	37	253	237	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	595	231	101	878	254	571	299	43	291	272	154
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	179	1296	578	129	1046	302	675	564	80	332	380	209
Arrive On Green	0.05	0.36	0.36	0.07	0.39	0.39	0.20	0.18	0.18	0.19	0.17	0.17
Sat Flow, veh/h	3456	3554	1585	1781	2715	784	3456	3119	444	1781	2213	1216
Grp Volume(v), veh/h	115	595	231	101	574	558	571	169	173	291	217	209
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1722	1728	1777	1786	1781	1777	1652
Q Serve(g_s), s	3.0	11.8	5.4	5.1	27.0	27.1	14.7	7.9	8.1	14.6	10.6	11.1
Cycle Q Clear(g_c), s	3.0	11.8	5.4	5.1	27.0	27.1	14.7	7.9	8.1	14.6	10.6	11.1
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.25	1.00		0.74
Lane Grp Cap(c), veh/h	179	1296	578	129	685	664	675	321	323	332	305	284
V/C Ratio(X)	0.64	0.46	0.40	0.78	0.84	0.84	0.85	0.53	0.54	0.88	0.71	0.74
Avail Cap(c_a), veh/h	244	1439	642	261	854	828	904	501	504	487	523	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	22.3	6.3	42.0	25.7	25.7	35.7	34.2	34.2	36.4	36.0	36.2
Incr Delay (d2), s/veh	3.8	0.3	0.4	9.7	6.1	6.4	5.7	1.3	1.4	11.7	3.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.7	3.3	2.5	11.7	11.4	6.4	3.4	3.5	7.2	4.7	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.6	22.6	6.8	51.8	31.8	32.1	41.4	35.5	35.6	48.1	39.0	39.9
LnGrp LOS	D	C	A	D	C	C	D	D	D	D	D	D
Approach Vol, veh/h		941			1233			913			717	
Approach Delay, s/veh		21.6			33.6			39.2			43.0	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	38.1	22.5	20.3	9.3	40.0	21.7	21.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	37.3	24.1	27.1	6.5	44.3	25.2	26.0
Max Q Clear Time (g_c+I1), s	7.1	13.8	16.7	13.1	5.0	29.1	16.6	10.1
Green Ext Time (p_c), s	0.1	4.7	1.3	2.0	0.0	6.4	0.6	1.6

Intersection Summary	
HCM 6th Ctrl Delay	33.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	82	1	5	611	272	33
Future Vol, veh/h	82	1	5	611	272	33
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		- None		- None		- None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	99	1	6	736	328	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1096	349	368	0	-	0
Stage 1	348	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	235	692	1185	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	233	691	1185	-	-	-
Mov Cap-2 Maneuver	233	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	466	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.2	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1185	-	235	-	-
HCM Lane V/C Ratio	0.005	-	0.426	-	-
HCM Control Delay (s)	8.1	0	31.2	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	2	-	-

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Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	6	9	561	232	19
Future Vol, veh/h	55	6	9	561	232	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	7	11	668	276	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	978	288	299	0	-	0
Stage 1	288	-	-	-	-	-
Stage 2	690	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	278	751	1262	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	274	751	1262	-	-	-
Mov Cap-2 Maneuver	445	-	-	-	-	-
Stage 1	750	-	-	-	-	-
Stage 2	498	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.2	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1262	-	464	-	-
HCM Lane V/C Ratio	0.008	-	0.157	-	-
HCM Control Delay (s)	7.9	0	14.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Intersection Delay, s/veh	17.2
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	477	84	7	190	45
Future Vol, veh/h	21	477	84	7	190	45
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	575	101	8	229	54
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	20.2	10.2	13.5
HCM LOS	C	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	4%	81%
Vol Thru, %	92%	0%	19%
Vol Right, %	8%	96%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	91	498	235
LT Vol	0	21	190
Through Vol	84	0	45
RT Vol	7	477	0
Lane Flow Rate	110	600	283
Geometry Grp	1	1	1
Degree of Util (X)	0.178	0.757	0.453
Departure Headway (Hd)	5.851	4.54	5.755
Convergence, Y/N	Yes	Yes	Yes
Cap	612	804	626
Service Time	3.904	2.54	3.798
HCM Lane V/C Ratio	0.18	0.746	0.452
HCM Control Delay	10.2	20.2	13.5
HCM Lane LOS	B	C	B
HCM 95th-tile Q	0.6	7.2	2.4

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Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	195	492	2	4	7
Future Vol, veh/h	4	195	492	2	4	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		-	None	
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	238	600	2	5	9

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	608	0	-	0	855	607	
Stage 1	-	-	-	-	607	-	
Stage 2	-	-	-	-	248	-	
Critical Hdwy	4.12	-	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	-	3.518	3.318	
Pot Cap-1 Maneuver	970	-	-	-	329	496	
Stage 1	-	-	-	-	544	-	
Stage 2	-	-	-	-	793	-	
Platoon blocked, %		-	-	-			
Mov Cap-1 Maneuver	964	-	-	-	323	493	
Mov Cap-2 Maneuver	-	-	-	-	323	-	
Stage 1	-	-	-	-	538	-	
Stage 2	-	-	-	-	788	-	

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	964	-	-	-	414
HCM Lane V/C Ratio	0.005	-	-	-	0.032
HCM Control Delay (s)	8.8	-	-	-	14
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	202	1	1	454	16	3	0	1	28	0	30
Future Vol, veh/h	12	202	1	1	454	16	3	0	1	28	0	30
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	240	1	1	540	19	4	0	1	33	0	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	566	0	0	241	0	0	839	837	241	828	828	557
Stage 1	-	-	-	-	-	-	269	269	-	559	559	-
Stage 2	-	-	-	-	-	-	570	568	-	269	269	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1006	-	-	1326	-	-	285	303	798	290	306	530
Stage 1	-	-	-	-	-	-	737	687	-	513	511	-
Stage 2	-	-	-	-	-	-	506	506	-	737	687	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	999	-	-	1326	-	-	263	296	798	284	299	526
Mov Cap-2 Maneuver	-	-	-	-	-	-	263	296	-	284	299	-
Stage 1	-	-	-	-	-	-	727	677	-	502	507	-
Stage 2	-	-	-	-	-	-	471	502	-	726	677	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	16.6	16.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	316	999	-	-	1326	-	-	373
HCM Lane V/C Ratio	0.015	0.014	-	-	0.001	-	-	0.185
HCM Control Delay (s)	16.6	8.7	-	-	7.7	-	-	16.8
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.7

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Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	209	461	2	6	5
Future Vol, veh/h	4	209	461	2	6	5
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		- None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #		0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	258	569	2	7	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	580	0	-	0	847	579
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	268	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	994	-	-	-	332	515
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	777	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	985	-	-	-	324	511
Mov Cap-2 Maneuver	-	-	-	-	324	-
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	770	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	985	-	-	-	389
HCM Lane V/C Ratio	0.005	-	-	-	0.035
HCM Control Delay (s)	8.7	-	-	-	14.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	54	176	328	27	15	135
Future Vol, veh/h	54	176	328	27	15	135
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		- None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #		0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	64	207	386	32	18	159

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	426	0	-	0	745	410
Stage 1	-	-	-	-	410	-
Stage 2	-	-	-	-	335	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1139	-	-	-	383	644
Stage 1	-	-	-	-	672	-
Stage 2	-	-	-	-	727	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1130	-	-	-	355	639
Mov Cap-2 Maneuver	-	-	-	-	355	-
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	721	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1130	-	-	-	592
HCM Lane V/C Ratio	0.056	-	-	-	0.298
HCM Control Delay (s)	8.4	-	-	-	13.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.2

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Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	43	0	0	102	1	0	0	0	0	0	66
Future Vol, veh/h	40	43	0	0	102	1	0	0	0	0	0	66
Conflicting Peds, #/hr	8	0	0	0	0	8	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	49	52	0	0	124	1	0	0	0	0	0	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	52	0	0	315	283	52	283	283	133
Stage 1	-	-	-	-	-	-	150	150	-	133	133	-
Stage 2	-	-	-	-	-	-	165	133	-	150	150	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1458	-	-	1560	-	-	640	628	1019	671	628	919
Stage 1	-	-	-	-	-	-	855	775	-	873	788	-
Stage 2	-	-	-	-	-	-	839	788	-	855	775	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1447	-	-	1560	-	-	568	601	1019	648	601	912
Mov Cap-2 Maneuver	-	-	-	-	-	-	568	601	-	648	601	-
Stage 1	-	-	-	-	-	-	825	748	-	836	782	-
Stage 2	-	-	-	-	-	-	765	782	-	825	748	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.7	0	0	9.3
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1447	-	-	1560	-	-	912
HCM Lane V/C Ratio	-	0.034	-	-	-	-	-	0.088
HCM Control Delay (s)	0	7.6	0	-	0	-	-	9.3
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.3

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	213	982	1077	82	75	196
v/c Ratio	0.57	0.30	0.70	0.11	0.31	0.33
Control Delay	35.8	0.2	20.2	4.0	38.7	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	0.2	20.2	4.0	38.7	12.1
Queue Length 50th (ft)	91	0	207	0	33	35
Queue Length 95th (ft)	197	0	362	25	90	97
Internal Link Dist (ft)		1017	748		574	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	716	3312	3228	1447	716	1246
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.30	0.33	0.06	0.10	0.16

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	211	972	1066	81	74	194
Future Volume (vph)	211	972	1066	81	74	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	3312	3312	1482	1656	1482
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	3312	3312	1482	1656	1482
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	213	982	1077	82	75	196
RTOR Reduction (vph)	0	0	0	44	0	48
Lane Group Flow (vph)	213	982	1077	38	75	148
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	17.1	75.5	35.2	35.2	8.2	29.3
Effective Green, g (s)	17.1	75.5	35.2	35.2	8.2	29.3
Actuated g/C Ratio	0.23	1.00	0.47	0.47	0.11	0.39
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	375	3312	1544	690	179	575
v/s Ratio Prot	c0.13	0.30	c0.33		0.05	0.10
v/s Ratio Perm				0.03		
v/c Ratio	0.57	0.30	0.70	0.06	0.42	0.26
Uniform Delay, d1	25.9	0.0	15.9	11.0	31.4	15.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	0.2	1.5	0.0	1.9	0.2
Delay (s)	27.9	0.2	17.4	11.1	33.3	15.9
Level of Service	C	A	B	B	C	B
Approach Delay (s)		5.2	17.0		20.7	
Approach LOS		A	B		C	

Intersection Summary

HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	179	811	220	49	740	115	213	231	179	258	294
v/c Ratio	0.45	0.67	0.33	0.16	0.73	0.22	0.49	0.30	0.45	0.67	0.54
Control Delay	46.3	31.3	5.1	46.5	35.3	6.6	45.6	30.8	46.3	45.5	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	31.3	5.1	46.5	35.3	6.6	45.6	30.8	46.3	45.5	9.6
Queue Length 50th (ft)	51	219	0	13	203	0	60	54	51	140	8
Queue Length 95th (ft)	108	371	54	39	345	42	125	111	108	281	89
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	647	2579	1189	647	2579	1164	718	1478	718	799	831
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.31	0.19	0.08	0.29	0.10	0.30	0.16	0.25	0.32	0.35

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	787	213	48	718	112	207	179	45	174	250	285
Future Volume (veh/h)	174	787	213	48	718	112	207	179	45	174	250	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	179	811	220	49	740	115	213	185	46	179	258	294
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	271	1099	490	112	1082	482	313	685	166	273	431	365
Arrive On Green	0.08	0.32	0.32	0.03	0.32	0.32	0.09	0.25	0.25	0.08	0.24	0.24
Sat Flow, veh/h	3319	3413	1521	3319	3413	1521	3319	2722	660	3319	1796	1522
Grp Volume(v), veh/h	179	811	220	49	740	115	213	114	117	179	258	294
Grp Sat Flow(s),veh/h/ln	1659	1706	1521	1659	1706	1521	1659	1706	1676	1659	1796	1522
Q Serve(g_s), s	4.0	16.3	5.7	1.1	14.6	4.3	4.8	4.1	4.3	4.0	9.8	14.0
Cycle Q Clear(g_c), s	4.0	16.3	5.7	1.1	14.6	4.3	4.8	4.1	4.3	4.0	9.8	14.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	271	1099	490	112	1082	482	313	429	422	273	431	365
V/C Ratio(X)	0.66	0.74	0.45	0.44	0.68	0.24	0.68	0.27	0.28	0.66	0.60	0.81
Avail Cap(c_a), veh/h	776	3102	1382	776	3102	1382	862	909	892	862	956	810
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	23.2	8.6	36.5	22.9	19.4	33.8	23.1	23.2	34.3	26.0	27.6
Incr Delay (d2), s/veh	2.7	1.0	0.6	1.0	0.8	0.3	2.6	0.3	0.4	2.7	1.3	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.7	2.8	0.4	5.1	1.4	1.9	1.6	1.6	1.6	4.1	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	24.2	9.2	37.5	23.7	19.7	36.4	23.4	23.5	36.9	27.3	31.8
LnGrp LOS	D	C	A	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1210			904			444			731	
Approach Delay, s/veh		23.4			23.9			29.7			31.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	32.1	11.3	23.8	10.3	31.7	10.3	24.7
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	8.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	3.1	18.3	6.8	16.0	6.0	16.6	6.0	6.3
Green Ext Time (p_c), s	0.0	6.5	0.5	2.4	0.4	5.4	0.4	1.3

Intersection Summary

HCM 6th Ctrl Delay	26.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	935	62	282	884	0	9	0	294	0	0	0
Future Vol, veh/h	0	935	62	282	884	0	9	0	294	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	964	64	291	911	0	9	0	303	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	912	0	0	1028	0	0	2034	2490	514	1976	2522	457
Stage 1	-	-	-	-	-	-	996	996	-	1494	1494	-
Stage 2	-	-	-	-	-	-	1038	1494	-	482	1028	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.64	7.04	7.64	6.64	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4.07	3.37	3.57	4.07	3.37
Pot Cap-1 Maneuver	712	-	-	642	-	-	31	27	493	35	26	537
Stage 1	-	-	-	-	-	-	253	310	-	123	176	-
Stage 2	-	-	-	-	-	-	238	176	-	521	299	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	711	-	-	642	-	-	20	15	493	9	14	536
Mov Cap-2 Maneuver	-	-	-	-	-	-	20	15	-	9	14	-
Stage 1	-	-	-	-	-	-	253	310	-	123	96	-
Stage 2	-	-	-	-	-	-	130	96	-	201	299	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.7	31.3	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	20	493	711	-	-	642	-	-	-	-
HCM Lane V/C Ratio	0.464	0.615	-	-	-	0.453	-	-	-	-
HCM Control Delay (s)	292.7	23.3	0	-	-	15.2	-	-	0	0
HCM Lane LOS	F	C	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	1.3	4.1	0	-	-	2.4	-	-	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	216	845	829	12	10	326
Future Vol, veh/h	216	845	829	12	10	326
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	230	899	882	13	11	347

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	895	0	-	0	1792	441
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	910	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	706	-	-	-	66	543
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	334	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	706	-	-	-	44	543
Mov Cap-2 Maneuver	-	-	-	-	184	-
Stage 1	-	-	-	-	233	-
Stage 2	-	-	-	-	334	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	22.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	706	-	-	-	184	543
HCM Lane V/C Ratio	0.325	-	-	-	0.058	0.639
HCM Control Delay (s)	12.5	-	-	-	25.8	22.6
HCM Lane LOS	B	-	-	-	D	C
HCM 95th %tile Q(veh)	1.4	-	-	-	0.2	4.5

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	890	10	1	835	0	17	0	4	0	0	1
Future Vol, veh/h	0	890	10	1	835	0	17	0	4	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	918	10	1	861	0	18	0	4	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	861	0	0	928	0	0	1351	1781	459	1322	1791	431
Stage 1	-	-	-	-	-	-	918	918	-	863	863	-
Stage 2	-	-	-	-	-	-	433	863	-	459	928	-
Critical Hdwy	4.34	-	-	4.34	-	-	7.74	6.74	7.14	7.74	6.74	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Follow-up Hdwy	2.32	-	-	2.32	-	-	3.62	4.12	3.42	3.62	4.12	3.42
Pot Cap-1 Maneuver	716	-	-	674	-	-	100	73	523	105	72	546
Stage 1	-	-	-	-	-	-	273	327	-	296	347	-
Stage 2	-	-	-	-	-	-	545	347	-	526	323	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	716	-	-	674	-	-	100	73	523	104	72	546
Mov Cap-2 Maneuver	-	-	-	-	-	-	243	236	-	258	234	-
Stage 1	-	-	-	-	-	-	273	327	-	296	347	-
Stage 2	-	-	-	-	-	-	543	347	-	522	323	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	19.3	11.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	243	523	716	-	-	674	-	-	546
HCM Lane V/C Ratio	0.072	0.008	-	-	-	0.002	-	-	0.002
HCM Control Delay (s)	21	11.9	0	-	-	10.3	-	-	11.6
HCM Lane LOS	C	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.2	0	0	-	-	0	-	-	0

Intersection	
Intersection Delay, s/veh	50.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	199	61	255	185	97	49	209	243	29	340	90
Future Vol, veh/h	63	199	61	255	185	97	49	209	243	29	340	90
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	68	214	66	274	199	104	53	225	261	31	366	97
Number of Lanes	1	1	0	1	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	2
HCM Control Delay	55.8	62.5	37	47.5
HCM LOS	F	F	E	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%	15%	0%
Vol Thru, %	0%	100%	0%	0%	77%	0%	66%	85%	65%
Vol Right, %	0%	0%	100%	0%	23%	0%	34%	0%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	209	243	63	260	255	282	199	260
LT Vol	49	0	0	63	0	255	0	29	0
Through Vol	0	209	0	0	199	0	185	170	170
RT Vol	0	0	243	0	61	0	97	0	90
Lane Flow Rate	53	225	261	68	280	274	303	214	280
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.173	0.705	0.766	0.232	0.902	0.884	0.912	0.682	0.866
Departure Headway (Hd)	11.815	11.289	10.553	12.316	11.619	11.602	10.827	11.479	11.145
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	303	319	342	291	310	313	334	315	324
Service Time	9.598	9.072	8.336	10.111	9.414	9.39	8.614	9.266	8.933
HCM Lane V/C Ratio	0.175	0.705	0.763	0.234	0.903	0.875	0.907	0.679	0.864
HCM Control Delay	17.1	37.2	40.9	18.8	64.8	61.3	63.6	35.8	56.5
HCM Lane LOS	C	E	E	C	F	F	F	E	F
HCM 95th-tile Q	0.6	5	6.1	0.9	8.5	8.1	9	4.7	7.9

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	431	255	412	537	6	39	281	313	316	91
v/c Ratio	0.14	0.62	0.67	0.51	0.55	0.03	0.21	0.68	0.70	0.69	0.18
Control Delay	50.5	37.2	43.2	23.3	4.5	42.3	43.8	14.7	39.4	39.0	2.4
Queue Delay	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	37.2	43.3	23.7	4.7	42.3	43.8	14.7	39.4	39.0	2.4
Queue Length 50th (ft)	8	106	121	138	0	3	19	0	149	150	0
Queue Length 95th (ft)	36	207	266	342	70	17	60	81	328	329	13
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	118	1089	595	1080	1122	415	437	587	693	704	716
Starvation Cap Reductn	0	0	9	270	132	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.40	0.44	0.51	0.54	0.01	0.09	0.48	0.45	0.45	0.13

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	374	31	240	387	505	6	37	264	508	84	86
Future Volume (veh/h)	15	374	31	240	387	505	6	37	264	508	84	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	16	398	33	255	412	537	6	39	281	604	0	91
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	33	804	66	297	731	604	348	366	310	745	0	330
Arrive On Green	0.02	0.24	0.24	0.17	0.39	0.39	0.19	0.19	0.19	0.21	0.00	0.21
Sat Flow, veh/h	1795	3347	276	1795	1885	1559	1795	1885	1598	3591	0	1590
Grp Volume(v), veh/h	16	212	219	255	412	537	6	39	281	604	0	91
Grp Sat Flow(s),veh/h/ln	1795	1791	1833	1795	1885	1559	1795	1885	1598	1795	0	1590
Q Serve(g_s), s	0.8	9.5	9.6	12.9	16.0	30.0	0.3	1.6	16.1	15.0	0.0	4.5
Cycle Q Clear(g_c), s	0.8	9.5	9.6	12.9	16.0	30.0	0.3	1.6	16.1	15.0	0.0	4.5
Prop In Lane	1.00		0.15	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	33	430	440	297	731	604	348	366	310	745	0	330
V/C Ratio(X)	0.49	0.49	0.50	0.86	0.56	0.89	0.02	0.11	0.91	0.81	0.00	0.28
Avail Cap(c_a), veh/h	102	470	481	510	923	763	356	374	317	1250	0	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.4	30.6	30.6	37.9	22.4	26.7	30.4	31.0	36.8	35.2	0.0	31.1
Incr Delay (d2), s/veh	10.9	0.9	0.9	7.2	0.7	10.6	0.0	0.1	27.9	2.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.2	4.3	6.2	7.0	12.4	0.1	0.7	8.5	6.6	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	31.4	31.5	45.0	23.1	37.3	30.4	31.1	64.6	37.4	0.0	31.5
LnGrp LOS	E	C	C	D	C	D	C	C	E	D	A	C
Approach Vol, veh/h		447			1204			326			695	
Approach Delay, s/veh		32.3			34.1			60.0			36.7	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.9	26.9		23.9	6.2	40.7		22.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	26.5	24.5		32.5	5.3	45.7		18.5				
Max Q Clear Time (g_c+I1), s	11.9	11.6		17.0	2.8	32.0		18.1				
Green Ext Time (p_c), s	0.6	2.2		2.3	0.0	4.1		0.1				

Intersection Summary

HCM 6th Ctrl Delay			37.6									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	89	1129	20	912	242	263	30	438	8	26
v/c Ratio	0.38	0.62	0.13	0.63	0.32	0.62	0.05	0.73	0.02	0.04
Control Delay	41.3	16.4	44.5	21.8	6.5	31.3	21.2	23.6	21.3	0.1
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	16.7	44.5	21.8	6.5	31.3	21.2	23.6	21.3	0.1
Queue Length 50th (ft)	38	150	9	173	13	103	10	112	3	0
Queue Length 95th (ft)	107	381	38	326	72	221	33	268	14	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	351	2454	154	2213	1042	805	1088	993	803	1017
Starvation Cap Reductn	0	570	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.60	0.13	0.41	0.23	0.33	0.03	0.44	0.01	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	1020	30	19	848	225	245	28	407	7	0	24
Future Volume (veh/h)	83	1020	30	19	848	225	245	28	407	7	0	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	89	1097	32	20	912	0	263	30	438	8	0	26
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	116	1536	45	42	1401		556	616	522	410	0	522
Arrive On Green	0.06	0.43	0.43	0.02	0.39	0.00	0.33	0.33	0.33	0.33	0.00	0.33
Sat Flow, veh/h	1795	3551	104	1795	3582	1598	1396	1885	1598	932	0	1598
Grp Volume(v), veh/h	89	553	576	20	912	0	263	30	438	8	0	26
Grp Sat Flow(s),veh/h/ln	1795	1791	1863	1795	1791	1598	1396	1885	1598	932	0	1598
Q Serve(g_s), s	3.0	15.8	15.8	0.7	12.9	0.0	9.9	0.7	15.8	0.4	0.0	0.7
Cycle Q Clear(g_c), s	3.0	15.8	15.8	0.7	12.9	0.0	10.6	0.7	15.8	1.0	0.0	0.7
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	775	806	42	1401		556	616	522	410	0	522
V/C Ratio(X)	0.77	0.71	0.71	0.47	0.65		0.47	0.05	0.84	0.02	0.00	0.05
Avail Cap(c_a), veh/h	361	1399	1455	159	2394		943	1139	965	669	0	965
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.6	14.5	14.5	29.9	15.4	0.0	17.9	14.3	19.4	14.7	0.0	14.3
Incr Delay (d2), s/veh	10.0	1.2	1.2	8.0	0.5	0.0	0.6	0.0	3.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.8	6.0	0.4	4.8	0.0	2.9	0.3	5.7	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	15.7	15.7	38.0	16.0	0.0	18.6	14.3	23.1	14.7	0.0	14.4
LnGrp LOS	D	B	B	D	B		B	B	C	B	A	B
Approach Vol, veh/h		1218			932	A		731			34	
Approach Delay, s/veh		17.4			16.4			21.1			14.4	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	31.4		24.8	8.5	28.8		24.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	48.5		37.5	12.5	41.5		37.5
Max Q Clear Time (g_c+I1), s	2.7	17.8		3.0	5.0	14.9		17.8
Green Ext Time (p_c), s	0.0	9.1		0.1	0.1	7.3		2.5

Intersection Summary

HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	379	1110	63	657	240	214	67	60	517
v/c Ratio	0.63	0.73	0.37	0.57	0.53	0.26	0.14	0.36	0.71
Control Delay	42.2	24.1	51.3	27.4	45.0	33.7	0.6	52.0	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	24.1	51.3	27.4	45.0	33.7	0.6	52.0	24.7
Queue Length 50th (ft)	104	259	34	153	66	55	0	33	71
Queue Length 95th (ft)	191	414	93	262	134	106	0	90	154
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	887	2193	223	1784	598	1204	629	206	1093
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.51	0.28	0.37	0.40	0.18	0.11	0.29	0.47

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	360	744	311	60	556	68	228	203	64	57	204	287
Future Volume (veh/h)	360	744	311	60	556	68	228	203	64	57	204	287
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	379	783	0	63	585	72	240	214	67	60	215	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	559	1378		102	900	111	381	608	271	99	413	
Arrive On Green	0.16	0.38	0.00	0.06	0.28	0.28	0.11	0.17	0.17	0.05	0.12	0.00
Sat Flow, veh/h	3483	3676	0	1795	3205	394	3483	3582	1598	1795	3676	0
Grp Volume(v), veh/h	379	783	0	63	326	331	240	214	67	60	215	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1808	1742	1791	1598	1795	1791	0
Q Serve(g_s), s	5.5	9.3	0.0	1.8	8.6	8.7	3.6	2.8	2.0	1.8	3.0	0.0
Cycle Q Clear(g_c), s	5.5	9.3	0.0	1.8	8.6	8.7	3.6	2.8	2.0	1.8	3.0	0.0
Prop In Lane	1.00		0.00	1.00		0.22	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	559	1378		102	503	508	381	608	271	99	413	
V/C Ratio(X)	0.68	0.57		0.62	0.65	0.65	0.63	0.35	0.25	0.61	0.52	
Avail Cap(c_a), veh/h	1389	3555		350	1412	1425	937	1880	839	323	1562	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.3	13.1	0.0	24.9	17.0	17.1	23.0	19.8	19.4	24.9	22.4	0.0
Incr Delay (d2), s/veh	1.5	0.4	0.0	6.0	1.4	1.4	1.7	0.3	0.5	5.9	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.2	0.0	0.9	3.3	3.3	1.4	1.1	0.7	0.8	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	13.4	0.0	30.9	18.5	18.5	24.7	20.1	19.9	30.8	23.5	0.0
LnGrp LOS	C	B		C	B	B	C	C	B	C	C	
Approach Vol, veh/h		1162	A		720			521			275	A
Approach Delay, s/veh		16.5			19.5			22.2			25.1	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	25.2	10.4	10.7	13.1	19.6	7.5	13.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	53.5	14.5	23.5	21.5	42.5	9.7	28.3
Max Q Clear Time (g_c+I1), s	3.8	11.3	5.6	5.0	7.5	10.7	3.8	4.8
Green Ext Time (p_c), s	0.1	6.6	0.5	1.1	1.2	4.3	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	58	370	785	466	73
v/c Ratio	0.21	0.22	0.59	0.49	0.15
Control Delay	35.3	10.7	15.9	24.8	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	10.7	15.9	24.8	9.0
Queue Length 50th (ft)	16	24	74	63	0
Queue Length 95th (ft)	86	124	274	222	39
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	381	3117	2521	1906	912
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.12	0.31	0.24	0.08

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	359	405	356	452	71
Future Volume (vph)	56	359	405	356	452	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3300		3467	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3300		3467	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	370	418	367	466	73
RTOR Reduction (vph)	0	0	130	0	0	54
Lane Group Flow (vph)	58	370	655	0	466	19
Confl. Peds. (#/hr)				4		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	4.4	30.4	21.5		16.0	16.0
Effective Green, g (s)	4.4	30.4	21.5		16.0	16.0
Actuated g/C Ratio	0.07	0.49	0.34		0.26	0.26
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	125	1735	1133		886	408
v/s Ratio Prot	c0.03	0.10	c0.20			
v/s Ratio Perm					c0.13	0.01
v/c Ratio	0.46	0.21	0.58		0.53	0.05
Uniform Delay, d1	28.0	9.2	16.8		20.0	17.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.7	0.1	0.7		0.6	0.0
Delay (s)	30.7	9.3	17.6		20.6	17.6
Level of Service	C	A	B		C	B
Approach Delay (s)		12.2	17.6		20.2	
Approach LOS		B	B		C	

Intersection Summary

HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	164	311	245	101	520	157	314	186	530
v/c Ratio	0.58	0.60	0.40	0.47	0.64	0.57	0.43	0.60	0.66
Control Delay	40.6	31.6	6.0	41.6	21.1	40.3	27.4	39.4	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	31.6	6.0	41.6	21.1	40.3	27.4	39.4	28.6
Queue Length 50th (ft)	72	133	0	45	71	69	64	82	107
Queue Length 95th (ft)	152	244	55	105	137	146	114	166	177
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	369	642	697	267	1081	369	1054	419	1155
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.48	0.35	0.38	0.48	0.43	0.30	0.44	0.46

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	299	235	97	283	216	151	265	36	179	375	133
Future Volume (veh/h)	157	299	235	97	283	216	151	265	36	179	375	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	164	311	245	101	295	225	157	276	38	186	391	139
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	506	422	131	435	321	203	662	90	238	595	209
Arrive On Green	0.12	0.27	0.27	0.07	0.23	0.23	0.11	0.21	0.21	0.13	0.23	0.23
Sat Flow, veh/h	1781	1870	1559	1781	1927	1423	1781	3131	426	1781	2575	904
Grp Volume(v), veh/h	164	311	245	101	271	249	157	155	159	186	268	262
Grp Sat Flow(s),veh/h/ln	1781	1870	1559	1781	1777	1574	1781	1777	1780	1781	1777	1702
Q Serve(g_s), s	5.2	8.4	7.9	3.2	8.1	8.4	5.0	4.4	4.5	5.9	7.9	8.1
Cycle Q Clear(g_c), s	5.2	8.4	7.9	3.2	8.1	8.4	5.0	4.4	4.5	5.9	7.9	8.1
Prop In Lane	1.00		1.00	1.00		0.90	1.00		0.24	1.00		0.53
Lane Grp Cap(c), veh/h	211	506	422	131	401	355	203	376	376	238	411	393
V/C Ratio(X)	0.78	0.61	0.58	0.77	0.68	0.70	0.77	0.41	0.42	0.78	0.65	0.67
Avail Cap(c_a), veh/h	446	775	646	323	613	543	446	644	645	507	705	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	18.5	18.3	26.4	20.5	20.6	24.9	19.7	19.8	24.3	20.2	20.2
Incr Delay (d2), s/veh	6.0	1.2	1.3	9.1	2.0	2.5	6.1	0.7	0.8	5.5	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.3	2.6	1.6	3.1	2.9	2.3	1.7	1.7	2.6	3.1	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	19.7	19.6	35.5	22.5	23.2	31.1	20.5	20.5	29.8	21.9	22.2
LnGrp LOS	C	B	B	D	C	C	C	C	C	C	C	C
Approach Vol, veh/h		720			621			471			716	
Approach Delay, s/veh		22.2			24.9			24.0			24.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	16.8	8.8	20.2	11.1	17.9	11.4	17.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	21.0	10.5	24.0	14.5	23.0	14.5	20.0
Max Q Clear Time (g_c+I1), s	7.9	6.5	5.2	10.4	7.0	10.1	7.2	10.4
Green Ext Time (p_c), s	0.3	1.4	0.1	2.2	0.2	2.6	0.2	2.1

Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

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Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	100	4	7	4	1	38	16	228	10	48	271	126
Future Vol, veh/h	100	4	7	4	1	38	16	228	10	48	271	126
Conflicting Peds, #/hr	4	0	0	0	0	4	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	101	4	7	4	1	38	16	230	10	48	274	127

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	666	647	279	706	769	239	406	0	0	240	0	0
Stage 1	375	375	-	267	267	-	-	-	-	-	-	-
Stage 2	291	272	-	439	502	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	374	391	762	352	333	802	1158	-	-	1333	-	-
Stage 1	648	619	-	741	690	-	-	-	-	-	-	-
Stage 2	719	686	-	599	544	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	370	758	333	315	799	1152	-	-	1333	-	-
Mov Cap-2 Maneuver	339	370	-	333	315	-	-	-	-	-	-	-
Stage 1	636	594	-	731	680	-	-	-	-	-	-	-
Stage 2	671	676	-	568	522	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.9	10.6	0.5	0.8
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1152	-	-	352	685	1333	-	-
HCM Lane V/C Ratio	0.014	-	-	0.319	0.063	0.036	-	-
HCM Control Delay (s)	8.2	-	-	19.9	10.6	7.8	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0.2	0.1	-	-

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	8	2	3	77	3	58	0	7	190	123	103	165
Future Vol, veh/h	8	2	3	77	3	58	0	7	190	123	103	165
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	2	1	1	1	1	1
Mvmt Flow	9	2	3	83	3	62	0	8	204	132	111	177
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8.8	9.7	9.6	10.1
HCM LOS	A	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	0%	62%	56%	56%	0%
Vol Thru, %	96%	0%	15%	2%	44%	87%
Vol Right, %	0%	100%	23%	42%	0%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	197	123	13	138	186	95
LT Vol	7	0	8	77	103	0
Through Vol	190	0	2	3	83	83
RT Vol	0	123	3	58	0	12
Lane Flow Rate	212	132	14	148	199	102
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.31	0.167	0.022	0.215	0.307	0.146
Departure Headway (Hd)	5.272	4.549	5.593	5.227	5.549	5.18
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	678	783	633	683	644	688
Service Time	3.033	2.309	3.686	3.292	3.313	2.944
HCM Lane V/C Ratio	0.313	0.169	0.022	0.217	0.309	0.148
HCM Control Delay	10.4	8.2	8.8	9.7	10.8	8.8
HCM Lane LOS	B	A	A	A	B	A
HCM 95th-tile Q	1.3	0.6	0.1	0.8	1.3	0.5

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	12
Future Vol, veh/h	12
Peak Hour Factor	0.93
Heavy Vehicles, %	1
Mvmt Flow	13
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	179	120	66	144	110	123
Future Vol, veh/h	179	120	66	144	110	123
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	185	124	68	148	113	127

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	323	113	240	0	-	0
Stage 1	113	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.115	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	661	942	1332	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	627	942	1332	-	-	-
Mov Cap-2 Maneuver	627	-	-	-	-	-
Stage 1	867	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	2.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1332	-	627	942	-	-
HCM Lane V/C Ratio	0.051	-	0.294	0.131	-	-
HCM Control Delay (s)	7.8	-	13.1	9.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	1.2	0.5	-	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	67	0	112	14	0	0	0	0	283	34
Future Volume (Veh/h)	27	0	67	0	112	14	0	0	0	0	283	34
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	32	0	80	0	133	17	0	0	0	0	337	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	432	357	357	437	377	0	377			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	432	357	357	437	377	0	377			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	100	88	100	76	98	100			100		
cM capacity (veh/h)	430	571	689	470	556	1088	1187			1630		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	112	150	377
Volume Left	32	0	0
Volume Right	80	17	40
cSH	588	627	1700
Volume to Capacity	0.19	0.24	0.22
Queue Length 95th (ft)	17	23	0
Control Delay (s)	12.6	12.9	0.0
Lane LOS	B	B	
Approach Delay (s)	12.6	12.9	0.0
Approach LOS	B	B	

Intersection Summary			
Average Delay		5.2	
Intersection Capacity Utilization		35.9%	ICU Level of Service	A
Analysis Period (min)		15	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	362	582	171	396	96	354	929	518	300
v/c Ratio	0.17	0.66	0.57	0.31	0.39	0.52	0.65	0.69	0.70	0.32
Control Delay	49.1	50.4	38.2	35.7	2.6	64.6	54.0	13.7	49.1	34.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	50.4	38.2	35.7	2.6	64.6	54.0	13.7	49.1	34.2
Queue Length 50th (ft)	31	123	184	96	0	68	131	123	184	87
Queue Length 95th (ft)	78	211	307	195	46	148	219	213	291	150
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	399	787	1321	717	1138	265	923	1585	1121	1515
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.46	0.44	0.24	0.35	0.36	0.38	0.59	0.46	0.20

Intersection Summary

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16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	258	93	565	166	384	93	343	901	502	236	55
Future Volume (veh/h)	46	258	93	565	166	384	93	343	901	502	236	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	47	266	96	582	171	396	96	354	929	518	243	57
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	244	352	124	872	472	677	122	905	1414	618	1019	234
Arrive On Green	0.14	0.14	0.14	0.25	0.25	0.25	0.07	0.25	0.25	0.18	0.35	0.35
Sat Flow, veh/h	1795	2587	909	3483	1885	1572	1795	3582	2812	3483	2891	665
Grp Volume(v), veh/h	47	182	180	582	171	396	96	354	929	518	149	151
Grp Sat Flow(s),veh/h/ln	1795	1791	1705	1742	1885	1572	1795	1791	1406	1742	1791	1765
Q Serve(g_s), s	2.6	10.9	11.4	16.8	8.3	21.5	5.9	9.1	27.4	16.0	6.5	6.8
Cycle Q Clear(g_c), s	2.6	10.9	11.4	16.8	8.3	21.5	5.9	9.1	27.4	16.0	6.5	6.8
Prop In Lane	1.00		0.53	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	244	243	232	872	472	677	122	905	1414	618	631	622
V/C Ratio(X)	0.19	0.75	0.78	0.67	0.36	0.58	0.79	0.39	0.66	0.84	0.24	0.24
Avail Cap(c_a), veh/h	392	391	373	1298	703	869	261	905	1414	1101	759	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	46.4	46.6	37.7	34.5	24.4	51.2	34.6	20.6	44.4	25.5	25.6
Incr Delay (d2), s/veh	0.4	4.6	5.5	0.9	0.5	0.8	10.6	0.3	1.1	3.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.2	5.2	7.1	3.8	7.8	2.9	3.9	13.0	7.2	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	50.9	52.1	38.6	35.0	25.2	61.8	34.9	21.7	47.5	25.7	25.8
LnGrp LOS	D	D	D	D	C	C	E	C	C	D	C	C
Approach Vol, veh/h		409			1149			1379			818	
Approach Delay, s/veh		50.6			33.4			27.9			39.5	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.5	34.0		19.8	13.4	45.1		33.3
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 35	28.2		24.4	16.2	* 47		41.6
Max Q Clear Time (g_c+I1), s	11.8	29.4		13.4	7.9	8.8		23.5
Green Ext Time (p_c), s	1.8	0.0		1.8	0.1	1.9		4.4

Intersection Summary	
HCM 6th Ctrl Delay	34.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

17: S. River Road & Niblick Road

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	252	774	485	101	720	342	294	145	487
v/c Ratio	0.55	0.61	0.55	0.49	0.68	0.62	0.38	0.57	0.68
Control Delay	45.7	29.5	5.2	51.8	31.8	44.2	32.3	49.9	38.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.7	29.5	5.2	51.8	31.8	44.2	32.3	49.9	38.4
Queue Length 50th (ft)	72	202	0	56	185	97	72	80	130
Queue Length 95th (ft)	139	332	76	132	304	177	136	172	222
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	608	1639	996	293	1566	765	1096	394	1091
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.47	0.49	0.34	0.46	0.45	0.27	0.37	0.45

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	743	466	97	578	113	328	228	54	139	346	122
Future Volume (veh/h)	242	743	466	97	578	113	328	228	54	139	346	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	252	774	485	101	602	118	342	238	56	145	360	127
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	369	1167	521	132	877	171	474	673	155	188	525	182
Arrive On Green	0.11	0.33	0.33	0.07	0.29	0.29	0.14	0.23	0.23	0.10	0.20	0.20
Sat Flow, veh/h	3483	3582	1598	1795	2986	584	3483	2889	667	1795	2604	905
Grp Volume(v), veh/h	252	774	485	101	361	359	342	146	148	145	246	241
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1779	1742	1791	1765	1795	1791	1718
Q Serve(g_s), s	4.8	12.7	12.1	3.8	12.2	12.3	6.4	4.7	4.8	5.4	8.7	8.9
Cycle Q Clear(g_c), s	4.8	12.7	12.1	3.8	12.2	12.3	6.4	4.7	4.8	5.4	8.7	8.9
Prop In Lane	1.00		1.00	1.00		0.33	1.00		0.38	1.00		0.53
Lane Grp Cap(c), veh/h	369	1167	521	132	526	522	474	417	411	188	361	346
V/C Ratio(X)	0.68	0.66	0.93	0.76	0.69	0.69	0.72	0.35	0.36	0.77	0.68	0.70
Avail Cap(c_a), veh/h	788	2118	945	380	1033	1026	992	719	709	511	719	690
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	19.8	8.1	31.1	21.4	21.4	28.3	21.9	22.0	29.9	25.3	25.4
Incr Delay (d2), s/veh	2.2	0.7	8.7	8.8	1.6	1.6	2.1	0.5	0.5	6.6	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	4.8	4.3	1.9	4.8	4.8	2.6	1.8	1.9	2.5	3.6	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	20.5	16.8	39.9	23.0	23.0	30.4	22.4	22.5	36.4	27.6	27.9
LnGrp LOS	C	C	B	D	C	C	C	C	C	D	C	C
Approach Vol, veh/h		1511			821			636			632	
Approach Delay, s/veh		21.2			25.1			26.8			29.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	26.8	13.8	18.3	11.7	24.6	11.7	20.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	40.5	19.5	27.5	15.5	39.5	19.5	27.5
Max Q Clear Time (g_c+I1), s	5.8	14.7	8.4	10.9	6.8	14.3	7.4	6.8
Green Ext Time (p_c), s	0.1	7.6	0.9	2.5	0.5	4.4	0.3	1.5

Intersection Summary	
HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	2	4	343	601	83
Future Vol, veh/h	44	2	4	343	601	83
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		-	None	-	None	- None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	2	4	357	626	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1035	670	713	0	-	0
Stage 1	670	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	257	457	887	-	-	-
Stage 1	509	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	255	457	886	-	-	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	701	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.9	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	886	-	260	-	-
HCM Lane V/C Ratio	0.005	-	0.184	-	-
HCM Control Delay (s)	9.1	0	21.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

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Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	9	12	354	541	53
Future Vol, veh/h	35	9	12	354	541	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	10	13	389	595	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1039	624	653	0	-	0
Stage 1	624	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	254	484	929	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	249	484	929	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	664	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	929	-	450	-	-
HCM Lane V/C Ratio	0.014	-	0.107	-	-
HCM Control Delay (s)	8.9	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Intersection Delay, s/veh	21.4
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	285	88	25	450	86
Future Vol, veh/h	9	285	88	25	450	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	310	96	27	489	93
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.6	9.8	28.7
HCM LOS	B	A	D

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	3%	84%
Vol Thru, %	78%	0%	16%
Vol Right, %	22%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	113	294	536
LT Vol	0	9	450
Through Vol	88	0	86
RT Vol	25	285	0
Lane Flow Rate	123	320	583
Geometry Grp	1	1	1
Degree of Util (X)	0.188	0.46	0.835
Departure Headway (Hd)	5.506	5.18	5.161
Convergence, Y/N	Yes	Yes	Yes
Cap	651	693	705
Service Time	3.548	3.223	3.188
HCM Lane V/C Ratio	0.189	0.462	0.827
HCM Control Delay	9.8	12.6	28.7
HCM Lane LOS	A	B	D
HCM 95th-tile Q	0.7	2.4	9.2

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Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	468	273	5	4	9
Future Vol, veh/h	5	468	273	5	4	9
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		-	None	
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	514	300	5	4	10

Major/Minor	Major1			Major2	Minor2	
Conflicting Flow All	319	0	-	0	841	317
Stage 1	-	-	-	-	317	-
Stage 2	-	-	-	-	524	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1247	-	-	-	336	726
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	596	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1230	-	-	-	326	716
Mov Cap-2 Maneuver	-	-	-	-	326	-
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	588	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1230	-	-	-	523
HCM Lane V/C Ratio	0.004	-	-	-	0.027
HCM Control Delay (s)	7.9	-	-	-	12.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	441	2	2	269	12	1	0	1	11	0	20
Future Vol, veh/h	22	441	2	2	269	12	1	0	1	11	0	20
Conflicting Peds, #/hr	12	0	0	0	0	12	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-		None	-		None	-		None	-		None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	464	2	2	283	13	1	0	1	12	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	308	0	0	466	0	0	815	823	465	818	818	302
Stage 1	-	-	-	-	-	-	511	511	-	306	306	-
Stage 2	-	-	-	-	-	-	304	312	-	512	512	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1247	-	-	1090	-	-	295	307	595	294	309	735
Stage 1	-	-	-	-	-	-	543	535	-	702	660	-
Stage 2	-	-	-	-	-	-	703	656	-	543	535	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1233	-	-	1090	-	-	282	297	595	285	299	727
Mov Cap-2 Maneuver	-	-	-	-	-	-	282	297	-	285	299	-
Stage 1	-	-	-	-	-	-	533	525	-	681	651	-
Stage 2	-	-	-	-	-	-	681	647	-	532	525	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	14.5	13.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	383	1233	-	-	1090	-	-	469
HCM Lane V/C Ratio	0.005	0.019	-	-	0.002	-	-	0.07
HCM Control Delay (s)	14.5	8	-	-	8.3	-	-	13.2
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.2

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	458	255	4	4	7
Future Vol, veh/h	8	458	255	4	4	7
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		- None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	9	498	277	4	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	290	0	-	0	804	288
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	516	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1278	-	-	-	354	753
Stage 1	-	-	-	-	763	-
Stage 2	-	-	-	-	601	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1267	-	-	-	345	747
Mov Cap-2 Maneuver	-	-	-	-	345	-
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	596	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1267	-	-	-	525
HCM Lane V/C Ratio	0.007	-	-	-	0.023
HCM Control Delay (s)	7.9	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	144	303	190	12	8	82
Future Vol, veh/h	144	303	190	12	8	82
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		- None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	158	333	209	13	9	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	224	0	-	0	867	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	649	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1351	-	-	-	325	824
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1348	-	-	-	286	822
Mov Cap-2 Maneuver	-	-	-	-	286	-
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1348	-	-	-	705
HCM Lane V/C Ratio	0.117	-	-	-	0.14
HCM Control Delay (s)	8	-	-	-	10.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.5

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Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	77	0	0	61	0	0	0	0	2	0	31
Future Vol, veh/h	53	77	0	0	61	0	0	0	0	2	0	31
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	55	79	0	0	63	0	0	0	0	2	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	79	0	0	268	253	79	253	253	64
Stage 1	-	-	-	-	-	-	189	189	-	64	64	-
Stage 2	-	-	-	-	-	-	79	64	-	189	189	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1545	-	-	1526	-	-	687	652	984	702	652	1003
Stage 1	-	-	-	-	-	-	815	746	-	949	844	-
Stage 2	-	-	-	-	-	-	932	844	-	815	746	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1526	-	-	646	627	984	682	627	1002
Mov Cap-2 Maneuver	-	-	-	-	-	-	646	627	-	682	627	-
Stage 1	-	-	-	-	-	-	785	718	-	913	843	-
Stage 2	-	-	-	-	-	-	902	843	-	785	718	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	0	0	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1544	-	-	1526	-	-	974
HCM Lane V/C Ratio	-	0.035	-	-	-	-	-	0.035
HCM Control Delay (s)	0	7.4	0	-	0	-	-	8.8
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.1

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	265	1168	1125	111	133	238
v/c Ratio	0.66	0.36	0.80	0.16	0.55	0.35
Control Delay	44.5	0.3	29.1	4.1	51.0	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	0.3	29.1	4.1	51.0	15.1
Queue Length 50th (ft)	146	0	309	0	78	63
Queue Length 95th (ft)	252	0	382	22	143	123
Internal Link Dist (ft)		942	856		514	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	516	3223	2870	1296	516	1008
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.36	0.39	0.09	0.26	0.24

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	209	923	889	88	105	188
Future Volume (vph)	209	923	889	88	105	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1612	3223	3223	1442	1612	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1612	3223	3223	1442	1612	1442
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	265	1168	1125	111	133	238
RTOR Reduction (vph)	0	0	0	62	0	39
Lane Group Flow (vph)	265	1168	1125	49	133	199
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	24.5	97.2	42.9	42.9	14.8	43.3
Effective Green, g (s)	24.5	97.2	42.9	42.9	14.8	43.3
Actuated g/C Ratio	0.25	1.00	0.44	0.44	0.15	0.45
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	406	3223	1422	636	245	642
v/s Ratio Prot	c0.16	0.36	c0.35		c0.08	0.14
v/s Ratio Perm				0.03		
v/c Ratio	0.65	0.36	0.79	0.08	0.54	0.31
Uniform Delay, d1	32.5	0.0	23.3	15.7	38.1	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.3	3.3	0.1	2.7	0.3
Delay (s)	36.3	0.3	26.6	15.8	40.8	17.6
Level of Service	D	A	C	B	D	B
Approach Delay (s)		7.0	25.6		25.9	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	97.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	234	771	305	39	841	180	280	301	98	178	163
v/c Ratio	0.55	0.60	0.40	0.11	0.78	0.30	0.59	0.40	0.34	0.61	0.43
Control Delay	49.2	30.3	5.0	43.9	37.3	5.5	48.2	35.8	51.9	51.6	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	30.3	5.0	43.9	37.3	5.5	48.2	35.8	51.9	51.6	10.4
Queue Length 50th (ft)	73	231	0	11	254	0	87	85	31	108	0
Queue Length 95th (ft)	128	329	43	29	358	37	148	140	64	196	46
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	582	2335	1130	590	2335	1095	647	1355	647	719	706
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.33	0.27	0.07	0.36	0.16	0.43	0.22	0.15	0.25	0.23

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	640	253	32	698	149	232	233	17	81	148	135
Future Volume (veh/h)	194	640	253	32	698	149	232	233	17	81	148	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	234	771	305	39	841	180	280	281	20	98	178	163
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	334	1067	476	252	1130	504	387	693	49	167	266	225
Arrive On Green	0.10	0.32	0.32	0.08	0.34	0.34	0.12	0.22	0.22	0.05	0.15	0.15
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	3123	221	3209	1737	1472
Grp Volume(v), veh/h	234	771	305	39	841	180	280	148	153	98	178	163
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1694	1605	1737	1472
Q Serve(g_s), s	5.2	15.2	7.8	0.8	16.6	6.7	6.2	5.6	5.7	2.2	7.1	7.8
Cycle Q Clear(g_c), s	5.2	15.2	7.8	0.8	16.6	6.7	6.2	5.6	5.7	2.2	7.1	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	334	1067	476	252	1130	504	387	366	376	167	266	225
V/C Ratio(X)	0.70	0.72	0.64	0.15	0.74	0.36	0.72	0.40	0.41	0.59	0.67	0.72
Avail Cap(c_a), veh/h	784	3136	1399	784	3136	1399	871	918	943	871	967	819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	22.0	7.5	31.7	21.4	18.1	31.2	24.5	24.5	34.1	29.4	29.7
Incr Delay (d2), s/veh	2.7	0.9	1.4	0.1	1.0	0.4	2.6	0.7	0.7	3.3	2.9	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.1	3.8	0.3	5.5	2.1	2.4	2.1	2.2	0.9	3.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	23.0	9.0	31.8	22.4	18.6	33.8	25.2	25.2	37.4	32.3	34.1
LnGrp LOS	C	C	A	C	C	B	C	C	C	D	C	C
Approach Vol, veh/h		1310			1060			581			439	
Approach Delay, s/veh		21.8			22.1			29.3			34.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	31.1	12.9	16.6	11.7	32.5	7.8	21.6
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	2.8	17.2	8.2	9.8	7.2	18.6	4.2	7.7
Green Ext Time (p_c), s	0.0	6.6	0.7	1.5	0.5	6.7	0.2	1.7

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	705	27	255	891	0	5	0	230	0	0	0
Future Vol, veh/h	1	705	27	255	891	0	5	0	230	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	1	860	33	311	1087	0	6	0	280	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1087	0	0	893	0	0	2045	2588	447	2141	2604	544
Stage 1	-	-	-	-	-	-	879	879	-	1709	1709	-
Stage 2	-	-	-	-	-	-	1166	1709	-	432	895	-
Critical Hdwy	4.32	-	-	4.32	-	-	7.72	6.72	7.12	7.72	6.72	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Follow-up Hdwy	2.31	-	-	2.31	-	-	3.61	4.11	3.41	3.61	4.11	3.41
Pot Cap-1 Maneuver	587	-	-	701	-	-	29	22	535	25	21	461
Stage 1	-	-	-	-	-	-	291	343	-	86	132	-
Stage 2	-	-	-	-	-	-	192	132	-	549	337	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	587	-	-	701	-	-	19	12	535	8	12	461
Mov Cap-2 Maneuver	-	-	-	-	-	-	19	12	-	8	12	-
Stage 1	-	-	-	-	-	-	290	342	-	86	73	-
Stage 2	-	-	-	-	-	-	107	73	-	261	336	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.2	24.2	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	19	535	587	-	-	701	-	-	-	-
HCM Lane V/C Ratio	0.321	0.524	0.002	-	-	0.444	-	-	-	-
HCM Control Delay (s)	266.9	18.9	11.1	-	-	14.2	-	-	0	0
HCM Lane LOS	F	C	B	-	-	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	3	0	-	-	2.3	-	-	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	333	595	941	17	5	172
Future Vol, veh/h	333	595	941	17	5	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	396	708	1120	20	6	205

Major/Minor	Major1			Major2		
Conflicting Flow All	1140	0	-	0	2266	560
Stage 1	-	-	-	-	1120	-
Stage 2	-	-	-	-	1146	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	565	-	-	-	31	452
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	249	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	565	-	-	-	9	452
Mov Cap-2 Maneuver	-	-	-	-	69	-
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	249	-

Approach	EB	WB	SB
HCM Control Delay, s	9	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	565	-	-	-	69	452
HCM Lane V/C Ratio	0.702	-	-	-	0.086	0.453
HCM Control Delay (s)	25	-	-	-	62	19.4
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	5.6	-	-	-	0.3	2.3

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Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	549	18	2	1010	0	8	0	1	0	0	0
Future Vol, veh/h	0	549	18	2	1010	0	8	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	13	13	13	13	13	13	13	13	13	13	13	13
Mvmt Flow	0	631	21	2	1161	0	9	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1161	0	0	652	0	0	1216	1796	316	1481	1817	581
Stage 1	-	-	-	-	-	-	631	631	-	1165	1165	-
Stage 2	-	-	-	-	-	-	585	1165	-	316	652	-
Critical Hdwy	4.36	-	-	4.36	-	-	7.76	6.76	7.16	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Follow-up Hdwy	2.33	-	-	2.33	-	-	3.63	4.13	3.43	3.63	4.13	3.43
Pot Cap-1 Maneuver	539	-	-	860	-	-	125	71	648	78	68	430
Stage 1	-	-	-	-	-	-	410	446	-	189	245	-
Stage 2	-	-	-	-	-	-	438	245	-	640	436	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	539	-	-	860	-	-	125	71	648	78	68	430
Mov Cap-2 Maneuver	-	-	-	-	-	-	307	211	-	176	210	-
Stage 1	-	-	-	-	-	-	410	446	-	189	245	-
Stage 2	-	-	-	-	-	-	437	245	-	639	436	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	16.4	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	307	648	539	-	-	860	-	-	-
HCM Lane V/C Ratio	0.03	0.002	-	-	-	0.003	-	-	-
HCM Control Delay (s)	17.1	10.6	0	-	-	9.2	-	-	0
HCM Lane LOS	C	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	64.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	113	92	252	96	66	40	319	194	39	277	50
Future Vol, veh/h	87	113	92	252	96	66	40	319	194	39	277	50
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	107	140	114	311	119	81	49	394	240	48	342	62
Number of Lanes	1	1	0	1	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	2
HCM Control Delay	39	62.4	96.3	37.8
HCM LOS	E	F	F	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%	22%	0%
Vol Thru, %	0%	100%	0%	0%	55%	0%	59%	78%	73%
Vol Right, %	0%	0%	100%	0%	45%	0%	41%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	319	194	87	205	252	162	178	189
LT Vol	40	0	0	87	0	252	0	39	0
Through Vol	0	319	0	0	113	0	96	139	139
RT Vol	0	0	194	0	92	0	66	0	50
Lane Flow Rate	49	394	240	107	253	311	200	219	233
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.157	1.193	0.677	0.357	0.783	0.985	0.59	0.689	0.713
Departure Headway (Hd)	11.434	10.909	10.175	12.545	11.689	11.945	11.122	11.87	11.556
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	313	335	354	289	311	305	326	307	314
Service Time	9.217	8.692	7.957	10.245	9.389	9.645	8.822	9.57	9.256
HCM Lane V/C Ratio	0.157	1.176	0.678	0.37	0.814	1.02	0.613	0.713	0.742
HCM Control Delay	16.3	145.4	32	22.1	46.2	84.1	28.6	37.2	38.4
HCM Lane LOS	C	F	D	C	E	F	D	E	E
HCM 95th-tile Q	0.5	16.7	4.7	1.6	6.2	10.3	3.6	4.7	5.1

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	345	373	420	671	7	22	151	301	303	35
v/c Ratio	0.01	0.59	0.77	0.47	0.61	0.05	0.14	0.56	0.72	0.71	0.07
Control Delay	49.0	39.4	42.4	18.9	4.1	44.5	45.5	16.4	42.9	42.2	0.3
Queue Delay	0.0	0.0	0.2	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	39.4	42.6	19.3	4.5	44.5	45.5	16.4	42.9	42.2	0.3
Queue Length 50th (ft)	1	92	187	142	0	4	12	0	157	158	0
Queue Length 95th (ft)	6	153	333	290	44	18	37	51	296	295	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	104	949	678	1116	1214	376	396	450	565	576	605
Starvation Cap Reductn	0	0	36	329	161	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.36	0.58	0.53	0.64	0.02	0.06	0.34	0.53	0.53	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	265	28	317	357	570	6	19	128	427	87	30
Future Volume (veh/h)	1	265	28	317	357	570	6	19	128	427	87	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	312	33	373	420	671	7	22	151	575	0	35
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	755	79	420	875	741	210	221	187	716	0	315
Arrive On Green	0.00	0.23	0.23	0.24	0.47	0.47	0.12	0.12	0.12	0.20	0.00	0.20
Sat Flow, veh/h	1767	3214	337	1767	1856	1572	1767	1856	1569	3534	0	1553
Grp Volume(v), veh/h	1	170	175	373	420	671	7	22	151	575	0	35
Grp Sat Flow(s),veh/h/ln	1767	1763	1788	1767	1856	1572	1767	1856	1569	1767	0	1553
Q Serve(g_s), s	0.0	7.1	7.3	17.8	13.5	34.4	0.3	0.9	8.2	13.6	0.0	1.6
Cycle Q Clear(g_c), s	0.0	7.1	7.3	17.8	13.5	34.4	0.3	0.9	8.2	13.6	0.0	1.6
Prop In Lane	1.00		0.19	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	414	420	420	875	741	210	221	187	716	0	315
V/C Ratio(X)	0.41	0.41	0.42	0.89	0.48	0.91	0.03	0.10	0.81	0.80	0.00	0.11
Avail Cap(c_a), veh/h	101	463	470	656	1071	907	363	382	323	1151	0	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	28.3	28.4	32.2	15.8	21.3	34.1	34.4	37.6	33.2	0.0	28.5
Incr Delay (d2), s/veh	85.1	0.7	0.7	9.3	0.4	10.9	0.1	0.2	8.1	2.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.1	3.2	8.5	5.5	13.9	0.1	0.4	3.5	5.8	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	128.8	29.0	29.1	41.5	16.2	32.3	34.2	34.6	45.7	35.4	0.0	28.6
LnGrp LOS	F	C	C	D	B	C	C	C	D	D	A	C
Approach Vol, veh/h		346			1464			180			610	
Approach Delay, s/veh		29.3			30.0			43.9			35.0	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.3	25.1		22.2	4.6	45.7		14.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	32.5	23.0		28.5	5.0	50.5		18.0				
Max Q Clear Time (g_c+I1), s	19.8	9.3		15.6	2.0	36.4		10.2				
Green Ext Time (p_c), s	1.0	1.7		1.9	0.0	4.8		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			32.0									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	934	56	1275	410	251	14	273	6	9
v/c Ratio	0.40	0.52	0.33	0.72	0.45	0.71	0.03	0.46	0.02	0.02
Control Delay	48.9	16.2	48.2	20.7	7.2	43.8	27.3	7.7	27.2	0.0
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	16.5	48.2	20.7	7.2	43.8	27.3	7.7	27.2	0.0
Queue Length 50th (ft)	44	181	33	295	42	142	7	8	3	0
Queue Length 95th (ft)	85	236	67	365	88	200	19	45	12	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	242	2213	219	2206	1063	561	746	787	558	752
Starvation Cap Reductn	0	646	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.60	0.26	0.58	0.39	0.45	0.02	0.35	0.01	0.01

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	701	46	45	1020	328	201	11	218	5	0	7
Future Volume (veh/h)	61	701	46	45	1020	328	201	11	218	5	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	876	58	56	1275	0	251	14	272	6	0	9
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	102	1706	113	87	1762		429	429	363	357	0	363
Arrive On Green	0.06	0.51	0.51	0.05	0.50	0.00	0.23	0.23	0.23	0.23	0.00	0.23
Sat Flow, veh/h	1767	3355	222	1767	3526	1572	1395	1856	1572	1085	0	1572
Grp Volume(v), veh/h	76	460	474	56	1275	0	251	14	272	6	0	9
Grp Sat Flow(s),veh/h/ln	1767	1763	1814	1767	1763	1572	1395	1856	1572	1085	0	1572
Q Serve(g_s), s	2.7	11.1	11.1	2.0	18.1	0.0	10.9	0.4	10.3	0.3	0.0	0.3
Cycle Q Clear(g_c), s	2.7	11.1	11.1	2.0	18.1	0.0	11.1	0.4	10.3	0.6	0.0	0.3
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	896	922	87	1762		429	429	363	357	0	363
V/C Ratio(X)	0.74	0.51	0.51	0.64	0.72		0.59	0.03	0.75	0.02	0.00	0.02
Avail Cap(c_a), veh/h	290	1414	1455	263	2773		776	891	755	627	0	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	10.5	10.5	29.8	12.5	0.0	23.3	19.0	22.9	19.3	0.0	19.0
Incr Delay (d2), s/veh	10.1	0.5	0.4	7.7	0.6	0.0	1.3	0.0	3.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.8	3.9	1.0	6.1	0.0	3.4	0.2	3.8	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.7	10.9	10.9	37.5	13.1	0.0	24.6	19.1	26.0	19.3	0.0	19.0
LnGrp LOS	D	B	B	D	B		C	B	C	B	A	B
Approach Vol, veh/h		1010			1331	A		537			15	
Approach Delay, s/veh		13.1			14.1			25.1			19.2	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.7	37.0		19.3	8.2	36.5		19.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.5	51.3		30.7	10.5	50.3		30.7
Max Q Clear Time (g_c+I1), s	4.0	13.1		2.6	4.7	20.1		13.1
Green Ext Time (p_c), s	0.0	7.3		0.0	0.1	11.8		1.6

Intersection Summary	
HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	224	929	70	990	440	216	56	148	640
v/c Ratio	0.61	0.67	0.47	0.82	0.75	0.26	0.13	0.63	0.90dr
Control Delay	55.1	27.9	61.0	37.8	52.4	35.6	2.4	58.2	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	27.9	61.0	37.8	52.4	35.6	2.4	58.2	38.1
Queue Length 50th (ft)	80	270	49	335	157	66	0	103	167
Queue Length 95th (ft)	113	302	89	366	197	95	2	155	202
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	420	1542	182	1489	690	962	499	320	941
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.60	0.38	0.66	0.64	0.22	0.11	0.46	0.68

Intersection Summary

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	484	259	56	705	87	352	173	45	118	175	337
Future Volume (veh/h)	179	484	259	56	705	87	352	173	45	118	175	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	224	605	0	70	881	109	440	216	56	148	219	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	1468		96	1179	146	578	584	261	190	369	
Arrive On Green	0.10	0.41	0.00	0.05	0.37	0.37	0.17	0.16	0.16	0.11	0.10	0.00
Sat Flow, veh/h	3456	3647	0	1781	3177	393	3456	3554	1585	1781	3647	0
Grp Volume(v), veh/h	224	605	0	70	493	497	440	216	56	148	219	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1794	1728	1777	1585	1781	1777	0
Q Serve(g_s), s	4.3	8.3	0.0	2.7	16.6	16.6	8.4	3.7	2.1	5.6	4.0	0.0
Cycle Q Clear(g_c), s	4.3	8.3	0.0	2.7	16.6	16.6	8.4	3.7	2.1	5.6	4.0	0.0
Prop In Lane	1.00		0.00	1.00		0.22	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	331	1468		96	659	665	578	584	261	190	369	
V/C Ratio(X)	0.68	0.41		0.73	0.75	0.75	0.76	0.37	0.21	0.78	0.59	
Avail Cap(c_a), veh/h	628	2352		272	1124	1135	1031	1422	634	479	1318	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.0	14.3	0.0	32.0	18.8	18.8	27.3	25.6	24.9	29.9	29.4	0.0
Incr Delay (d2), s/veh	2.4	0.2	0.0	10.3	1.7	1.7	2.1	0.4	0.4	6.7	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.1	0.0	1.4	6.4	6.4	3.3	1.5	0.8	2.5	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	14.4	0.0	42.3	20.5	20.5	29.4	25.9	25.3	36.6	30.9	0.0
LnGrp LOS	C	B		D	C	C	C	C	C	D	C	
Approach Vol, veh/h		829	A		1060			712			367	A
Approach Delay, s/veh		19.3			22.0			28.0			33.2	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	32.9	16.0	11.6	11.1	30.0	11.9	15.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	45.5	20.5	25.5	12.5	43.5	18.5	27.5
Max Q Clear Time (g_c+I1), s	4.7	10.3	10.4	6.0	6.3	18.6	7.6	5.7
Green Ext Time (p_c), s	0.1	4.7	1.2	1.1	0.4	6.9	0.3	1.4

Intersection Summary

HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	75	429	1034	509	105
v/c Ratio	0.33	0.22	0.72	0.60	0.22
Control Delay	41.6	10.1	20.5	31.7	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	10.1	20.5	31.7	8.8
Queue Length 50th (ft)	29	36	147	97	0
Queue Length 95th (ft)	103	134	392	245	43
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	302	2779	2124	1314	670
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.15	0.49	0.39	0.16

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	373	494	405	443	91
Future Volume (vph)	65	373	494	405	443	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	3246		3400	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	3246		3400	1568
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	75	429	568	466	509	105
RTOR Reduction (vph)	0	0	115	0	0	80
Lane Group Flow (vph)	75	429	919	0	509	25
Confl. Peds. (#/hr)				3		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	6.9	40.5	29.1		17.8	17.8
Effective Green, g (s)	6.9	40.5	29.1		17.8	17.8
Actuated g/C Ratio	0.09	0.54	0.39		0.24	0.24
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	161	1892	1259		806	372
v/s Ratio Prot	c0.04	0.12	c0.28			
v/s Ratio Perm					c0.15	0.02
v/c Ratio	0.47	0.23	0.73		0.63	0.07
Uniform Delay, d1	32.3	9.0	19.6		25.7	22.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.1	0.1	2.2		1.6	0.1
Delay (s)	34.4	9.1	21.8		27.3	22.2
Level of Service	C	A	C		C	C
Approach Delay (s)		12.9	21.8		26.4	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	150	252	159	52	620	246	657	194	690
v/c Ratio	0.61	0.42	0.26	0.36	0.77	0.76	0.77	0.68	0.75
Control Delay	45.9	26.3	5.5	46.0	27.5	50.0	35.2	46.4	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	26.3	5.5	46.0	27.5	50.0	35.2	46.4	24.0
Queue Length 50th (ft)	77	115	0	28	112	128	171	100	113
Queue Length 95th (ft)	128	168	33	59	151	#212	215	158	153
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	302	641	640	154	970	370	1020	347	1087
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.39	0.25	0.34	0.64	0.66	0.64	0.56	0.63

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	207	130	43	284	225	202	503	36	159	288	278
Future Volume (veh/h)	123	207	130	43	284	225	202	503	36	159	288	278
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.92	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	150	252	159	52	346	274	246	613	44	194	351	339
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	187	548	458	76	431	334	289	936	67	235	445	394
Arrive On Green	0.11	0.30	0.30	0.04	0.24	0.24	0.17	0.29	0.29	0.14	0.26	0.26
Sat Flow, veh/h	1739	1826	1526	1739	1828	1416	1739	3262	234	1739	1735	1537
Grp Volume(v), veh/h	150	252	159	52	328	292	246	325	332	194	351	339
Grp Sat Flow(s),veh/h/ln	1739	1826	1526	1739	1735	1509	1739	1735	1761	1739	1735	1537
Q Serve(g_s), s	6.5	8.6	6.3	2.3	13.7	14.1	10.6	12.7	12.7	8.3	14.5	16.2
Cycle Q Clear(g_c), s	6.5	8.6	6.3	2.3	13.7	14.1	10.6	12.7	12.7	8.3	14.5	16.2
Prop In Lane	1.00		1.00	1.00		0.94	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	187	548	458	76	409	356	289	498	505	235	445	394
V/C Ratio(X)	0.80	0.46	0.35	0.69	0.80	0.82	0.85	0.65	0.66	0.82	0.79	0.86
Avail Cap(c_a), veh/h	305	632	528	156	451	393	373	519	527	350	496	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	21.9	21.0	36.3	27.7	27.8	31.2	24.1	24.1	32.4	26.7	27.3
Incr Delay (d2), s/veh	7.7	0.6	0.5	10.4	9.2	12.0	13.9	2.8	2.8	9.6	7.6	14.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.5	2.1	1.1	6.3	5.9	5.3	5.2	5.3	4.0	6.6	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.2	22.5	21.5	46.7	36.9	39.8	45.0	26.8	26.9	41.9	34.2	41.9
LnGrp LOS	D	C	C	D	D	D	D	C	C	D	C	D
Approach Vol, veh/h		561			672			903			884	
Approach Delay, s/veh		27.2			38.9			31.8			38.9	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.9	26.6	7.9	27.6	17.3	24.2	12.8	22.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	23.0	6.9	26.6	16.5	22.0	13.5	20.0
Max Q Clear Time (g_c+I1), s	10.3	14.7	4.3	10.6	12.6	18.2	8.5	16.1
Green Ext Time (p_c), s	0.2	2.5	0.0	1.7	0.3	1.5	0.2	1.4

Intersection Summary	
HCM 6th Ctrl Delay	34.6
HCM 6th LOS	C

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Intersection	
Int Delay, s/veh	19.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	6	39	7	15	95	31	425	3	33	367	76
Future Vol, veh/h	92	6	39	7	15	95	31	425	3	33	367	76
Conflicting Peds, #/hr	1	0	0	0	0	1	6	0	2	2	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	110	7	46	8	18	113	37	506	4	39	437	90

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1170	1107	443	1171	1195	511	533	0	0	512	0	0
Stage 1	521	521	-	584	584	-	-	-	-	-	-	-
Stage 2	649	586	-	587	611	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	170	210	615	170	186	563	1035	-	-	1053	-	-
Stage 1	539	532	-	498	498	-	-	-	-	-	-	-
Stage 2	458	497	-	496	484	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	117	193	611	144	171	561	1029	-	-	1051	-	-
Mov Cap-2 Maneuver	117	193	-	144	171	-	-	-	-	-	-	-
Stage 1	517	509	-	479	479	-	-	-	-	-	-	-
Stage 2	339	478	-	435	463	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	145.5	19.7	0.6	0.6
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1029	-	-	155	383	1051	-	-
HCM Lane V/C Ratio	0.036	-	-	1.052	0.364	0.037	-	-
HCM Control Delay (s)	8.6	-	-	145.5	19.7	8.6	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	8.3	1.6	0.1	-	-

Intersection	
Intersection Delay, s/veh	26.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	9	7	192	5	224	0	8	215	104	211	188
Future Vol, veh/h	20	9	7	192	5	224	0	8	215	104	211	188
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	11	8	226	6	264	0	9	253	122	248	221
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	12	37.8	16.4	25.4
HCM LOS	B	E	C	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	0%	56%	46%	69%	0%
Vol Thru, %	96%	0%	25%	1%	31%	90%
Vol Right, %	0%	100%	19%	53%	0%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	223	104	36	421	305	104
LT Vol	8	0	20	192	211	0
Through Vol	215	0	9	5	94	94
RT Vol	0	104	7	224	0	10
Lane Flow Rate	262	122	42	495	359	122
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.541	0.227	0.095	0.869	0.752	0.242
Departure Headway (Hd)	7.429	6.689	8.042	6.314	7.542	7.117
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	485	535	443	575	477	503
Service Time	5.194	4.453	6.133	4.357	5.302	4.877
HCM Lane V/C Ratio	0.54	0.228	0.095	0.861	0.753	0.243
HCM Control Delay	18.7	11.4	12	37.8	29.9	12.2
HCM Lane LOS	C	B	B	E	D	B
HCM 95th-tile Q	3.2	0.9	0.3	9.7	6.4	0.9

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	10
Future Vol, veh/h	10
Peak Hour Factor	0.85
Heavy Vehicles, %	2
Mvmt Flow	12
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	143	127	204	183	117	269
Future Vol, veh/h	143	127	204	183	117	269
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	166	148	237	213	136	313

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	717	136	449	0	-	0
Stage 1	136	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.645	6.245	4.145	-	-	-
Critical Hdwy Stg 1	5.445	-	-	-	-	-
Critical Hdwy Stg 2	5.845	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	378	909	1103	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	297	909	1103	-	-	-
Mov Cap-2 Maneuver	297	-	-	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	521	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.2	4.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1103	-	297	909	-	-
HCM Lane V/C Ratio	0.215	-	0.56	0.162	-	-
HCM Control Delay (s)	9.2	-	31.5	9.7	-	-
HCM Lane LOS	A	-	D	A	-	-
HCM 95th %tile Q(veh)	0.8	-	3.2	0.6	-	-

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15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	24	1	89	9	0	0	0	0	324	15
Future Volume (Veh/h)	27	0	24	1	89	9	0	0	0	0	324	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	30	0	26	1	98	10	0	0	0	0	356	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	418	364	364	390	372	0	372			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418	364	364	390	372	0	372			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	96	100	82	99	100			100		
cM capacity (veh/h)	467	564	681	547	558	1085	1186			1623		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	56	109	372
Volume Left	30	1	0
Volume Right	26	10	16
cSH	547	614	1700
Volume to Capacity	0.10	0.18	0.22
Queue Length 95th (ft)	9	16	0
Control Delay (s)	12.3	12.4	0.0
Lane LOS	B	B	
Approach Delay (s)	12.3	12.4	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		3.8		
Intersection Capacity Utilization		34.3%	ICU Level of Service	A
Analysis Period (min)		15		

16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	347	1124	244	496	77	308	557	337	280
v/c Ratio	0.10	0.71	0.77	0.31	0.45	0.54	0.65	0.34	0.66	0.35
Control Delay	55.6	50.9	36.1	26.6	2.9	75.5	61.2	5.4	59.7	43.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	50.9	36.1	26.6	2.9	75.5	61.2	5.4	59.7	43.6
Queue Length 50th (ft)	17	118	403	131	11	65	136	39	145	108
Queue Length 95th (ft)	43	170	522	213	42	122	186	58	197	147
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	296	626	1734	941	1159	177	673	1836	684	1006
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.55	0.65	0.26	0.43	0.44	0.46	0.30	0.49	0.28

Intersection Summary

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	176	115	944	205	417	65	259	468	283	197	38
Future Volume (veh/h)	18	176	115	944	205	417	65	259	468	283	197	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	210	137	1124	244	496	77	308	557	337	235	45
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	278	173	1373	743	815	99	558	1546	423	636	120
Arrive On Green	0.13	0.13	0.13	0.40	0.40	0.40	0.06	0.16	0.16	0.12	0.21	0.21
Sat Flow, veh/h	1781	2101	1310	3456	1870	1564	1781	3554	2790	3456	2983	562
Grp Volume(v), veh/h	21	176	171	1124	244	496	77	308	557	337	138	142
Grp Sat Flow(s),veh/h/ln	1781	1777	1635	1728	1870	1564	1781	1777	1395	1728	1777	1768
Q Serve(g_s), s	1.1	10.2	10.9	31.1	9.7	23.9	4.6	8.6	11.9	10.2	7.1	7.3
Cycle Q Clear(g_c), s	1.1	10.2	10.9	31.1	9.7	23.9	4.6	8.6	11.9	10.2	7.1	7.3
Prop In Lane	1.00		0.80	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	235	235	216	1373	743	815	99	558	1546	423	379	377
V/C Ratio(X)	0.09	0.75	0.79	0.82	0.33	0.61	0.78	0.55	0.36	0.80	0.37	0.38
Avail Cap(c_a), veh/h	339	338	311	1986	1075	1093	203	769	1712	784	585	582
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	44.8	45.1	28.8	22.4	18.1	49.9	41.7	13.3	45.7	36.0	36.0
Incr Delay (d2), s/veh	0.2	5.5	8.5	1.8	0.3	0.7	12.2	0.9	0.1	3.5	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.9	4.9	12.5	4.1	8.1	2.3	3.7	7.3	4.5	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	50.3	53.6	30.7	22.6	18.8	62.1	42.6	13.4	49.2	36.5	36.7
LnGrp LOS	D	D	D	C	C	B	E	D	B	D	D	D
Approach Vol, veh/h		368			1864			942			617	
Approach Delay, s/veh		51.3			26.5			26.9			43.5	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.8	22.6		18.8	11.8	28.7		48.0
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 24	23.2		20.4	12.2	* 35		61.6
Max Q Clear Time (g_c+I1), s	12.2	13.9		12.9	6.6	9.3		33.1
Green Ext Time (p_c), s	0.9	2.9		1.3	0.1	1.6		9.4

Intersection Summary			
HCM 6th Ctrl Delay			31.8
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	115	620	279	101	1186	652	382	298	446
v/c Ratio	0.55	0.50	0.38	0.56	0.88	0.87	0.61	0.82	0.73
Control Delay	62.2	30.7	5.0	60.3	39.5	54.8	45.2	61.0	43.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	30.7	5.0	60.3	39.5	54.8	45.2	61.0	43.3
Queue Length 50th (ft)	41	179	0	69	387	231	133	200	134
Queue Length 95th (ft)	73	253	53	126	#512	#334	178	#328	182
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	208	1255	741	222	1425	776	848	416	902
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.49	0.38	0.45	0.83	0.84	0.45	0.72	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	539	243	88	799	233	567	295	37	259	254	134
Future Volume (veh/h)	100	539	243	88	799	233	567	295	37	259	254	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	620	279	101	918	268	652	339	43	298	292	154
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	1301	580	128	1050	306	733	624	78	334	391	201
Arrive On Green	0.05	0.37	0.37	0.07	0.39	0.39	0.21	0.20	0.20	0.19	0.17	0.17
Sat Flow, veh/h	3456	3554	1585	1781	2709	789	3456	3173	399	1781	2271	1167
Grp Volume(v), veh/h	115	620	279	101	601	585	652	189	193	298	227	219
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1721	1728	1777	1795	1781	1777	1660
Q Serve(g_s), s	3.3	13.6	7.2	5.7	31.8	32.0	18.6	9.7	9.8	16.5	12.3	12.8
Cycle Q Clear(g_c), s	3.3	13.6	7.2	5.7	31.8	32.0	18.6	9.7	9.8	16.5	12.3	12.8
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.22	1.00		0.70
Lane Grp Cap(c), veh/h	175	1301	580	128	688	667	733	349	353	334	306	286
V/C Ratio(X)	0.66	0.48	0.48	0.79	0.87	0.88	0.89	0.54	0.55	0.89	0.74	0.77
Avail Cap(c_a), veh/h	222	1307	583	237	776	752	822	456	460	443	475	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	24.7	6.8	46.3	28.8	28.8	38.8	36.6	36.7	40.2	39.8	40.0
Incr Delay (d2), s/veh	4.7	0.3	0.6	10.2	9.9	10.5	11.0	1.3	1.3	16.2	3.5	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	5.5	4.5	2.8	14.6	14.3	8.7	4.2	4.3	8.5	5.5	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.0	24.9	7.4	56.4	38.7	39.3	49.7	37.9	38.0	56.3	43.3	44.3
LnGrp LOS	D	C	A	E	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1014			1287			1034			744	
Approach Delay, s/veh		23.2			40.4			45.4			48.8	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	41.6	26.0	22.0	9.6	43.8	23.5	24.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	37.3	24.1	27.1	6.5	44.3	25.2	26.0
Max Q Clear Time (g_c+I1), s	7.7	15.6	20.6	14.8	5.3	34.0	18.5	11.8
Green Ext Time (p_c), s	0.1	5.0	0.9	2.0	0.0	5.3	0.5	1.7

Intersection Summary	
HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	82	1	5	731	339	33
Future Vol, veh/h	82	1	5	731	339	33
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	99	1	6	881	408	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1321	429	448	0	-	0
Stage 1	428	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	172	624	1107	-	-	-
Stage 1	655	-	-	-	-	-
Stage 2	398	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	170	623	1107	-	-	-
Mov Cap-2 Maneuver	170	-	-	-	-	-
Stage 1	648	-	-	-	-	-
Stage 2	398	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	51.5	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1107	-	172	-	-
HCM Lane V/C Ratio	0.005	-	0.581	-	-
HCM Control Delay (s)	8.3	0	51.5	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	3.1	-	-

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Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	8	13	681	299	19
Future Vol, veh/h	55	8	13	681	299	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	10	15	811	356	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1209	368	379	0	-	0
Stage 1	368	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	202	677	1179	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	197	677	1179	-	-	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	684	-	-	-	-	-
Stage 2	423	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.2	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1179	-	397	-	-
HCM Lane V/C Ratio	0.013	-	0.189	-	-
HCM Control Delay (s)	8.1	0	16.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Intersection	
Intersection Delay, s/veh	41.8
Intersection LOS	E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	601	84	7	259	45
Future Vol, veh/h	21	601	84	7	259	45
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	724	101	8	312	54
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	56.9	11.4	19.9
HCM LOS	F	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	3%	85%
Vol Thru, %	92%	0%	15%
Vol Right, %	8%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	91	622	304
LT Vol	0	21	259
Through Vol	84	0	45
RT Vol	7	601	0
Lane Flow Rate	110	749	366
Geometry Grp	1	1	1
Degree of Util (X)	0.201	1.008	0.639
Departure Headway (Hd)	6.59	4.843	6.285
Convergence, Y/N	Yes	Yes	Yes
Cap	541	742	571
Service Time	4.683	2.907	4.351
HCM Lane V/C Ratio	0.203	1.009	0.641
HCM Control Delay	11.4	56.9	19.9
HCM Lane LOS	B	F	C
HCM 95th-tile Q	0.7	17	4.5

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	264	616	2	4	7
Future Vol, veh/h	4	264	616	2	4	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	322	751	2	5	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	759	0	-	0	1090	758
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	332	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	852	-	-	-	238	407
Stage 1	-	-	-	-	463	-
Stage 2	-	-	-	-	727	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	847	-	-	-	234	405
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	723	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	847	-	-	-	320
HCM Lane V/C Ratio	0.006	-	-	-	0.042
HCM Control Delay (s)	9.3	-	-	-	16.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	271	1	1	578	20	3	0	1	30	0	30
Future Vol, veh/h	12	271	1	1	578	20	3	0	1	30	0	30
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	323	1	1	688	24	4	0	1	36	0	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	719	0	0	324	0	0	1072	1073	324	1061	1061	707
Stage 1	-	-	-	-	-	-	352	352	-	709	709	-
Stage 2	-	-	-	-	-	-	720	721	-	352	352	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	882	-	-	1236	-	-	198	220	717	202	224	435
Stage 1	-	-	-	-	-	-	665	632	-	425	437	-
Stage 2	-	-	-	-	-	-	419	432	-	665	632	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	876	-	-	1236	-	-	179	215	717	198	219	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	179	215	-	198	219	-
Stage 1	-	-	-	-	-	-	654	622	-	415	434	-
Stage 2	-	-	-	-	-	-	384	429	-	653	622	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	21.7	22.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	220	876	-	-	1236	-	-	272
HCM Lane V/C Ratio	0.022	0.016	-	-	0.001	-	-	0.263
HCM Control Delay (s)	21.7	9.2	-	-	7.9	-	-	22.9
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	1

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Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	280	589	2	6	5
Future Vol, veh/h	4	280	589	2	6	5
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	346	727	2	7	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	738	0	-	0	1093	737
Stage 1	-	-	-	-	737	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	868	-	-	-	237	418
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	709	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	861	-	-	-	231	414
Mov Cap-2 Maneuver	-	-	-	-	231	-
Stage 1	-	-	-	-	466	-
Stage 2	-	-	-	-	703	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	861	-	-	-	289
HCM Lane V/C Ratio	0.006	-	-	-	0.047
HCM Control Delay (s)	9.2	-	-	-	18.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	54	247	456	39	21	135
Future Vol, veh/h	54	247	456	39	21	135
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	64	291	536	46	25	159

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	590	0	-	0	986	567
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	419	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	990	-	-	-	276	525
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	666	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	982	-	-	-	254	521
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	661	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	18.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	982	-	-	-	456
HCM Lane V/C Ratio	0.065	-	-	-	0.402
HCM Control Delay (s)	8.9	-	-	-	18.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.9

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Intersection	
Intersection Delay, s/veh	3.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	157	180	67	82
Demand Flow Rate, veh/h	158	182	68	83
Vehicles Circulating, veh/h	4	112	130	239
Vehicles Exiting, veh/h	318	86	32	55
Ped Vol Crossing Leg, #/h	0	0	0	8
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	3.5	4.2	3.5	4.0
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	158	182	68	83
Cap Entry Lane, veh/h	1374	1231	1209	1081
Entry HV Adj Factor	0.995	0.990	0.985	0.988
Flow Entry, veh/h	157	180	67	82
Cap Entry, veh/h	1367	1219	1190	1067
V/C Ratio	0.115	0.148	0.056	0.077
Control Delay, s/veh	3.5	4.2	3.5	4.0
LOS	A	A	A	A
95th %tile Queue, veh	0	1	0	0

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	213	982	1077	88	84	196
v/c Ratio	0.57	0.30	0.70	0.12	0.34	0.32
Control Delay	36.5	0.2	20.6	4.0	39.3	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	0.2	20.6	4.0	39.3	12.2
Queue Length 50th (ft)	92	0	212	0	37	35
Queue Length 95th (ft)	201	0	370	26	99	98
Internal Link Dist (ft)		1017	748		574	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	709	3312	3218	1442	709	1234
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.30	0.33	0.06	0.12	0.16

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	211	972	1066	87	83	194
Future Volume (vph)	211	972	1066	87	83	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	3312	3312	1482	1656	1482
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	3312	3312	1482	1656	1482
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	213	982	1077	88	84	196
RTOR Reduction (vph)	0	0	0	47	0	48
Lane Group Flow (vph)	213	982	1077	41	84	148
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	17.2	76.4	35.6	35.6	8.6	29.8
Effective Green, g (s)	17.2	76.4	35.6	35.6	8.6	29.8
Actuated g/C Ratio	0.23	1.00	0.47	0.47	0.11	0.39
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	372	3312	1543	690	186	578
v/s Ratio Prot	c0.13	0.30	c0.33		c0.05	0.10
v/s Ratio Perm				0.03		
v/c Ratio	0.57	0.30	0.70	0.06	0.45	0.26
Uniform Delay, d1	26.3	0.0	16.1	11.2	31.7	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.2	1.5	0.0	2.1	0.2
Delay (s)	28.5	0.2	17.7	11.3	33.8	16.0
Level of Service	C	A	B	B	C	B
Approach Delay (s)		5.3	17.2		21.3	
Approach LOS		A	B		C	

Intersection Summary

HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	179	811	229	49	740	115	220	243	179	276	294
v/c Ratio	0.46	0.68	0.34	0.17	0.73	0.22	0.51	0.31	0.46	0.69	0.53
Control Delay	47.7	32.2	5.2	48.0	36.3	6.7	46.8	31.0	47.7	46.5	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	32.2	5.2	48.0	36.3	6.7	46.8	31.0	47.7	46.5	9.5
Queue Length 50th (ft)	52	225	0	14	208	0	64	58	52	153	9
Queue Length 95th (ft)	112	382	56	40	356	43	131	117	112	304	90
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	631	2531	1173	631	2531	1145	702	1447	702	780	818
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.32	0.20	0.08	0.29	0.10	0.31	0.17	0.25	0.35	0.36

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	787	222	48	718	112	213	191	45	174	268	285
Future Volume (veh/h)	174	787	222	48	718	112	213	191	45	174	268	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	179	811	229	49	740	115	220	197	46	179	276	294
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	270	1098	489	112	1080	481	320	703	160	272	432	366
Arrive On Green	0.08	0.32	0.32	0.03	0.32	0.32	0.10	0.25	0.25	0.08	0.24	0.24
Sat Flow, veh/h	3319	3413	1521	3319	3413	1521	3319	2758	630	3319	1796	1522
Grp Volume(v), veh/h	179	811	229	49	740	115	220	120	123	179	276	294
Grp Sat Flow(s),veh/h/ln	1659	1706	1521	1659	1706	1521	1659	1706	1681	1659	1796	1522
Q Serve(g_s), s	4.1	16.4	6.0	1.1	14.7	4.3	5.0	4.4	4.6	4.1	10.7	14.1
Cycle Q Clear(g_c), s	4.1	16.4	6.0	1.1	14.7	4.3	5.0	4.4	4.6	4.1	10.7	14.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	270	1098	489	112	1080	481	320	435	428	272	432	366
V/C Ratio(X)	0.66	0.74	0.47	0.44	0.69	0.24	0.69	0.28	0.29	0.66	0.64	0.80
Avail Cap(c_a), veh/h	769	3077	1371	769	3077	1371	855	901	888	855	948	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	23.4	8.7	36.8	23.2	19.6	34.0	23.2	23.3	34.6	26.5	27.8
Incr Delay (d2), s/veh	2.8	1.0	0.7	1.0	0.8	0.3	2.6	0.3	0.4	2.7	1.6	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.8	2.9	0.4	5.2	1.4	2.0	1.7	1.7	1.7	4.4	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	24.4	9.4	37.8	23.9	19.9	36.6	23.5	23.6	37.3	28.0	31.9
LnGrp LOS	D	C	A	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1219			904			463			749	
Approach Delay, s/veh		23.5			24.2			29.8			31.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	32.3	11.5	24.0	10.3	31.9	10.4	25.1
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	3.1	18.4	7.0	16.1	6.1	16.7	6.1	6.6
Green Ext Time (p_c), s	0.0	6.6	0.6	2.6	0.4	5.4	0.4	1.4

Intersection Summary	
HCM 6th Ctrl Delay	26.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	935	62	291	884	0	9	0	300	0	0	0
Future Vol, veh/h	0	935	62	291	884	0	9	0	300	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	964	64	300	911	0	9	0	309	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	912	0	0	1028	0	0	2052	2508	514	1994	2540	457
Stage 1	-	-	-	-	-	-	996	996	-	1512	1512	-
Stage 2	-	-	-	-	-	-	1056	1512	-	482	1028	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.64	7.04	7.64	6.64	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4.07	3.37	3.57	4.07	3.37
Pot Cap-1 Maneuver	712	-	-	642	-	-	30	26	493	34	25	537
Stage 1	-	-	-	-	-	-	253	310	-	120	173	-
Stage 2	-	-	-	-	-	-	232	173	-	521	299	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	711	-	-	642	-	-	19	14	493	8	13	536
Mov Cap-2 Maneuver	-	-	-	-	-	-	19	14	-	8	13	-
Stage 1	-	-	-	-	-	-	253	310	-	120	92	-
Stage 2	-	-	-	-	-	-	124	92	-	194	299	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.8	32.2	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	19	493	711	-	-	642	-	-	-	-
HCM Lane V/C Ratio	0.488	0.627	-	-	-	0.467	-	-	-	-
HCM Control Delay (s)	$ 313.6	23.8	0	-	-	15.4	-	-	0	0
HCM Lane LOS	F	C	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	4.3	0	-	-	2.5	-	-	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	219	848	833	12	10	330
Future Vol, veh/h	219	848	833	12	10	330
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	233	902	886	13	11	351

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	899	0	-	0	1803	443
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	917	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	703	-	-	-	65	541
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	331	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	703	-	-	-	43	541
Mov Cap-2 Maneuver	-	-	-	-	182	-
Stage 1	-	-	-	-	230	-
Stage 2	-	-	-	-	331	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	23.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	703	-	-	-	-	182	541
HCM Lane V/C Ratio	0.331	-	-	-	-	0.058	0.649
HCM Control Delay (s)	12.6	-	-	-	-	26	23.1
HCM Lane LOS	B	-	-	-	-	D	C
HCM 95th %tile Q(veh)	1.5	-	-	-	-	0.2	4.6

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	893	10	1	839	0	17	0	4	0	0	1
Future Vol, veh/h	0	893	10	1	839	0	17	0	4	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	921	10	1	865	0	18	0	4	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	865	0	0	931	0	0	1356	1788	461	1328	1798	433
Stage 1	-	-	-	-	-	-	921	921	-	867	867	-
Stage 2	-	-	-	-	-	-	435	867	-	461	931	-
Critical Hdwy	4.34	-	-	4.34	-	-	7.74	6.74	7.14	7.74	6.74	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Follow-up Hdwy	2.32	-	-	2.32	-	-	3.62	4.12	3.42	3.62	4.12	3.42
Pot Cap-1 Maneuver	713	-	-	672	-	-	99	72	521	104	71	544
Stage 1	-	-	-	-	-	-	272	326	-	294	346	-
Stage 2	-	-	-	-	-	-	544	346	-	524	322	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	713	-	-	672	-	-	99	72	521	103	71	544
Mov Cap-2 Maneuver	-	-	-	-	-	-	242	235	-	256	233	-
Stage 1	-	-	-	-	-	-	272	326	-	294	346	-
Stage 2	-	-	-	-	-	-	542	346	-	520	322	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	19.3	11.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	242	521	713	-	-	672	-	-	544
HCM Lane V/C Ratio	0.072	0.008	-	-	-	0.002	-	-	0.002
HCM Control Delay (s)	21	12	0	-	-	10.4	-	-	11.6
HCM Lane LOS	C	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.2	0	0	-	-	0	-	-	0

Intersection	
Intersection Delay, s/veh	64.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	199	61	268	185	97	49	234	252	29	376	90
Future Vol, veh/h	63	199	61	268	185	97	49	234	252	29	376	90
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	68	214	66	288	199	104	53	252	271	31	404	97
Number of Lanes	1	1	0	1	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	2
HCM Control Delay	67.6	79.7	48.2	64.9
HCM LOS	F	F	E	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%	13%	0%
Vol Thru, %	0%	100%	0%	0%	77%	0%	66%	87%	68%
Vol Right, %	0%	0%	100%	0%	23%	0%	34%	0%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	234	252	63	260	268	282	217	278
LT Vol	49	0	0	63	0	268	0	29	0
Through Vol	0	234	0	0	199	0	185	188	188
RT Vol	0	0	252	0	61	0	97	0	90
Lane Flow Rate	53	252	271	68	280	288	303	233	299
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.18	0.824	0.831	0.245	0.957	0.976	0.962	0.777	0.969
Departure Headway (Hd)	12.311	11.783	11.045	13.017	12.319	12.194	11.416	11.983	11.671
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	292	309	328	276	294	300	318	303	311
Service Time	10.042	9.514	8.776	10.785	10.086	9.929	9.151	9.718	9.406
HCM Lane V/C Ratio	0.182	0.816	0.826	0.246	0.952	0.96	0.953	0.769	0.961
HCM Control Delay	17.7	52	50.5	20	79.1	83	76.5	46.5	79.2
HCM Lane LOS	C	F	F	C	F	F	F	E	F
HCM 95th-tile Q	0.6	6.9	7.2	0.9	9.5	9.9	9.9	6.1	10

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	460	255	432	557	6	39	281	324	334	91
v/c Ratio	0.14	0.64	0.68	0.53	0.56	0.03	0.21	0.68	0.71	0.72	0.18
Control Delay	51.5	38.1	44.6	24.1	4.5	43.2	44.7	14.9	40.3	40.6	2.4
Queue Delay	0.0	0.0	0.0	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	38.1	44.6	24.6	4.8	43.2	44.7	14.9	40.3	40.6	2.4
Queue Length 50th (ft)	8	118	128	153	0	3	20	0	164	169	0
Queue Length 95th (ft)	36	222	266	362	72	17	60	81	341	351	13
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	115	1060	579	1050	1115	404	425	579	674	685	700
Starvation Cap Reductn	0	0	9	286	145	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.43	0.45	0.57	0.57	0.01	0.09	0.49	0.48	0.49	0.13

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	401	31	240	406	524	6	37	264	535	84	86
Future Volume (veh/h)	15	401	31	240	406	524	6	37	264	535	84	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	16	427	33	255	432	557	6	39	281	633	0	91
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	32	840	65	295	746	617	339	356	302	766	0	339
Arrive On Green	0.02	0.25	0.25	0.16	0.40	0.40	0.19	0.19	0.19	0.21	0.00	0.21
Sat Flow, veh/h	1795	3368	259	1795	1885	1559	1795	1885	1598	3591	0	1590
Grp Volume(v), veh/h	16	226	234	255	432	557	6	39	281	633	0	91
Grp Sat Flow(s),veh/h/ln	1795	1791	1836	1795	1885	1559	1795	1885	1598	1795	0	1590
Q Serve(g_s), s	0.9	10.6	10.7	13.5	17.6	32.9	0.3	1.7	16.9	16.5	0.0	4.7
Cycle Q Clear(g_c), s	0.9	10.6	10.7	13.5	17.6	32.9	0.3	1.7	16.9	16.5	0.0	4.7
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	447	458	295	746	617	339	356	302	766	0	339
V/C Ratio(X)	0.49	0.51	0.51	0.86	0.58	0.90	0.02	0.11	0.93	0.83	0.00	0.27
Avail Cap(c_a), veh/h	97	448	460	486	880	728	339	356	302	1193	0	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.6	31.5	31.6	39.8	23.2	27.8	32.3	32.9	39.0	36.8	0.0	32.1
Incr Delay (d2), s/veh	11.2	0.9	0.9	8.7	0.7	13.2	0.0	0.1	34.0	2.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.7	4.9	6.6	7.7	14.0	0.1	0.8	9.3	7.3	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	32.5	32.5	48.5	23.9	41.0	32.3	33.0	73.0	39.6	0.0	32.5
LnGrp LOS	E	C	C	D	C	D	C	C	E	D	A	C
Approach Vol, veh/h		476			1244			326			724	
Approach Delay, s/veh		33.4			36.6			67.5			38.7	
Approach LOS		C			D			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.6	28.9		25.4	6.3	43.2		23.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	26.5	24.5		32.5	5.3	45.7		18.5				
Max Q Clear Time (g_c+I1), s	15.5	12.7		18.5	2.9	34.9		18.9				
Green Ext Time (p_c), s	0.6	2.2		2.4	0.0	3.8		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			40.2									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	89	1187	20	952	252	263	30	438	8	26
v/c Ratio	0.39	0.64	0.13	0.64	0.33	0.62	0.05	0.74	0.02	0.04
Control Delay	42.5	17.0	45.5	22.1	6.8	32.1	21.7	24.9	21.7	0.1
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	17.3	45.5	22.1	6.8	32.1	21.7	24.9	21.7	0.1
Queue Length 50th (ft)	40	168	9	189	17	108	10	122	3	0
Queue Length 95th (ft)	107	408	38	344	79	221	33	273	14	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	339	2408	149	2173	1027	791	1069	975	789	1001
Starvation Cap Reductn	0	587	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.65	0.13	0.44	0.25	0.33	0.03	0.45	0.01	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	1074	30	19	885	234	245	28	407	7	0	24
Future Volume (veh/h)	83	1074	30	19	885	234	245	28	407	7	0	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	89	1155	32	20	952	0	263	30	438	8	0	26
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	116	1584	44	42	1447		547	611	518	402	0	518
Arrive On Green	0.06	0.45	0.45	0.02	0.40	0.00	0.32	0.32	0.32	0.32	0.00	0.32
Sat Flow, veh/h	1795	3557	99	1795	3582	1598	1396	1885	1598	932	0	1598
Grp Volume(v), veh/h	89	581	606	20	952	0	263	30	438	8	0	26
Grp Sat Flow(s),veh/h/ln	1795	1791	1864	1795	1791	1598	1396	1885	1598	932	0	1598
Q Serve(g_s), s	3.2	17.4	17.4	0.7	14.0	0.0	10.4	0.7	16.6	0.4	0.0	0.7
Cycle Q Clear(g_c), s	3.2	17.4	17.4	0.7	14.0	0.0	11.1	0.7	16.6	1.1	0.0	0.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	798	830	42	1447		547	611	518	402	0	518
V/C Ratio(X)	0.77	0.73	0.73	0.48	0.66		0.48	0.05	0.85	0.02	0.00	0.05
Avail Cap(c_a), veh/h	345	1335	1389	152	2284		899	1086	920	638	0	920
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	14.8	14.8	31.4	15.8	0.0	18.9	15.1	20.5	15.5	0.0	15.1
Incr Delay (d2), s/veh	10.0	1.3	1.2	8.2	0.5	0.0	0.7	0.0	3.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	6.5	6.7	0.4	5.2	0.0	3.1	0.3	6.1	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	16.1	16.1	39.6	16.3	0.0	19.6	15.1	24.4	15.5	0.0	15.2
LnGrp LOS	D	B	B	D	B		B	B	C	B	A	B
Approach Vol, veh/h		1276			972	A		731			34	
Approach Delay, s/veh		17.8			16.7			22.3			15.2	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	33.5		25.6	8.7	30.8		25.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	48.5		37.5	12.5	41.5		37.5				
Max Q Clear Time (g_c+I1), s	2.7	19.4		3.1	5.2	16.0		18.6				
Green Ext Time (p_c), s	0.0	9.6		0.1	0.1	7.6		2.5				

Intersection Summary			
HCM 6th Ctrl Delay			18.5
HCM 6th LOS			B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	379	1168	63	684	263	217	67	60	521
v/c Ratio	0.63	0.75	0.38	0.58	0.57	0.26	0.14	0.37	0.72
Control Delay	43.6	25.0	53.0	27.8	46.8	34.5	0.6	53.6	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	25.0	53.0	27.8	46.8	34.5	0.6	53.6	25.7
Queue Length 50th (ft)	109	288	36	167	76	59	0	34	76
Queue Length 95th (ft)	191	447	93	275	145	108	0	90	155
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	861	2128	216	1731	581	1168	614	200	1070
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.55	0.29	0.40	0.45	0.19	0.11	0.30	0.49

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	360	771	338	60	581	68	250	206	64	57	208	287
Future Volume (veh/h)	360	771	338	60	581	68	250	206	64	57	208	287
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	379	812	0	63	612	72	263	217	67	60	219	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	553	1397		100	925	109	404	633	282	97	412	
Arrive On Green	0.16	0.39	0.00	0.06	0.29	0.29	0.12	0.18	0.18	0.05	0.12	0.00
Sat Flow, veh/h	3483	3676	0	1795	3223	378	3483	3582	1598	1795	3676	0
Grp Volume(v), veh/h	379	812	0	63	340	344	263	217	67	60	219	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1811	1742	1791	1598	1795	1791	0
Q Serve(g_s), s	5.7	10.0	0.0	1.9	9.3	9.3	4.0	3.0	2.0	1.8	3.2	0.0
Cycle Q Clear(g_c), s	5.7	10.0	0.0	1.9	9.3	9.3	4.0	3.0	2.0	1.8	3.2	0.0
Prop In Lane	1.00		0.00	1.00		0.21	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	553	1397		100	514	520	404	633	282	97	412	
V/C Ratio(X)	0.69	0.58		0.63	0.66	0.66	0.65	0.34	0.24	0.62	0.53	
Avail Cap(c_a), veh/h	1345	3441		338	1367	1382	907	1820	812	313	1511	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.1	13.4	0.0	25.7	17.5	17.5	23.5	20.1	19.7	25.8	23.2	0.0
Incr Delay (d2), s/veh	1.5	0.4	0.0	6.3	1.5	1.5	1.8	0.3	0.4	6.2	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.5	0.0	0.9	3.5	3.6	1.6	1.1	0.7	0.9	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	13.8	0.0	32.0	18.9	18.9	25.3	20.4	20.1	31.9	24.3	0.0
LnGrp LOS	C	B		C	B	B	C	C	C	C	C	
Approach Vol, veh/h		1191	A		747			547			279	A
Approach Delay, s/veh		16.9			20.0			22.7			25.9	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	26.2	11.0	10.9	13.3	20.5	7.5	14.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	53.5	14.5	23.5	21.5	42.5	9.7	28.3
Max Q Clear Time (g_c+I1), s	3.9	12.0	6.0	5.2	7.7	11.3	3.8	5.0
Green Ext Time (p_c), s	0.1	6.9	0.6	1.1	1.1	4.5	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	58	416	861	522	73
v/c Ratio	0.23	0.24	0.63	0.54	0.15
Control Delay	37.4	10.9	16.9	26.4	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	10.9	16.9	26.4	9.1
Queue Length 50th (ft)	19	31	94	80	0
Queue Length 95th (ft)	88	139	313	256	40
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	353	3008	2439	1769	851
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.14	0.35	0.30	0.09

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	404	442	393	506	71
Future Volume (vph)	56	404	442	393	506	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3298		3467	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3298		3467	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	416	456	405	522	73
RTOR Reduction (vph)	0	0	128	0	0	54
Lane Group Flow (vph)	58	416	733	0	522	19
Confl. Peds. (#/hr)				4		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	4.4	32.7	23.8		17.4	17.4
Effective Green, g (s)	4.4	32.7	23.8		17.4	17.4
Actuated g/C Ratio	0.07	0.49	0.36		0.26	0.26
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	118	1760	1182		908	419
v/s Ratio Prot	c0.03	0.12	c0.22			
v/s Ratio Perm					c0.15	0.01
v/c Ratio	0.49	0.24	0.62		0.57	0.05
Uniform Delay, d1	29.9	9.7	17.6		21.3	18.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.2	0.1	1.0		0.9	0.0
Delay (s)	33.1	9.7	18.6		22.2	18.3
Level of Service	C	A	B		C	B
Approach Delay (s)		12.6	18.6		21.7	
Approach LOS		B	B		C	

Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	164	325	301	110	542	193	392	205	622
v/c Ratio	0.61	0.64	0.47	0.52	0.66	0.67	0.48	0.67	0.73
Control Delay	43.8	34.1	6.1	45.5	22.4	45.9	28.6	43.9	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	34.1	6.1	45.5	22.4	45.9	28.6	43.9	31.9
Queue Length 50th (ft)	81	157	0	55	83	95	90	101	148
Queue Length 95th (ft)	152	256	61	113	144	#193	142	182	217
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	345	600	705	249	1028	345	986	392	1079
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.54	0.43	0.44	0.53	0.56	0.40	0.52	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	312	289	106	292	228	185	334	42	197	464	133
Future Volume (veh/h)	157	312	289	106	292	228	185	334	42	197	464	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	164	325	301	110	304	238	193	348	44	205	483	139
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	487	406	142	424	322	241	750	94	256	667	191
Arrive On Green	0.12	0.26	0.26	0.08	0.22	0.22	0.14	0.24	0.24	0.14	0.24	0.24
Sat Flow, veh/h	1781	1870	1559	1781	1901	1445	1781	3168	397	1781	2724	779
Grp Volume(v), veh/h	164	325	301	110	283	259	193	194	198	205	314	308
Grp Sat Flow(s),veh/h/ln	1781	1870	1559	1781	1777	1569	1781	1777	1788	1781	1777	1726
Q Serve(g_s), s	5.8	10.0	11.4	3.9	9.5	9.9	6.8	6.0	6.1	7.2	10.4	10.6
Cycle Q Clear(g_c), s	5.8	10.0	11.4	3.9	9.5	9.9	6.8	6.0	6.1	7.2	10.4	10.6
Prop In Lane	1.00		1.00	1.00		0.92	1.00		0.22	1.00		0.45
Lane Grp Cap(c), veh/h	209	487	406	142	396	350	241	421	423	256	435	423
V/C Ratio(X)	0.78	0.67	0.74	0.77	0.72	0.74	0.80	0.46	0.47	0.80	0.72	0.73
Avail Cap(c_a), veh/h	401	697	581	290	552	487	401	579	583	456	634	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	21.3	21.8	29.1	23.1	23.3	27.0	21.1	21.1	26.7	22.3	22.4
Incr Delay (d2), s/veh	6.4	1.6	3.0	8.5	2.7	3.7	6.0	0.8	0.8	5.8	2.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	4.1	4.0	1.9	3.9	3.6	3.1	2.4	2.4	3.2	4.2	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	22.9	24.9	37.6	25.8	27.0	33.0	21.8	21.9	32.5	24.6	24.8
LnGrp LOS	C	C	C	D	C	C	C	C	C	C	C	C
Approach Vol, veh/h		790			652			585			827	
Approach Delay, s/veh		26.0			28.3			25.6			26.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	19.8	9.7	21.3	13.2	20.3	12.1	18.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	21.0	10.5	24.0	14.5	23.0	14.5	20.0
Max Q Clear Time (g_c+I1), s	9.2	8.1	5.9	13.4	8.8	12.6	7.8	11.9
Green Ext Time (p_c), s	0.3	1.8	0.1	2.2	0.2	2.7	0.2	2.0

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

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Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	100	4	11	4	1	38	19	350	10	48	440	126
Future Vol, veh/h	100	4	11	4	1	38	19	350	10	48	440	126
Conflicting Peds, #/hr	4	0	0	0	0	4	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	101	4	11	4	1	38	19	354	10	48	444	127

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	966	947	449	1008	1069	363	576	0	0	364	0	0
Stage 1	545	545	-	397	397	-	-	-	-	-	-	-
Stage 2	421	402	-	611	672	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	235	262	612	220	222	684	1002	-	-	1200	-	-
Stage 1	524	520	-	631	605	-	-	-	-	-	-	-
Stage 2	612	602	-	483	456	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	209	245	609	204	208	681	997	-	-	1200	-	-
Mov Cap-2 Maneuver	209	245	-	204	208	-	-	-	-	-	-	-
Stage 1	511	497	-	619	594	-	-	-	-	-	-	-
Stage 2	563	591	-	452	435	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	37.2	12.3	0.4	0.6
HCM LOS	E	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	997	-	-	224	536	1200	-	-
HCM Lane V/C Ratio	0.019	-	-	0.519	0.081	0.04	-	-
HCM Control Delay (s)	8.7	-	-	37.2	12.3	8.1	-	-
HCM Lane LOS	A	-	-	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.7	0.3	0.1	-	-

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	8	2	7	124	3	142	0	10	231	190	219	223
Future Vol, veh/h	8	2	7	124	3	142	0	10	231	190	219	223
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	2	1	1	1	1	1
Mvmt Flow	9	2	8	133	3	153	0	11	248	204	235	240
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	10.2	14.5	12.6	17.5
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	0%	47%	46%	66%	0%
Vol Thru, %	96%	0%	12%	1%	34%	90%
Vol Right, %	0%	100%	41%	53%	0%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	241	190	17	269	331	124
LT Vol	10	0	8	124	219	0
Through Vol	231	0	2	3	112	112
RT Vol	0	190	7	142	0	12
Lane Flow Rate	259	204	18	289	355	133
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.45	0.313	0.035	0.481	0.639	0.224
Departure Headway (Hd)	6.249	5.516	6.855	5.986	6.477	6.071
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	575	648	518	599	554	590
Service Time	4.011	3.277	4.954	4.046	4.236	3.83
HCM Lane V/C Ratio	0.45	0.315	0.035	0.482	0.641	0.225
HCM Control Delay	14.1	10.8	10.2	14.5	20.1	10.6
HCM Lane LOS	B	B	B	B	C	B
HCM 95th-tile Q	2.3	1.3	0.1	2.6	4.5	0.9

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	12
Future Vol, veh/h	12
Peak Hour Factor	0.93
Heavy Vehicles, %	1
Mvmt Flow	13
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	246	218	132	188	172	170
Future Vol, veh/h	246	218	132	188	172	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	254	225	136	194	177	175

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	546	177	352	0	-	0
Stage 1	177	-	-	-	-	-
Stage 2	369	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.115	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	485	868	1212	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	431	868	1212	-	-	-
Mov Cap-2 Maneuver	431	-	-	-	-	-
Stage 1	760	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	3.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1212	-	431	868	-	-
HCM Lane V/C Ratio	0.112	-	0.588	0.259	-	-
HCM Control Delay (s)	8.3	-	24.6	10.6	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.4	-	3.7	1	-	-

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15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	67	0	125	14	0	0	0	0	283	34
Future Volume (Veh/h)	27	0	67	0	125	14	0	0	0	0	283	34
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	32	0	80	0	149	17	0	0	0	0	337	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	440	357	357	437	377	0	377			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	440	357	357	437	377	0	377			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	88	100	73	98	100			100		
cM capacity (veh/h)	413	571	689	470	556	1088	1187			1630		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	112	166	377
Volume Left	32	0	0
Volume Right	80	17	40
cSH	579	603	1700
Volume to Capacity	0.19	0.28	0.22
Queue Length 95th (ft)	18	28	0
Control Delay (s)	12.7	13.2	0.0
Lane LOS	B	B	
Approach Delay (s)	12.7	13.2	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		5.5		
Intersection Capacity Utilization		39.2%	ICU Level of Service	A
Analysis Period (min)		15		

16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	381	637	184	408	96	354	1007	549	300
v/c Ratio	0.17	0.69	0.61	0.32	0.40	0.54	0.66	0.75	0.73	0.32
Control Delay	50.4	53.7	40.1	36.7	2.8	67.5	56.7	16.9	51.4	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	53.7	40.1	36.7	2.8	67.5	56.7	16.9	51.4	35.0
Queue Length 50th (ft)	33	143	214	109	4	74	142	157	212	94
Queue Length 95th (ft)	79	226	342	212	52	149	221	258	309	150
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	379	748	1255	681	1128	252	877	1513	1065	1441
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.51	0.51	0.27	0.36	0.38	0.40	0.67	0.52	0.21

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	276	93	618	178	396	93	343	977	533	236	55
Future Volume (veh/h)	46	276	93	618	178	396	93	343	977	533	236	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	47	285	96	637	184	408	96	354	1007	549	243	57
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	251	368	121	885	479	696	121	872	1399	647	1018	234
Arrive On Green	0.14	0.14	0.14	0.25	0.25	0.25	0.07	0.24	0.24	0.19	0.35	0.35
Sat Flow, veh/h	1795	2636	868	3483	1885	1572	1795	3582	2812	3483	2891	665
Grp Volume(v), veh/h	47	191	190	637	184	408	96	354	1007	549	149	151
Grp Sat Flow(s),veh/h/ln	1795	1791	1713	1742	1885	1572	1795	1791	1406	1742	1791	1765
Q Serve(g_s), s	2.7	11.9	12.4	19.3	9.3	22.7	6.1	9.6	28.2	17.6	6.8	7.0
Cycle Q Clear(g_c), s	2.7	11.9	12.4	19.3	9.3	22.7	6.1	9.6	28.2	17.6	6.8	7.0
Prop In Lane	1.00		0.51	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	251	250	239	885	479	696	121	872	1399	647	630	621
V/C Ratio(X)	0.19	0.77	0.79	0.72	0.38	0.59	0.79	0.41	0.72	0.85	0.24	0.24
Avail Cap(c_a), veh/h	378	377	361	1251	677	861	251	872	1399	1062	731	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	48.0	48.2	39.4	35.7	24.5	53.2	36.8	21.7	45.6	26.5	26.6
Incr Delay (d2), s/veh	0.4	5.1	6.8	1.2	0.5	0.8	10.8	0.3	1.8	3.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.7	5.8	8.2	4.3	8.2	3.0	4.1	14.7	7.9	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	53.1	55.0	40.6	36.2	25.3	64.0	37.1	23.5	49.2	26.7	26.8
LnGrp LOS	D	D	E	D	D	C	E	D	C	D	C	C
Approach Vol, veh/h		428			1229			1457			849	
Approach Delay, s/veh		53.0			34.9			29.5			41.3	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	26.2	34.0		20.8	13.6	46.6		34.8
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 35	28.2		24.4	16.2	* 47		41.6
Max Q Clear Time (g_c+I1), s	19.6	30.2		14.4	8.1	9.0		24.7
Green Ext Time (p_c), s	1.9	0.0		1.8	0.1	1.9		4.7

Intersection Summary			
HCM 6th Ctrl Delay			36.2
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	252	821	578	101	758	400	323	158	525
v/c Ratio	0.57	0.64	0.64	0.51	0.69	0.70	0.40	0.62	0.72
Control Delay	48.9	31.2	8.3	55.4	33.4	48.3	34.1	53.9	41.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	31.2	8.3	55.4	33.4	48.3	34.1	53.9	41.8
Queue Length 50th (ft)	79	237	30	62	215	126	87	97	157
Queue Length 95th (ft)	139	358	152	132	324	207	151	185	243
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	568	1531	976	274	1465	715	1026	368	1021
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.54	0.59	0.37	0.52	0.56	0.31	0.43	0.51

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	788	555	97	606	122	384	256	54	152	382	122
Future Volume (veh/h)	242	788	555	97	606	122	384	256	54	152	382	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	252	821	578	101	631	127	400	267	56	158	398	127
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	357	1202	536	132	910	183	520	720	149	200	550	174
Arrive On Green	0.10	0.34	0.34	0.07	0.31	0.31	0.15	0.24	0.24	0.11	0.21	0.21
Sat Flow, veh/h	3483	3582	1598	1795	2970	597	3483	2956	610	1795	2676	844
Grp Volume(v), veh/h	252	821	578	101	380	378	400	160	163	158	265	260
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1776	1742	1791	1775	1795	1791	1729
Q Serve(g_s), s	5.3	15.1	15.3	4.2	14.2	14.3	8.4	5.7	5.8	6.5	10.5	10.7
Cycle Q Clear(g_c), s	5.3	15.1	15.3	4.2	14.2	14.3	8.4	5.7	5.8	6.5	10.5	10.7
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.34	1.00		0.49
Lane Grp Cap(c), veh/h	357	1202	536	132	549	544	520	436	432	200	368	356
V/C Ratio(X)	0.71	0.68	1.08	0.77	0.69	0.69	0.77	0.37	0.38	0.79	0.72	0.73
Avail Cap(c_a), veh/h	708	1903	849	342	928	920	891	646	640	459	646	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.1	21.8	9.0	34.7	23.3	23.3	31.2	24.0	24.0	33.0	28.2	28.3
Incr Delay (d2), s/veh	2.6	0.7	51.1	9.0	1.6	1.6	2.4	0.5	0.5	6.8	2.6	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	5.8	11.7	2.1	5.7	5.7	3.5	2.3	2.3	3.1	4.5	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	22.5	60.2	43.7	24.9	24.9	33.6	24.5	24.6	39.8	30.9	31.2
LnGrp LOS	D	C	F	D	C	C	C	C	C	D	C	C
Approach Vol, veh/h		1651			859			723			683	
Approach Delay, s/veh		37.7			27.1			29.5			33.1	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	30.1	15.9	20.2	12.3	27.9	13.0	23.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	40.5	19.5	27.5	15.5	39.5	19.5	27.5
Max Q Clear Time (g_c+I1), s	6.2	17.3	10.4	12.7	7.3	16.3	8.5	7.8
Green Ext Time (p_c), s	0.1	8.3	1.0	2.6	0.5	4.6	0.3	1.6

Intersection Summary	
HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	2	4	440	744	83
Future Vol, veh/h	44	2	4	440	744	83
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	2	4	458	775	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1285	819	862	0	-	0
Stage 1	819	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	182	375	780	-	-	-
Stage 1	433	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	180	375	779	-	-	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	430	-	-	-	-	-
Stage 2	631	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.3	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	779	-	184	-	-
HCM Lane V/C Ratio	0.005	-	0.26	-	-
HCM Control Delay (s)	9.6	0	31.3	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

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Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	13	15	451	684	53
Future Vol, veh/h	35	13	15	451	684	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	14	16	496	752	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1309	781	810	0	-	0
Stage 1	781	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	175	393	811	-	-	-
Stage 1	450	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	170	393	811	-	-	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	438	-	-	-	-	-
Stage 2	590	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.3	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	811	-	372	-	-
HCM Lane V/C Ratio	0.02	-	0.142	-	-
HCM Control Delay (s)	9.5	0	16.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Intersection Delay, s/veh	68.9
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	385	88	25	597	86
Future Vol, veh/h	9	385	88	25	597	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	418	96	27	649	93
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	18.8	11	107.3
HCM LOS	C	B	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	2%	87%
Vol Thru, %	78%	0%	13%
Vol Right, %	22%	98%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	113	394	683
LT Vol	0	9	597
Through Vol	88	0	86
RT Vol	25	385	0
Lane Flow Rate	123	428	742
Geometry Grp	1	1	1
Degree of Util (X)	0.207	0.647	1.154
Departure Headway (Hd)	6.337	5.818	5.594
Convergence, Y/N	Yes	Yes	Yes
Cap	570	625	653
Service Time	4.337	3.818	3.6
HCM Lane V/C Ratio	0.216	0.685	1.136
HCM Control Delay	11	18.8	107.3
HCM Lane LOS	B	C	F
HCM 95th-tile Q	0.8	4.7	24

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	615	373	5	4	9
Future Vol, veh/h	5	615	373	5	4	9
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	676	410	5	4	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	429	0	-	0	1113	427
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	686	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1136	-	-	-	232	630
Stage 1	-	-	-	-	660	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1121	-	-	-	225	622
Mov Cap-2 Maneuver	-	-	-	-	225	-
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	495	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1121	-	-	-	403
HCM Lane V/C Ratio	0.005	-	-	-	0.035
HCM Control Delay (s)	8.2	-	-	-	14.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	588	2	2	369	15	1	0	1	15	0	20
Future Vol, veh/h	22	588	2	2	369	15	1	0	1	15	0	20
Conflicting Peds, #/hr	12	0	0	0	0	12	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	619	2	2	388	16	1	0	1	16	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	416	0	0	621	0	0	1077	1086	620	1079	1079	408
Stage 1	-	-	-	-	-	-	666	666	-	412	412	-
Stage 2	-	-	-	-	-	-	411	420	-	667	667	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1138	-	-	955	-	-	196	215	486	195	217	641
Stage 1	-	-	-	-	-	-	447	456	-	615	593	-
Stage 2	-	-	-	-	-	-	616	588	-	447	455	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1125	-	-	955	-	-	186	208	486	189	210	634
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	208	-	189	210	-
Stage 1	-	-	-	-	-	-	438	447	-	595	585	-
Stage 2	-	-	-	-	-	-	594	580	-	437	446	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	18.5	17.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	269	1125	-	-	955	-	-	316
HCM Lane V/C Ratio	0.008	0.021	-	-	0.002	-	-	0.117
HCM Control Delay (s)	18.5	8.3	-	-	8.8	-	-	17.9
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.4

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23: Charolais Road & St. Andrews Circle

HCM 6th TWSC

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	610	358	4	4	7
Future Vol, veh/h	8	610	358	4	4	7
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	9	663	389	4	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	402	0	-	0	1081	400
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	681	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1162	-	-	-	242	652
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	504	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1152	-	-	-	236	646
Mov Cap-2 Maneuver	-	-	-	-	236	-
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	499	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1152	-	-	-	396
HCM Lane V/C Ratio	0.008	-	-	-	0.03
HCM Control Delay (s)	8.1	-	-	-	14.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

24: Charolais Road & Rambouillet Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	144	455	293	21	21	82
Future Vol, veh/h	144	455	293	21	21	82
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	158	500	322	23	23	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	347	0	-	0	1152	336
Stage 1	-	-	-	-	336	-
Stage 2	-	-	-	-	816	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1218	-	-	-	220	708
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	436	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1216	-	-	-	191	707
Mov Cap-2 Maneuver	-	-	-	-	191	-
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	435	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1216	-	-	-	456
HCM Lane V/C Ratio	0.13	-	-	-	0.248
HCM Control Delay (s)	8.4	-	-	-	15.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	1

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Intersection	
Intersection Delay, s/veh	3.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	236	102	44	38
Demand Flow Rate, veh/h	239	103	44	38
Vehicles Circulating, veh/h	10	97	189	141
Vehicles Exiting, veh/h	169	136	60	59
Ped Vol Crossing Leg, #/h	0	0	0	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.1	3.6	3.5	3.3
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	239	103	44	38
Cap Entry Lane, veh/h	1366	1250	1138	1195
Entry HV Adj Factor	0.986	0.990	0.999	0.999
Flow Entry, veh/h	236	102	44	38
Cap Entry, veh/h	1347	1238	1137	1194
V/C Ratio	0.175	0.082	0.039	0.032
Control Delay, s/veh	4.1	3.6	3.5	3.3
LOS	A	A	A	A
95th %tile Queue, veh	1	0	0	0

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	265	1168	1125	114	134	238
v/c Ratio	0.66	0.36	0.80	0.16	0.55	0.35
Control Delay	44.6	0.3	29.2	4.1	51.1	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	0.3	29.2	4.1	51.1	15.1
Queue Length 50th (ft)	146	0	310	0	79	63
Queue Length 95th (ft)	253	0	382	22	144	124
Internal Link Dist (ft)		942	856		514	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	515	3223	2866	1295	515	1007
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.36	0.39	0.09	0.26	0.24

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	209	923	889	90	106	188
Future Volume (vph)	209	923	889	90	106	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1612	3223	3223	1442	1612	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1612	3223	3223	1442	1612	1442
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	265	1168	1125	114	134	238
RTOR Reduction (vph)	0	0	0	64	0	39
Lane Group Flow (vph)	265	1168	1125	50	134	199
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	24.6	97.5	43.0	43.0	14.9	43.5
Effective Green, g (s)	24.6	97.5	43.0	43.0	14.9	43.5
Actuated g/C Ratio	0.25	1.00	0.44	0.44	0.15	0.45
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	406	3223	1421	635	246	643
v/s Ratio Prot	c0.16	0.36	c0.35		c0.08	0.14
v/s Ratio Perm				0.03		
v/c Ratio	0.65	0.36	0.79	0.08	0.54	0.31
Uniform Delay, d1	32.6	0.0	23.4	15.8	38.2	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.3	3.3	0.1	2.7	0.3
Delay (s)	36.4	0.3	26.7	15.9	40.9	17.6
Level of Service	D	A	C	B	D	B
Approach Delay (s)		7.0	25.7		26.0	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	234	771	306	39	841	180	282	306	98	181	163
v/c Ratio	0.55	0.60	0.40	0.11	0.78	0.30	0.59	0.41	0.35	0.62	0.42
Control Delay	49.4	30.4	5.0	44.1	37.5	5.5	48.4	35.9	52.1	51.7	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.4	30.4	5.0	44.1	37.5	5.5	48.4	35.9	52.1	51.7	10.3
Queue Length 50th (ft)	74	232	0	11	255	0	88	87	31	110	0
Queue Length 95th (ft)	129	331	43	29	360	37	150	142	64	200	46
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	579	2323	1126	588	2323	1090	644	1348	644	716	703
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.33	0.27	0.07	0.36	0.17	0.44	0.23	0.15	0.25	0.23

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	640	254	32	698	149	234	237	17	81	150	135
Future Volume (veh/h)	194	640	254	32	698	149	234	237	17	81	150	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	234	771	306	39	841	180	282	286	20	98	181	163
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	333	1067	476	252	1130	504	389	697	48	167	266	226
Arrive On Green	0.10	0.32	0.32	0.08	0.34	0.34	0.12	0.22	0.22	0.05	0.15	0.15
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	3127	217	3209	1737	1472
Grp Volume(v), veh/h	234	771	306	39	841	180	282	150	156	98	181	163
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1694	1605	1737	1472
Q Serve(g_s), s	5.2	15.2	7.8	0.8	16.6	6.8	6.2	5.7	5.8	2.2	7.3	7.8
Cycle Q Clear(g_c), s	5.2	15.2	7.8	0.8	16.6	6.8	6.2	5.7	5.8	2.2	7.3	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	333	1067	476	252	1130	504	389	368	377	167	266	226
V/C Ratio(X)	0.70	0.72	0.64	0.16	0.74	0.36	0.72	0.41	0.41	0.59	0.68	0.72
Avail Cap(c_a), veh/h	783	3130	1396	783	3130	1396	870	917	941	870	965	818
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	22.1	7.5	31.7	21.4	18.2	31.2	24.5	24.6	34.2	29.5	29.7
Incr Delay (d2), s/veh	2.7	0.9	1.5	0.1	1.0	0.4	2.6	0.7	0.7	3.3	3.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.1	3.8	0.3	5.5	2.1	2.4	2.2	2.2	0.9	3.1	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	23.0	9.0	31.8	22.4	18.6	33.8	25.3	25.3	37.5	32.6	34.1
LnGrp LOS	C	C	A	C	C	B	C	C	C	D	C	C
Approach Vol, veh/h		1311			1060			588			442	
Approach Delay, s/veh		21.8			22.1			29.4			34.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	31.1	13.0	16.6	11.7	32.6	7.8	21.7
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	2.8	17.2	8.2	9.8	7.2	18.6	4.2	7.8
Green Ext Time (p_c), s	0.0	6.6	0.7	1.5	0.5	6.7	0.2	1.7

Intersection Summary	
HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	705	27	256	891	0	5	0	232	0	0	0
Future Vol, veh/h	1	705	27	256	891	0	5	0	232	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	1	860	33	312	1087	0	6	0	283	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1087	0	0	893	0	0	2047	2590	447	2143	2606	544
Stage 1	-	-	-	-	-	-	879	879	-	1711	1711	-
Stage 2	-	-	-	-	-	-	1168	1711	-	432	895	-
Critical Hdwy	4.32	-	-	4.32	-	-	7.72	6.72	7.12	7.72	6.72	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Follow-up Hdwy	2.31	-	-	2.31	-	-	3.61	4.11	3.41	3.61	4.11	3.41
Pot Cap-1 Maneuver	587	-	-	701	-	-	29	22	535	24	21	461
Stage 1	-	-	-	-	-	-	291	343	-	86	132	-
Stage 2	-	-	-	-	-	-	191	132	-	549	337	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	587	-	-	701	-	-	19	12	535	7	12	461
Mov Cap-2 Maneuver	-	-	-	-	-	-	19	12	-	7	12	-
Stage 1	-	-	-	-	-	-	290	342	-	86	73	-
Stage 2	-	-	-	-	-	-	106	73	-	258	336	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.2	24.2	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	19	535	587	-	-	701	-	-	-	-
HCM Lane V/C Ratio	0.321	0.529	0.002	-	-	0.445	-	-	-	-
HCM Control Delay (s)	266.9	19	11.1	-	-	14.2	-	-	0	0
HCM Lane LOS	F	C	B	-	-	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	3.1	0	-	-	2.3	-	-	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	334	596	941	17	5	172
Future Vol, veh/h	334	596	941	17	5	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	398	710	1120	20	6	205

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	1140	0	-	0	2271	560
Stage 1	-	-	-	-	1120	-
Stage 2	-	-	-	-	1151	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	565	-	-	-	31	452
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	247	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	565	-	-	-	9	452
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	247	-

Approach	EB	WB	SB
HCM Control Delay, s	9	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	565	-	-	-	68	452
HCM Lane V/C Ratio	0.704	-	-	-	0.088	0.453
HCM Control Delay (s)	25.1	-	-	-	63	19.4
HCM Lane LOS	D	-	-	-	F	C
HCM 95th %tile Q(veh)	5.6	-	-	-	0.3	2.3

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Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	550	18	2	1010	0	8	0	1	0	0	0
Future Vol, veh/h	0	550	18	2	1010	0	8	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	13	13	13	13	13	13	13	13	13	13	13	13
Mvmt Flow	0	632	21	2	1161	0	9	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1161	0	0	653	0	0	1217	1797	316	1481	1818	581
Stage 1	-	-	-	-	-	-	632	632	-	1165	1165	-
Stage 2	-	-	-	-	-	-	585	1165	-	316	653	-
Critical Hdwy	4.36	-	-	4.36	-	-	7.76	6.76	7.16	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Follow-up Hdwy	2.33	-	-	2.33	-	-	3.63	4.13	3.43	3.63	4.13	3.43
Pot Cap-1 Maneuver	539	-	-	859	-	-	125	71	648	78	68	430
Stage 1	-	-	-	-	-	-	409	446	-	189	245	-
Stage 2	-	-	-	-	-	-	438	245	-	640	436	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	539	-	-	859	-	-	125	71	648	78	68	430
Mov Cap-2 Maneuver	-	-	-	-	-	-	307	211	-	176	210	-
Stage 1	-	-	-	-	-	-	409	446	-	189	245	-
Stage 2	-	-	-	-	-	-	437	245	-	639	436	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	16.4	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	307	648	539	-	-	859	-	-	-
HCM Lane V/C Ratio	0.03	0.002	-	-	-	0.003	-	-	-
HCM Control Delay (s)	17.1	10.6	0	-	-	9.2	-	-	0
HCM Lane LOS	C	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	68.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	113	92	253	96	66	40	328	197	39	280	50
Future Vol, veh/h	87	113	92	253	96	66	40	328	197	39	280	50
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	107	140	114	312	119	81	49	405	243	48	346	62
Number of Lanes	1	1	0	1	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	2
HCM Control Delay	39.6	63.8	105.6	38.8
HCM LOS	E	F	F	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%	22%	0%
Vol Thru, %	0%	100%	0%	0%	55%	0%	59%	78%	74%
Vol Right, %	0%	0%	100%	0%	45%	0%	41%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	328	197	87	205	253	162	179	190
LT Vol	40	0	0	87	0	253	0	39	0
Through Vol	0	328	0	0	113	0	96	140	140
RT Vol	0	0	197	0	92	0	66	0	50
Lane Flow Rate	49	405	243	107	253	312	200	221	235
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.157	1.232	0.69	0.358	0.787	0.992	0.592	0.697	0.721
Departure Headway (Hd)	11.478	10.953	10.219	12.641	11.785	12.029	11.206	11.945	11.634
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	312	332	353	287	309	303	324	305	312
Service Time	9.256	8.731	7.996	10.341	9.485	9.729	8.906	9.645	9.334
HCM Lane V/C Ratio	0.157	1.22	0.688	0.373	0.819	1.03	0.617	0.725	0.753
HCM Control Delay	16.4	160	33	22.2	47	86.2	28.9	38.1	39.4
HCM Lane LOS	C	F	D	C	E	F	D	E	E
HCM 95th-tile Q	0.5	17.9	4.9	1.6	6.3	10.4	3.6	4.8	5.2

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	347	373	428	679	7	22	151	303	304	35
v/c Ratio	0.01	0.59	0.77	0.48	0.61	0.05	0.14	0.56	0.72	0.71	0.07
Control Delay	49.0	39.5	42.5	19.1	4.1	44.7	45.5	16.4	43.1	42.3	0.3
Queue Delay	0.0	0.0	0.2	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	39.5	42.7	19.6	4.5	44.7	45.5	16.4	43.1	42.3	0.3
Queue Length 50th (ft)	1	93	188	146	0	4	12	0	160	160	0
Queue Length 95th (ft)	6	155	333	296	45	18	37	51	297	297	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	104	947	677	1114	1215	374	394	449	564	574	603
Starvation Cap Reductn	0	0	37	326	161	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.37	0.58	0.54	0.64	0.02	0.06	0.34	0.54	0.53	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	267	28	317	364	577	6	19	128	429	87	30
Future Volume (veh/h)	1	267	28	317	364	577	6	19	128	429	87	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	314	33	373	428	679	7	22	151	578	0	35
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	768	80	419	881	747	210	220	186	716	0	315
Arrive On Green	0.00	0.24	0.24	0.24	0.47	0.47	0.12	0.12	0.12	0.20	0.00	0.20
Sat Flow, veh/h	1767	3216	335	1767	1856	1572	1767	1856	1569	3534	0	1553
Grp Volume(v), veh/h	1	171	176	373	428	679	7	22	151	578	0	35
Grp Sat Flow(s),veh/h/ln	1767	1763	1788	1767	1856	1572	1767	1856	1569	1767	0	1553
Q Serve(g_s), s	0.1	7.3	7.4	18.1	14.0	35.5	0.3	0.9	8.3	13.9	0.0	1.6
Cycle Q Clear(g_c), s	0.1	7.3	7.4	18.1	14.0	35.5	0.3	0.9	8.3	13.9	0.0	1.6
Prop In Lane	1.00		0.19	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	421	427	419	881	747	210	220	186	716	0	315
V/C Ratio(X)	0.41	0.41	0.41	0.89	0.49	0.91	0.03	0.10	0.81	0.81	0.00	0.11
Avail Cap(c_a), veh/h	99	456	463	646	1054	894	358	376	318	1133	0	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.3	28.5	28.6	32.8	15.9	21.6	34.7	34.9	38.2	33.8	0.0	28.9
Incr Delay (d2), s/veh	85.2	0.6	0.6	9.7	0.4	11.7	0.1	0.2	8.2	2.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.1	3.2	8.7	5.7	14.5	0.1	0.4	3.5	6.0	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	129.5	29.1	29.2	42.5	16.4	33.3	34.7	35.1	46.4	36.1	0.0	29.1
LnGrp LOS	F	C	C	D	B	C	C	D	D	D	A	C
Approach Vol, veh/h		348			1480			180			613	
Approach Delay, s/veh		29.5			30.7			44.6			35.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.6	25.7		22.5	4.6	46.7		15.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	32.5	23.0		28.5	5.0	50.5		18.0				
Max Q Clear Time (g_c+I1), s	20.1	9.4		15.9	2.1	37.5		10.3				
Green Ext Time (p_c), s	1.0	1.7		1.9	0.0	4.7		0.3				

Intersection Summary

HCM 6th Ctrl Delay			32.7									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	941	56	1293	414	251	14	273	6	9
v/c Ratio	0.41	0.52	0.33	0.72	0.45	0.71	0.03	0.46	0.02	0.02
Control Delay	49.2	16.2	48.4	20.9	7.3	44.1	27.4	7.9	27.2	0.0
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	16.5	48.4	20.9	7.3	44.1	27.4	7.9	27.2	0.0
Queue Length 50th (ft)	45	183	33	301	44	143	7	9	3	0
Queue Length 95th (ft)	85	238	67	373	91	200	19	46	12	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	240	2201	217	2193	1057	556	740	781	553	747
Starvation Cap Reductn	0	653	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.61	0.26	0.59	0.39	0.45	0.02	0.35	0.01	0.01

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	706	46	45	1034	331	201	11	218	5	0	7
Future Volume (veh/h)	61	706	46	45	1034	331	201	11	218	5	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	882	58	56	1292	0	251	14	272	6	0	9
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	102	1718	113	87	1775		427	428	362	355	0	362
Arrive On Green	0.06	0.51	0.51	0.05	0.50	0.00	0.23	0.23	0.23	0.23	0.00	0.23
Sat Flow, veh/h	1767	3356	221	1767	3526	1572	1395	1856	1572	1085	0	1572
Grp Volume(v), veh/h	76	463	477	56	1292	0	251	14	272	6	0	9
Grp Sat Flow(s),veh/h/ln	1767	1763	1814	1767	1763	1572	1395	1856	1572	1085	0	1572
Q Serve(g_s), s	2.7	11.3	11.3	2.0	18.6	0.0	11.0	0.4	10.4	0.3	0.0	0.3
Cycle Q Clear(g_c), s	2.7	11.3	11.3	2.0	18.6	0.0	11.3	0.4	10.4	0.7	0.0	0.3
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	902	929	87	1775		427	428	362	355	0	362
V/C Ratio(X)	0.75	0.51	0.51	0.65	0.73		0.59	0.03	0.75	0.02	0.00	0.02
Avail Cap(c_a), veh/h	287	1397	1438	259	2740		767	880	746	619	0	746
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	10.5	10.5	30.2	12.6	0.0	23.6	19.3	23.2	19.6	0.0	19.3
Incr Delay (d2), s/veh	10.4	0.5	0.4	7.8	0.6	0.0	1.3	0.0	3.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.8	3.9	1.0	6.3	0.0	3.5	0.2	3.8	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	10.9	10.9	38.0	13.2	0.0	24.9	19.3	26.3	19.6	0.0	19.3
LnGrp LOS	D	B	B	D	B		C	B	C	B	A	B
Approach Vol, veh/h		1016			1348	A		537			15	
Approach Delay, s/veh		13.1			14.2			25.5			19.4	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	37.6		19.4	8.2	37.1		19.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	9.5	51.3		30.7	10.5	50.3		30.7				
Max Q Clear Time (g_c+I1), s	4.0	13.3		2.7	4.7	20.6		13.3				
Green Ext Time (p_c), s	0.0	7.4		0.0	0.1	12.0		1.6				

Intersection Summary

HCM 6th Ctrl Delay			15.9									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	224	934	70	1002	450	218	56	148	640
v/c Ratio	0.61	0.67	0.47	0.82	0.76	0.26	0.12	0.63	0.91dr
Control Delay	55.4	28.0	61.4	38.4	52.9	35.7	2.4	58.7	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	28.0	61.4	38.4	52.9	35.7	2.4	58.7	38.6
Queue Length 50th (ft)	81	275	50	344	162	67	0	105	170
Queue Length 95th (ft)	113	304	89	372	202	96	2	155	203
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	417	1530	180	1479	684	958	498	318	934
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.61	0.39	0.68	0.66	0.23	0.11	0.47	0.69

Intersection Summary

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	486	261	56	714	87	360	174	45	118	175	337
Future Volume (veh/h)	179	486	261	56	714	87	360	174	45	118	175	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	224	608	0	70	892	109	450	218	56	148	219	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	1475		95	1187	145	587	591	264	190	367	
Arrive On Green	0.10	0.42	0.00	0.05	0.37	0.37	0.17	0.17	0.17	0.11	0.10	0.00
Sat Flow, veh/h	3456	3647	0	1781	3182	389	3456	3554	1585	1781	3647	0
Grp Volume(v), veh/h	224	608	0	70	498	503	450	218	56	148	219	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1795	1728	1777	1585	1781	1777	0
Q Serve(g_s), s	4.4	8.4	0.0	2.7	17.0	17.0	8.7	3.8	2.1	5.6	4.1	0.0
Cycle Q Clear(g_c), s	4.4	8.4	0.0	2.7	17.0	17.0	8.7	3.8	2.1	5.6	4.1	0.0
Prop In Lane	1.00		0.00	1.00		0.22	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	330	1475		95	662	669	587	591	264	190	367	
V/C Ratio(X)	0.68	0.41		0.74	0.75	0.75	0.77	0.37	0.21	0.78	0.60	
Avail Cap(c_a), veh/h	620	2322		269	1110	1121	1017	1403	626	473	1301	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.5	14.4	0.0	32.5	19.0	19.0	27.6	25.8	25.1	30.3	29.8	0.0
Incr Delay (d2), s/veh	2.4	0.2	0.0	10.6	1.8	1.7	2.1	0.4	0.4	6.7	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.1	0.0	1.4	6.6	6.6	3.5	1.5	0.8	2.6	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.9	14.6	0.0	43.1	20.8	20.8	29.7	26.2	25.5	37.0	31.4	0.0
LnGrp LOS	C	B		D	C	C	C	C	C	D	C	
Approach Vol, veh/h		832	A		1071			724			367	A
Approach Delay, s/veh		19.5			22.2			28.3			33.7	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	33.4	16.3	11.7	11.2	30.5	11.9	16.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	45.5	20.5	25.5	12.5	43.5	18.5	27.5
Max Q Clear Time (g_c+I1), s	4.7	10.4	10.7	6.1	6.4	19.0	7.6	5.8
Green Ext Time (p_c), s	0.1	4.7	1.2	1.1	0.4	6.9	0.3	1.4

Intersection Summary

HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	75	433	1066	515	105
v/c Ratio	0.34	0.22	0.73	0.61	0.23
Control Delay	42.5	10.1	20.8	32.4	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	10.1	20.8	32.4	8.8
Queue Length 50th (ft)	30	37	156	101	0
Queue Length 95th (ft)	103	135	411	248	43
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	294	2733	2095	1279	655
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.16	0.51	0.40	0.16

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	377	508	419	448	91
Future Volume (vph)	65	377	508	419	448	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	3245		3400	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	3245		3400	1568
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	75	433	584	482	515	105
RTOR Reduction (vph)	0	0	114	0	0	80
Lane Group Flow (vph)	75	433	952	0	515	25
Confl. Peds. (#/hr)				3		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	6.9	41.7	30.3		18.0	18.0
Effective Green, g (s)	6.9	41.7	30.3		18.0	18.0
Actuated g/C Ratio	0.09	0.55	0.40		0.24	0.24
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	158	1910	1285		800	368
v/s Ratio Prot	c0.04	0.12	c0.29			
v/s Ratio Perm					c0.15	0.02
v/c Ratio	0.47	0.23	0.74		0.64	0.07
Uniform Delay, d1	33.1	9.0	19.7		26.4	22.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.2	0.1	2.3		1.8	0.1
Delay (s)	35.3	9.1	22.1		28.1	22.8
Level of Service	D	A	C		C	C
Approach Delay (s)		13.0	22.1		27.2	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	150	254	165	54	629	262	691	196	700
v/c Ratio	0.62	0.43	0.27	0.38	0.78	0.79	0.80	0.69	0.77
Control Delay	46.4	26.5	5.5	46.8	28.2	52.0	36.6	47.1	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	26.5	5.5	46.8	28.2	52.0	36.6	47.1	25.3
Queue Length 50th (ft)	79	117	0	29	116	140	184	102	120
Queue Length 95th (ft)	128	169	34	61	154	#234	227	159	160
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	298	635	639	152	959	365	1006	343	1072
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.40	0.26	0.36	0.66	0.72	0.69	0.57	0.65

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	208	135	44	287	229	215	529	38	161	296	278
Future Volume (veh/h)	123	208	135	44	287	229	215	529	38	161	296	278
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.93	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	150	254	165	54	350	279	262	645	46	196	361	339
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	187	545	455	77	428	334	303	955	68	237	441	391
Arrive On Green	0.11	0.30	0.30	0.04	0.23	0.23	0.17	0.29	0.29	0.14	0.25	0.25
Sat Flow, veh/h	1739	1826	1526	1739	1821	1421	1739	3264	232	1739	1735	1536
Grp Volume(v), veh/h	150	254	165	54	333	296	262	342	349	196	361	339
Grp Sat Flow(s),veh/h/ln	1739	1826	1526	1739	1735	1508	1739	1735	1762	1739	1735	1536
Q Serve(g_s), s	6.6	8.9	6.7	2.4	14.3	14.7	11.5	13.7	13.7	8.6	15.4	16.6
Cycle Q Clear(g_c), s	6.6	8.9	6.7	2.4	14.3	14.7	11.5	13.7	13.7	8.6	15.4	16.6
Prop In Lane	1.00		1.00	1.00		0.94	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	187	545	455	77	408	354	303	508	516	237	441	391
V/C Ratio(X)	0.80	0.47	0.36	0.71	0.82	0.84	0.86	0.67	0.68	0.83	0.82	0.87
Avail Cap(c_a), veh/h	299	618	516	153	441	384	365	508	516	343	485	430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	22.5	21.7	37.1	28.5	28.6	31.6	24.5	24.5	33.1	27.6	28.0
Incr Delay (d2), s/veh	7.9	0.6	0.5	11.2	10.7	13.9	16.6	3.5	3.5	10.6	9.8	15.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.6	2.3	1.2	6.7	6.3	6.0	5.8	5.9	4.2	7.2	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	23.1	22.2	48.3	39.2	42.5	48.2	28.0	28.0	43.7	37.4	43.9
LnGrp LOS	D	C	C	D	D	D	D	C	C	D	D	D
Approach Vol, veh/h		569			683			953			896	
Approach Delay, s/veh		27.9			41.4			33.6			41.2	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	27.5	8.0	28.0	18.2	24.5	12.9	23.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	23.0	6.9	26.6	16.5	22.0	13.5	20.0
Max Q Clear Time (g_c+I1), s	10.6	15.7	4.4	10.9	13.5	18.6	8.6	16.7
Green Ext Time (p_c), s	0.2	2.4	0.0	1.7	0.2	1.4	0.1	1.2

Intersection Summary	
HCM 6th Ctrl Delay	36.5
HCM 6th LOS	D

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Intersection	
Int Delay, s/veh	24.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	6	39	7	15	95	32	471	3	33	381	76
Future Vol, veh/h	92	6	39	7	15	95	32	471	3	33	381	76
Conflicting Peds, #/hr	1	0	0	0	0	1	6	0	2	2	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	110	7	46	8	18	113	38	561	4	39	454	90

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1244	1181	460	1245	1269	566	550	0	0	567	0	0
Stage 1	538	538	-	641	641	-	-	-	-	-	-	-
Stage 2	706	643	-	604	628	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	151	190	601	151	168	524	1020	-	-	1005	-	-
Stage 1	527	522	-	463	469	-	-	-	-	-	-	-
Stage 2	427	468	-	485	476	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 101	174	598	127	154	523	1014	-	-	1003	-	-
Mov Cap-2 Maneuver	~ 101	174	-	127	154	-	-	-	-	-	-	-
Stage 1	504	499	-	445	451	-	-	-	-	-	-	-
Stage 2	309	450	-	424	455	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	203.9	21.9	0.5	0.6
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1014	-	-	136	350	1003	-	-
HCM Lane V/C Ratio	0.038	-	-	1.199	0.398	0.039	-	-
HCM Control Delay (s)	8.7	-	-	203.9	21.9	8.7	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	9.7	1.9	0.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	39.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	9	7	210	5	255	0	9	231	109	220	193
Future Vol, veh/h	20	9	7	210	5	255	0	9	231	109	220	193
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	11	8	247	6	300	0	11	272	128	259	227
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	12.7	63.1	19.1	31.7
HCM LOS	B	F	C	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	0%	56%	45%	70%	0%
Vol Thru, %	96%	0%	25%	1%	30%	91%
Vol Right, %	0%	100%	19%	54%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	109	36	470	317	107
LT Vol	9	0	20	210	220	0
Through Vol	231	0	9	5	97	97
RT Vol	0	109	7	255	0	10
Lane Flow Rate	282	128	42	553	372	125
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.613	0.252	0.102	0.997	0.82	0.261
Departure Headway (Hd)	7.81	7.066	8.704	6.493	7.927	7.5
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	460	505	414	558	454	476
Service Time	5.595	4.85	6.704	4.55	5.709	5.282
HCM Lane V/C Ratio	0.613	0.253	0.101	0.991	0.819	0.263
HCM Control Delay	22.3	12.2	12.7	63.1	38	12.9
HCM Lane LOS	C	B	B	F	E	B
HCM 95th-tile Q	4	1	0.3	14.2	7.7	1

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	10
Future Vol, veh/h	10
Peak Hour Factor	0.85
Heavy Vehicles, %	2
Mvmt Flow	12
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

Intersection	
Int Delay, s/veh	8.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	148	136	229	200	123	287
Future Vol, veh/h	148	136	229	200	123	287
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	172	158	266	233	143	334

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	792	143	477	0	-	0
Stage 1	143	-	-	-	-	-
Stage 2	649	-	-	-	-	-
Critical Hdwy	6.645	6.245	4.145	-	-	-
Critical Hdwy Stg 1	5.445	-	-	-	-	-
Critical Hdwy Stg 2	5.845	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	340	901	1077	-	-	-
Stage 1	881	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	256	901	1077	-	-	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	481	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.5	5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1077	-	256	901	-	-
HCM Lane V/C Ratio	0.247	-	0.672	0.176	-	-
HCM Control Delay (s)	9.4	-	43.8	9.8	-	-
HCM Lane LOS	A	-	E	A	-	-
HCM 95th %tile Q(veh)	1	-	4.3	0.6	-	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	24	1	90	9	0	0	0	0	324	15
Future Volume (Veh/h)	27	0	24	1	90	9	0	0	0	0	324	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	30	0	26	1	99	10	0	0	0	0	356	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	418	364	364	390	372	0	372			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418	364	364	390	372	0	372			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	96	100	82	99	100			100		
cM capacity (veh/h)	466	564	681	547	558	1085	1186			1623		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	56	110	372
Volume Left	30	1	0
Volume Right	26	10	16
cSH	546	614	1700
Volume to Capacity	0.10	0.18	0.22
Queue Length 95th (ft)	9	16	0
Control Delay (s)	12.3	12.4	0.0
Lane LOS	B	B	
Approach Delay (s)	12.3	12.4	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		3.8		
Intersection Capacity Utilization		34.3%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	349	1148	249	501	77	308	564	339	280
v/c Ratio	0.10	0.72	0.78	0.31	0.45	0.54	0.66	0.34	0.67	0.35
Control Delay	55.7	51.8	36.7	26.7	3.0	75.9	61.8	5.5	60.3	43.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	51.8	36.7	26.7	3.0	75.9	61.8	5.5	60.3	43.9
Queue Length 50th (ft)	17	121	418	135	13	66	138	40	147	109
Queue Length 95th (ft)	43	172	537	217	44	122	186	60	198	147
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	292	617	1713	930	1160	175	665	1828	675	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.57	0.67	0.27	0.43	0.44	0.46	0.31	0.50	0.28

Intersection Summary

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	178	115	964	209	421	65	259	474	285	197	38
Future Volume (veh/h)	18	178	115	964	209	421	65	259	474	285	197	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	212	137	1148	249	501	77	308	564	339	235	45
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	278	172	1391	753	824	99	555	1559	423	635	120
Arrive On Green	0.13	0.13	0.13	0.40	0.40	0.40	0.06	0.16	0.16	0.12	0.21	0.21
Sat Flow, veh/h	1781	2109	1304	3456	1870	1564	1781	3554	2790	3456	2983	562
Grp Volume(v), veh/h	21	177	172	1148	249	501	77	308	564	339	138	142
Grp Sat Flow(s),veh/h/ln	1781	1777	1636	1728	1870	1564	1781	1777	1395	1728	1777	1768
Q Serve(g_s), s	1.1	10.5	11.2	32.6	10.1	24.5	4.7	8.8	12.3	10.5	7.3	7.5
Cycle Q Clear(g_c), s	1.1	10.5	11.2	32.6	10.1	24.5	4.7	8.8	12.3	10.5	7.3	7.5
Prop In Lane	1.00		0.80	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	235	234	216	1391	753	824	99	555	1559	423	378	376
V/C Ratio(X)	0.09	0.76	0.80	0.83	0.33	0.61	0.78	0.55	0.36	0.80	0.37	0.38
Avail Cap(c_a), veh/h	332	331	305	1943	1051	1073	198	752	1714	766	572	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	45.9	46.1	29.3	22.6	18.2	51.1	42.7	13.4	46.8	36.8	36.9
Incr Delay (d2), s/veh	0.2	6.1	9.4	2.1	0.3	0.7	12.3	0.9	0.1	3.6	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.1	5.1	13.2	4.3	8.4	2.4	3.8	7.6	4.7	3.2	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	52.0	55.6	31.4	22.8	18.9	63.4	43.6	13.5	50.4	37.4	37.5
LnGrp LOS	D	D	E	C	C	B	E	D	B	D	D	D
Approach Vol, veh/h		370			1898			949			619	
Approach Delay, s/veh		53.1			27.0			27.3			44.5	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.1	22.9		19.0	11.9	29.1		49.5
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 24	23.2		20.4	12.2	* 35		61.6
Max Q Clear Time (g_c+I1), s	12.5	14.3		13.2	6.7	9.5		34.6
Green Ext Time (p_c), s	0.9	2.9		1.3	0.1	1.6		9.6

Intersection Summary			
HCM 6th Ctrl Delay			32.4
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	115	624	289	101	1201	676	394	299	449
v/c Ratio	0.56	0.51	0.39	0.57	0.90	0.88	0.61	0.83	0.73
Control Delay	62.9	31.0	5.0	61.0	40.9	56.7	45.4	62.4	43.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	31.0	5.0	61.0	40.9	56.7	45.4	62.4	43.9
Queue Length 50th (ft)	41	181	0	69	397	243	137	201	136
Queue Length 95th (ft)	73	255	53	126	#532	#356	183	#329	184
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	205	1246	744	219	1404	764	837	409	891
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.50	0.39	0.46	0.86	0.88	0.47	0.73	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	543	251	88	809	236	588	305	37	260	257	134
Future Volume (veh/h)	100	543	251	88	809	236	588	305	37	260	257	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	624	289	101	930	271	676	351	43	299	295	154
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	1301	580	128	1051	305	748	640	78	334	392	199
Arrive On Green	0.05	0.37	0.37	0.07	0.39	0.39	0.22	0.20	0.20	0.19	0.17	0.17
Sat Flow, veh/h	3456	3554	1585	1781	2711	788	3456	3187	387	1781	2279	1160
Grp Volume(v), veh/h	115	624	289	101	609	592	676	195	199	299	228	221
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1721	1728	1777	1797	1781	1777	1662
Q Serve(g_s), s	3.4	14.0	7.6	5.8	33.1	33.3	19.8	10.2	10.3	17.0	12.7	13.1
Cycle Q Clear(g_c), s	3.4	14.0	7.6	5.8	33.1	33.3	19.8	10.2	10.3	17.0	12.7	13.1
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.22	1.00		0.70
Lane Grp Cap(c), veh/h	174	1301	580	128	689	667	748	357	361	334	305	286
V/C Ratio(X)	0.66	0.48	0.50	0.79	0.88	0.89	0.90	0.55	0.55	0.89	0.75	0.77
Avail Cap(c_a), veh/h	217	1301	580	232	759	735	803	446	451	433	464	434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	25.3	6.9	47.4	29.6	29.6	39.6	37.2	37.3	41.1	40.8	41.0
Incr Delay (d2), s/veh	5.2	0.3	0.7	10.3	11.3	12.0	13.0	1.3	1.3	17.3	3.7	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.7	4.8	2.9	15.4	15.1	9.4	4.4	4.5	8.8	5.7	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.5	25.5	7.6	57.6	40.8	41.6	52.6	38.5	38.6	58.4	44.5	45.7
LnGrp LOS	D	C	A	E	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1028			1302			1070			748	
Approach Delay, s/veh		23.6			42.5			47.4			50.4	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	42.5	26.9	22.3	9.7	44.7	24.0	25.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	37.3	24.1	27.1	6.5	44.3	25.2	26.0
Max Q Clear Time (g_c+I1), s	7.8	16.0	21.8	15.1	5.4	35.3	19.0	12.3
Green Ext Time (p_c), s	0.1	5.0	0.7	2.0	0.0	4.9	0.5	1.8

Intersection Summary	
HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	82	1	5	768	351	33
Future Vol, veh/h	82	1	5	768	351	33
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	99	1	6	925	423	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1380	444	463	0	-	0
Stage 1	443	-	-	-	-	-
Stage 2	937	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	158	612	1093	-	-	-
Stage 1	645	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	156	611	1093	-	-	-
Mov Cap-2 Maneuver	156	-	-	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	380	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	61.3	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1093	-	157	-	-
HCM Lane V/C Ratio	0.006	-	0.637	-	-
HCM Control Delay (s)	8.3	0	61.3	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	3.5	-	-

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Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	8	14	718	311	19
Future Vol, veh/h	55	8	14	718	311	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	10	17	855	370	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1271	382	393	0	-	0
Stage 1	382	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	185	665	1166	-	-	-
Stage 1	690	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	180	665	1166	-	-	-
Mov Cap-2 Maneuver	356	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	402	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.9	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1166	-	378	-	-
HCM Lane V/C Ratio	0.014	-	0.198	-	-
HCM Control Delay (s)	8.1	0	16.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Intersection	
Intersection Delay, s/veh	56.9
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	639	84	7	272	45
Future Vol, veh/h	21	639	84	7	272	45
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	770	101	8	328	54
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	80.4	11.6	20.9
HCM LOS	F	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	3%	86%
Vol Thru, %	92%	0%	14%
Vol Right, %	8%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	91	660	317
LT Vol	0	21	272
Through Vol	84	0	45
RT Vol	7	639	0
Lane Flow Rate	110	795	382
Geometry Grp	1	1	1
Degree of Util (X)	0.2	1.087	0.652
Departure Headway (Hd)	6.877	4.921	6.514
Convergence, Y/N	Yes	Yes	Yes
Cap	525	740	558
Service Time	4.877	2.927	4.514
HCM Lane V/C Ratio	0.21	1.074	0.685
HCM Control Delay	11.6	80.4	20.9
HCM Lane LOS	B	F	C
HCM 95th-tile Q	0.7	21.7	4.7

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	277	654	2	4	7
Future Vol, veh/h	4	277	654	2	4	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	338	798	2	5	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	806	0	-	0	1153	805
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	819	-	-	-	218	382
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	715	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	814	-	-	-	214	380
Mov Cap-2 Maneuver	-	-	-	-	214	-
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	711	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	814	-	-	-	296
HCM Lane V/C Ratio	0.006	-	-	-	0.045
HCM Control Delay (s)	9.4	-	-	-	17.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	284	1	1	616	21	3	0	1	30	0	30
Future Vol, veh/h	12	284	1	1	616	21	3	0	1	30	0	30
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	338	1	1	733	25	4	0	1	36	0	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	765	0	0	339	0	0	1133	1134	339	1122	1122	753
Stage 1	-	-	-	-	-	-	367	367	-	755	755	-
Stage 2	-	-	-	-	-	-	766	767	-	367	367	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	848	-	-	1220	-	-	180	203	703	183	206	410
Stage 1	-	-	-	-	-	-	653	622	-	401	417	-
Stage 2	-	-	-	-	-	-	395	411	-	653	622	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	842	-	-	1220	-	-	162	198	703	179	201	407
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	198	-	179	201	-
Stage 1	-	-	-	-	-	-	642	611	-	392	414	-
Stage 2	-	-	-	-	-	-	360	408	-	641	611	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	23.3	25.2
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	201	842	-	-	1220	-	-	249
HCM Lane V/C Ratio	0.024	0.017	-	-	0.001	-	-	0.287
HCM Control Delay (s)	23.3	9.3	-	-	8	-	-	25.2
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	1.1

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Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	293	628	2	6	5
Future Vol, veh/h	4	293	628	2	6	5
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	362	775	2	7	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	786	0	-	0	1157	785
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	372	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	833	-	-	-	217	393
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	697	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	826	-	-	-	212	390
Mov Cap-2 Maneuver	-	-	-	-	212	-
Stage 1	-	-	-	-	442	-
Stage 2	-	-	-	-	691	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	826	-	-	-	267
HCM Lane V/C Ratio	0.006	-	-	-	0.051
HCM Control Delay (s)	9.4	-	-	-	19.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	54	260	495	42	22	135
Future Vol, veh/h	54	260	495	42	22	135
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	64	306	582	49	26	159

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	639	0	-	0	1049	615
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	434	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	950	-	-	-	253	493
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	655	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	943	-	-	-	232	489
Mov Cap-2 Maneuver	-	-	-	-	232	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	650	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	19.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	943	-	-	-	423
HCM Lane V/C Ratio	0.067	-	-	-	0.437
HCM Control Delay (s)	9.1	-	-	-	19.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	2.2

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Intersection	
Intersection Delay, s/veh	4.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	167	196	86	82
Demand Flow Rate, veh/h	168	198	87	83
Vehicles Circulating, veh/h	4	130	135	272
Vehicles Exiting, veh/h	351	92	37	56
Ped Vol Crossing Leg, #/h	0	0	0	8
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	3.6	4.4	3.6	4.2
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	168	198	87	83
Cap Entry Lane, veh/h	1374	1209	1202	1046
Entry HV Adj Factor	0.995	0.990	0.988	0.988
Flow Entry, veh/h	167	196	86	82
Cap Entry, veh/h	1367	1197	1188	1032
V/C Ratio	0.122	0.164	0.072	0.079
Control Delay, s/veh	3.6	4.4	3.6	4.2
LOS	A	A	A	A
95th %tile Queue, veh	0	1	0	0

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	213	982	1077	90	86	196
v/c Ratio	0.57	0.30	0.70	0.12	0.35	0.32
Control Delay	36.7	0.2	20.6	4.0	39.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	0.2	20.6	4.0	39.5	12.2
Queue Length 50th (ft)	93	0	212	0	38	35
Queue Length 95th (ft)	201	0	372	27	102	98
Internal Link Dist (ft)		1017	748		574	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	707	3312	3216	1441	707	1232
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.30	0.33	0.06	0.12	0.16

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	211	972	1066	89	85	194
Future Volume (vph)	211	972	1066	89	85	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	3312	3312	1482	1656	1482
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	3312	3312	1482	1656	1482
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	213	982	1077	90	86	196
RTOR Reduction (vph)	0	0	0	48	0	48
Lane Group Flow (vph)	213	982	1077	42	86	148
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	17.2	76.6	35.7	35.7	8.7	29.9
Effective Green, g (s)	17.2	76.6	35.7	35.7	8.7	29.9
Actuated g/C Ratio	0.22	1.00	0.47	0.47	0.11	0.39
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	371	3312	1543	690	188	578
v/s Ratio Prot	c0.13	0.30	c0.33		c0.05	0.10
v/s Ratio Perm				0.03		
v/c Ratio	0.57	0.30	0.70	0.06	0.46	0.26
Uniform Delay, d1	26.4	0.0	16.2	11.2	31.7	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.2	1.5	0.1	2.1	0.2
Delay (s)	28.6	0.2	17.7	11.3	33.8	16.0
Level of Service	C	A	B	B	C	B
Approach Delay (s)		5.3	17.2		21.5	
Approach LOS		A	B		C	

Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	179	811	231	49	740	115	222	246	179	281	294
v/c Ratio	0.46	0.68	0.34	0.17	0.73	0.22	0.51	0.31	0.46	0.70	0.53
Control Delay	48.2	32.6	5.2	48.5	36.7	6.7	47.2	31.0	48.2	46.8	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	32.6	5.2	48.5	36.7	6.7	47.2	31.0	48.2	46.8	9.5
Queue Length 50th (ft)	53	228	0	14	211	0	65	60	53	158	9
Queue Length 95th (ft)	112	385	56	40	360	43	134	119	112	312	90
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	627	2513	1167	627	2513	1137	696	1436	696	774	813
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.32	0.20	0.08	0.29	0.10	0.32	0.17	0.26	0.36	0.36

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	787	224	48	718	112	215	194	45	174	273	285
Future Volume (veh/h)	174	787	224	48	718	112	215	194	45	174	273	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	179	811	231	49	740	115	222	200	46	179	281	294
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	270	1098	489	111	1079	481	322	707	159	272	432	366
Arrive On Green	0.08	0.32	0.32	0.03	0.32	0.32	0.10	0.26	0.26	0.08	0.24	0.24
Sat Flow, veh/h	3319	3413	1521	3319	3413	1521	3319	2767	622	3319	1796	1522
Grp Volume(v), veh/h	179	811	231	49	740	115	222	122	124	179	281	294
Grp Sat Flow(s),veh/h/ln	1659	1706	1521	1659	1706	1521	1659	1706	1682	1659	1796	1522
Q Serve(g_s), s	4.1	16.5	6.1	1.1	14.7	4.4	5.0	4.4	4.6	4.1	11.0	14.1
Cycle Q Clear(g_c), s	4.1	16.5	6.1	1.1	14.7	4.4	5.0	4.4	4.6	4.1	11.0	14.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	270	1098	489	111	1079	481	322	436	430	272	432	366
V/C Ratio(X)	0.66	0.74	0.47	0.44	0.69	0.24	0.69	0.28	0.29	0.66	0.65	0.80
Avail Cap(c_a), veh/h	768	3070	1368	768	3070	1368	853	899	886	853	946	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	23.5	8.7	36.9	23.2	19.7	34.0	23.2	23.3	34.7	26.6	27.8
Incr Delay (d2), s/veh	2.8	1.0	0.7	1.0	0.8	0.3	2.6	0.3	0.4	2.7	1.7	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.8	3.0	0.4	5.2	1.5	2.0	1.7	1.8	1.7	4.5	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	24.5	9.4	37.9	24.0	19.9	36.7	23.6	23.7	37.4	28.2	31.9
LnGrp LOS	D	C	A	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1221			904			468			754	
Approach Delay, s/veh		23.5			24.2			29.8			31.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	32.3	11.5	24.0	10.3	31.9	10.4	25.2
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	3.1	18.5	7.0	16.1	6.1	16.7	6.1	6.6
Green Ext Time (p_c), s	0.0	6.6	0.6	2.6	0.4	5.4	0.4	1.4

Intersection Summary	
HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	935	62	293	884	0	9	0	302	0	0	0
Future Vol, veh/h	0	935	62	293	884	0	9	0	302	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	964	64	302	911	0	9	0	311	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	912	0	0	1028	0	0	2056	2512	514	1998	2544	457
Stage 1	-	-	-	-	-	-	996	996	-	1516	1516	-
Stage 2	-	-	-	-	-	-	1060	1516	-	482	1028	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.64	7.04	7.64	6.64	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4.07	3.37	3.57	4.07	3.37
Pot Cap-1 Maneuver	712	-	-	642	-	-	30	26	493	33	25	537
Stage 1	-	-	-	-	-	-	253	310	-	119	172	-
Stage 2	-	-	-	-	-	-	231	172	-	521	299	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	711	-	-	642	-	-	19	14	493	8	13	536
Mov Cap-2 Maneuver	-	-	-	-	-	-	19	14	-	8	13	-
Stage 1	-	-	-	-	-	-	253	310	-	119	91	-
Stage 2	-	-	-	-	-	-	122	91	-	192	299	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.9	32.4	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	19	493	711	-	-	642	-	-	-	-
HCM Lane V/C Ratio	0.488	0.632	-	-	-	0.471	-	-	-	-
HCM Control Delay (s)	$ 313.6	24	0	-	-	15.5	-	-	0	0
HCM Lane LOS	F	C	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	4.3	0	-	-	2.5	-	-	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	220	849	835	12	10	332
Future Vol, veh/h	220	849	835	12	10	332
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	234	903	888	13	11	353

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	901	0	-	0	1808	444
Stage 1	-	-	-	-	888	-
Stage 2	-	-	-	-	920	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	702	-	-	-	64	540
Stage 1	-	-	-	-	343	-
Stage 2	-	-	-	-	330	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	702	-	-	-	43	540
Mov Cap-2 Maneuver	-	-	-	-	181	-
Stage 1	-	-	-	-	229	-
Stage 2	-	-	-	-	330	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	23.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	702	-	-	-	181	540
HCM Lane V/C Ratio	0.333	-	-	-	0.059	0.654
HCM Control Delay (s)	12.7	-	-	-	26.1	23.4
HCM Lane LOS	B	-	-	-	D	C
HCM 95th %tile Q(veh)	1.5	-	-	-	0.2	4.7

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	894	10	1	841	0	17	0	4	0	0	1
Future Vol, veh/h	0	894	10	1	841	0	17	0	4	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	922	10	1	867	0	18	0	4	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	867	0	0	932	0	0	1358	1791	461	1330	1801	434
Stage 1	-	-	-	-	-	-	922	922	-	869	869	-
Stage 2	-	-	-	-	-	-	436	869	-	461	932	-
Critical Hdwy	4.34	-	-	4.34	-	-	7.74	6.74	7.14	7.74	6.74	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Follow-up Hdwy	2.32	-	-	2.32	-	-	3.62	4.12	3.42	3.62	4.12	3.42
Pot Cap-1 Maneuver	712	-	-	671	-	-	98	72	521	103	71	543
Stage 1	-	-	-	-	-	-	272	325	-	293	345	-
Stage 2	-	-	-	-	-	-	543	345	-	524	322	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	712	-	-	671	-	-	98	72	521	102	71	543
Mov Cap-2 Maneuver	-	-	-	-	-	-	242	234	-	255	233	-
Stage 1	-	-	-	-	-	-	272	325	-	293	345	-
Stage 2	-	-	-	-	-	-	541	345	-	520	322	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	19.3	11.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	242	521	712	-	-	671	-	-	543
HCM Lane V/C Ratio	0.072	0.008	-	-	-	0.002	-	-	0.002
HCM Control Delay (s)	21	12	0	-	-	10.4	-	-	11.6
HCM Lane LOS	C	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.2	0	0	-	-	0	-	-	0

Intersection	
Intersection Delay, s/veh	69.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	199	61	272	185	97	49	240	255	29	386	90
Future Vol, veh/h	63	199	61	272	185	97	49	240	255	29	386	90
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	68	214	66	292	199	104	53	258	274	31	415	97
Number of Lanes	1	1	0	1	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	2
HCM Control Delay	70.7	84.6	51.8	70.4
HCM LOS	F	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%	13%	0%
Vol Thru, %	0%	100%	0%	0%	77%	0%	66%	87%	68%
Vol Right, %	0%	0%	100%	0%	23%	0%	34%	0%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	240	255	63	260	272	282	222	283
LT Vol	49	0	0	63	0	272	0	29	0
Through Vol	0	240	0	0	199	0	185	193	193
RT Vol	0	0	255	0	61	0	97	0	90
Lane Flow Rate	53	258	274	68	280	292	303	239	304
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.182	0.852	0.849	0.248	0.97	1.001	0.972	0.802	0.996
Departure Headway (Hd)	12.415	11.887	11.149	13.191	12.493	12.322	11.543	12.089	11.783
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	290	307	326	272	291	295	315	301	310
Service Time	10.146	9.618	8.88	10.962	10.263	10.059	9.28	9.825	9.519
HCM Lane V/C Ratio	0.183	0.84	0.84	0.25	0.962	0.99	0.962	0.794	0.981
HCM Control Delay	17.9	56.7	53.6	20.3	82.9	89.9	79.4	50	86.4
HCM Lane LOS	C	F	F	C	F	F	F	E	F
HCM 95th-tile Q	0.7	7.4	7.5	1	9.7	10.5	10.1	6.5	10.6

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	467	255	436	562	6	39	281	329	337	91
v/c Ratio	0.14	0.65	0.68	0.54	0.57	0.03	0.21	0.69	0.72	0.72	0.17
Control Delay	51.7	38.3	44.8	24.2	4.6	43.2	44.9	15.0	40.7	40.9	2.4
Queue Delay	0.0	0.0	0.0	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	38.3	44.8	24.8	4.8	43.2	44.9	15.0	40.7	40.9	2.4
Queue Length 50th (ft)	9	121	129	156	0	3	20	0	167	172	0
Queue Length 95th (ft)	36	225	266	366	72	17	60	81	347	354	13
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	115	1055	576	1045	1114	402	422	577	671	681	698
Starvation Cap Reductn	0	0	9	287	144	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.44	0.45	0.58	0.58	0.01	0.09	0.49	0.49	0.49	0.13

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	408	31	240	410	528	6	37	264	542	84	86
Future Volume (veh/h)	15	408	31	240	410	528	6	37	264	542	84	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	16	434	33	255	436	562	6	39	281	641	0	91
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	32	849	64	294	750	620	336	353	299	772	0	342
Arrive On Green	0.02	0.25	0.25	0.16	0.40	0.40	0.19	0.19	0.19	0.21	0.00	0.21
Sat Flow, veh/h	1795	3372	255	1795	1885	1559	1795	1885	1598	3591	0	1590
Grp Volume(v), veh/h	16	230	237	255	436	562	6	39	281	641	0	91
Grp Sat Flow(s),veh/h/ln	1795	1791	1837	1795	1885	1559	1795	1885	1598	1795	0	1590
Q Serve(g_s), s	0.9	10.9	11.0	13.7	17.9	33.6	0.3	1.7	17.1	16.9	0.0	4.7
Cycle Q Clear(g_c), s	0.9	10.9	11.0	13.7	17.9	33.6	0.3	1.7	17.1	16.9	0.0	4.7
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	451	462	294	750	620	336	353	299	772	0	342
V/C Ratio(X)	0.50	0.51	0.51	0.87	0.58	0.91	0.02	0.11	0.94	0.83	0.00	0.27
Avail Cap(c_a), veh/h	96	451	462	481	872	721	336	353	299	1181	0	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.1	31.7	31.8	40.2	23.3	28.0	32.8	33.3	39.6	37.1	0.0	32.3
Incr Delay (d2), s/veh	11.3	1.0	1.0	9.0	0.7	13.9	0.0	0.1	36.3	3.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.8	5.0	6.7	7.9	14.4	0.1	0.8	9.6	7.5	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.4	32.7	32.7	49.3	24.0	41.9	32.8	33.5	75.9	40.2	0.0	32.7
LnGrp LOS	E	C	C	D	C	D	C	C	E	D	A	C
Approach Vol, veh/h		483			1253			326			732	
Approach Delay, s/veh		33.6			37.2			70.0			39.2	
Approach LOS		C			D			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.7	29.4		25.7	6.3	43.8		23.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	26.5	24.5		32.5	5.3	45.7		18.5				
Max Q Clear Time (g_c+I1), s	15.7	13.0		18.9	2.9	35.6		19.1				
Green Ext Time (p_c), s	0.5	2.2		2.4	0.0	3.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			40.9									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	89	1203	20	961	255	263	30	438	8	26
v/c Ratio	0.39	0.65	0.14	0.64	0.33	0.62	0.05	0.74	0.02	0.04
Control Delay	42.7	17.2	45.6	22.3	7.0	32.2	21.8	25.1	21.7	0.1
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	17.5	45.6	22.3	7.0	32.2	21.8	25.1	21.7	0.1
Queue Length 50th (ft)	40	172	9	192	18	109	10	123	3	0
Queue Length 95th (ft)	107	416	38	348	80	221	33	273	14	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	337	2402	148	2167	1025	789	1065	972	786	997
Starvation Cap Reductn	0	586	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.66	0.14	0.44	0.25	0.33	0.03	0.45	0.01	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	1089	30	19	894	237	245	28	407	7	0	24
Future Volume (veh/h)	83	1089	30	19	894	237	245	28	407	7	0	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	89	1171	32	20	961	0	263	30	438	8	0	26
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	116	1597	44	42	1459		545	609	516	400	0	516
Arrive On Green	0.06	0.45	0.45	0.02	0.41	0.00	0.32	0.32	0.32	0.32	0.00	0.32
Sat Flow, veh/h	1795	3558	97	1795	3582	1598	1396	1885	1598	932	0	1598
Grp Volume(v), veh/h	89	589	614	20	961	0	263	30	438	8	0	26
Grp Sat Flow(s),veh/h/ln	1795	1791	1865	1795	1791	1598	1396	1885	1598	932	0	1598
Q Serve(g_s), s	3.2	17.8	17.8	0.7	14.3	0.0	10.5	0.7	16.9	0.4	0.0	0.7
Cycle Q Clear(g_c), s	3.2	17.8	17.8	0.7	14.3	0.0	11.3	0.7	16.9	1.1	0.0	0.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	804	837	42	1459		545	609	516	400	0	516
V/C Ratio(X)	0.77	0.73	0.73	0.48	0.66		0.48	0.05	0.85	0.02	0.00	0.05
Avail Cap(c_a), veh/h	340	1317	1372	150	2255		887	1072	909	629	0	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.3	14.9	14.9	31.8	15.8	0.0	19.2	15.3	20.8	15.7	0.0	15.3
Incr Delay (d2), s/veh	10.0	1.3	1.3	8.3	0.5	0.0	0.7	0.0	4.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	6.6	6.9	0.4	5.3	0.0	3.2	0.3	6.2	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	16.2	16.2	40.1	16.3	0.0	19.9	15.4	24.8	15.7	0.0	15.4
LnGrp LOS	D	B	B	D	B		B	B	C	B	A	B
Approach Vol, veh/h		1292			981	A		731			34	
Approach Delay, s/veh		17.9			16.8			22.6			15.5	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	34.1		25.8	8.8	31.3		25.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	48.5		37.5	12.5	41.5		37.5				
Max Q Clear Time (g_c+I1), s	2.7	19.8		3.1	5.2	16.3		18.9				
Green Ext Time (p_c), s	0.0	9.8		0.1	0.1	7.6		2.5				

Intersection Summary												
HCM 6th Ctrl Delay			18.7									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	379	1182	63	690	268	218	67	60	523
v/c Ratio	0.64	0.76	0.38	0.58	0.58	0.26	0.14	0.38	0.72
Control Delay	44.3	25.3	53.8	28.0	47.7	34.7	0.6	54.4	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	25.3	53.8	28.0	47.7	34.7	0.6	54.4	26.4
Queue Length 50th (ft)	113	298	37	172	80	61	0	35	82
Queue Length 95th (ft)	192	456	94	280	148	108	0	90	158
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	850	2102	214	1709	573	1154	608	197	1055
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.56	0.29	0.40	0.47	0.19	0.11	0.30	0.50

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	360	778	345	60	587	68	255	207	64	57	210	287
Future Volume (veh/h)	360	778	345	60	587	68	255	207	64	57	210	287
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	379	819	0	63	618	72	268	218	67	60	221	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	552	1400		100	930	108	409	640	285	97	413	
Arrive On Green	0.16	0.39	0.00	0.06	0.29	0.29	0.12	0.18	0.18	0.05	0.12	0.00
Sat Flow, veh/h	3483	3676	0	1795	3227	375	3483	3582	1598	1795	3676	0
Grp Volume(v), veh/h	379	819	0	63	342	348	268	218	67	60	221	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1811	1742	1791	1598	1795	1791	0
Q Serve(g_s), s	5.8	10.1	0.0	1.9	9.4	9.5	4.1	3.0	2.0	1.8	3.3	0.0
Cycle Q Clear(g_c), s	5.8	10.1	0.0	1.9	9.4	9.5	4.1	3.0	2.0	1.8	3.3	0.0
Prop In Lane	1.00		0.00	1.00		0.21	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	552	1400		100	516	522	409	640	285	97	413	
V/C Ratio(X)	0.69	0.58		0.63	0.66	0.67	0.66	0.34	0.23	0.62	0.54	
Avail Cap(c_a), veh/h	1334	3414		336	1356	1371	900	1806	805	310	1499	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.3	13.5	0.0	25.9	17.6	17.6	23.7	20.2	19.8	26.0	23.4	0.0
Incr Delay (d2), s/veh	1.5	0.4	0.0	6.4	1.5	1.5	1.8	0.3	0.4	6.2	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.6	0.0	0.9	3.6	3.6	1.6	1.1	0.7	0.9	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	13.9	0.0	32.3	19.0	19.1	25.5	20.5	20.2	32.2	24.5	0.0
LnGrp LOS	C	B		C	B	B	C	C	C	C	C	
Approach Vol, veh/h		1198	A		753			553			281	A
Approach Delay, s/veh		17.0			20.2			22.9			26.1	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	26.4	11.1	11.0	13.4	20.7	7.5	14.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	53.5	14.5	23.5	21.5	42.5	9.7	28.3
Max Q Clear Time (g_c+I1), s	3.9	12.1	6.1	5.3	7.8	11.5	3.8	5.0
Green Ext Time (p_c), s	0.1	6.9	0.6	1.1	1.1	4.5	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	58	429	879	537	73
v/c Ratio	0.23	0.25	0.63	0.55	0.15
Control Delay	37.8	11.0	17.2	26.7	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	11.0	17.2	26.7	9.1
Queue Length 50th (ft)	19	33	100	85	0
Queue Length 95th (ft)	88	143	323	263	40
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	347	2984	2411	1843	884
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.14	0.36	0.29	0.08

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	416	451	402	521	71
Future Volume (vph)	56	416	451	402	521	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3298		3467	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3298		3467	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	429	465	414	537	73
RTOR Reduction (vph)	0	0	127	0	0	54
Lane Group Flow (vph)	58	429	752	0	537	19
Confl. Peds. (#/hr)				4		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	4.4	33.1	24.2		17.7	17.7
Effective Green, g (s)	4.4	33.1	24.2		17.7	17.7
Actuated g/C Ratio	0.07	0.49	0.36		0.26	0.26
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	117	1763	1189		914	421
v/s Ratio Prot	c0.03	0.12	c0.23			
v/s Ratio Perm					c0.15	0.01
v/c Ratio	0.50	0.24	0.63		0.59	0.05
Uniform Delay, d1	30.3	9.8	17.8		21.5	18.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.3	0.1	1.1		1.0	0.0
Delay (s)	33.6	9.9	18.9		22.5	18.5
Level of Service	C	A	B		C	B
Approach Delay (s)		12.7	18.9		22.0	
Approach LOS		B	B		C	

Intersection Summary

HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	164	329	317	113	548	202	411	210	648
v/c Ratio	0.61	0.64	0.48	0.54	0.67	0.70	0.50	0.68	0.75
Control Delay	44.2	34.6	6.1	46.3	22.9	47.7	28.9	44.7	33.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	34.6	6.1	46.3	22.9	47.7	28.9	44.7	33.0
Queue Length 50th (ft)	83	161	0	58	86	102	96	106	158
Queue Length 95th (ft)	152	259	62	116	146	#206	149	#187	229
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	339	591	711	246	1015	339	972	386	1064
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.56	0.45	0.46	0.54	0.60	0.42	0.54	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	316	304	108	295	231	194	350	44	202	489	133
Future Volume (veh/h)	157	316	304	108	295	231	194	350	44	202	489	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	164	329	317	112	307	241	202	365	46	210	509	139
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	482	402	145	422	322	250	770	96	260	686	186
Arrive On Green	0.12	0.26	0.26	0.08	0.22	0.22	0.14	0.24	0.24	0.15	0.25	0.25
Sat Flow, veh/h	1781	1870	1559	1781	1898	1447	1781	3169	396	1781	2759	749
Grp Volume(v), veh/h	164	329	317	112	287	261	202	203	208	210	327	321
Grp Sat Flow(s),veh/h/ln	1781	1870	1559	1781	1777	1569	1781	1777	1788	1781	1777	1731
Q Serve(g_s), s	5.9	10.5	12.5	4.1	9.9	10.3	7.3	6.5	6.6	7.6	11.2	11.3
Cycle Q Clear(g_c), s	5.9	10.5	12.5	4.1	9.9	10.3	7.3	6.5	6.6	7.6	11.2	11.3
Prop In Lane	1.00		1.00	1.00		0.92	1.00		0.22	1.00		0.43
Lane Grp Cap(c), veh/h	208	482	402	145	395	349	250	432	434	260	442	430
V/C Ratio(X)	0.79	0.68	0.79	0.77	0.73	0.75	0.81	0.47	0.48	0.81	0.74	0.75
Avail Cap(c_a), veh/h	390	678	565	283	537	474	390	564	567	444	617	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	22.1	22.9	29.8	23.9	24.0	27.6	21.4	21.5	27.4	22.9	22.9
Incr Delay (d2), s/veh	6.5	1.7	4.9	8.5	3.2	4.4	6.8	0.8	0.8	5.9	3.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	4.3	4.6	2.0	4.1	3.9	3.4	2.6	2.6	3.4	4.7	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.9	23.8	27.8	38.3	27.1	28.4	34.4	22.2	22.3	33.2	25.9	26.2
LnGrp LOS	C	C	C	D	C	C	C	C	C	C	C	C
Approach Vol, veh/h		810			660			613			858	
Approach Delay, s/veh		27.6			29.5			26.3			27.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	20.6	9.9	21.6	13.8	21.0	12.2	19.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	21.0	10.5	24.0	14.5	23.0	14.5	20.0
Max Q Clear Time (g_c+I1), s	9.6	8.6	6.1	14.5	9.3	13.3	7.9	12.3
Green Ext Time (p_c), s	0.3	1.8	0.1	2.1	0.2	2.7	0.2	2.0

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

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Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	100	4	13	4	1	38	20	379	10	48	488	126
Future Vol, veh/h	100	4	13	4	1	38	20	379	10	48	488	126
Conflicting Peds, #/hr	4	0	0	0	0	4	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	101	4	13	4	1	38	20	383	10	48	493	127

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1046	1027	498	1089	1149	392	625	0	0	393	0	0
Stage 1	594	594	-	428	428	-	-	-	-	-	-	-
Stage 2	452	433	-	661	721	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	207	235	574	194	199	659	961	-	-	1171	-	-
Stage 1	493	495	-	607	586	-	-	-	-	-	-	-
Stage 2	589	583	-	453	433	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	183	219	571	178	186	656	956	-	-	1171	-	-
Mov Cap-2 Maneuver	183	219	-	178	186	-	-	-	-	-	-	-
Stage 1	480	472	-	594	574	-	-	-	-	-	-	-
Stage 2	540	571	-	421	413	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	46.5	12.9	0.4	0.6
HCM LOS	E	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	956	-	-	199	501	1171	-	-
HCM Lane V/C Ratio	0.021	-	-	0.594	0.087	0.041	-	-
HCM Control Delay (s)	8.8	-	-	46.5	12.9	8.2	-	-
HCM Lane LOS	A	-	-	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.3	0.3	0.1	-	-

Intersection	
Intersection Delay, s/veh	18
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	8	2	9	135	3	162	0	11	240	209	252	239
Future Vol, veh/h	8	2	9	135	3	162	0	11	240	209	252	239
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	2	1	1	1	1	1
Mvmt Flow	9	2	10	145	3	174	0	12	258	225	271	257
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	10.7	16.8	13.9	22.8
HCM LOS	B	C	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	0%	42%	45%	68%	0%
Vol Thru, %	96%	0%	11%	1%	32%	91%
Vol Right, %	0%	100%	47%	54%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	251	209	19	300	372	132
LT Vol	11	0	8	135	252	0
Through Vol	240	0	2	3	120	120
RT Vol	0	209	9	162	0	12
Lane Flow Rate	270	225	20	323	399	141
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.49	0.362	0.042	0.555	0.746	0.248
Departure Headway (Hd)	6.531	5.794	7.342	6.19	6.723	6.312
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	548	616	491	581	535	566
Service Time	4.316	3.579	5.342	4.266	4.504	4.092
HCM Lane V/C Ratio	0.493	0.365	0.041	0.556	0.746	0.249
HCM Control Delay	15.5	11.9	10.7	16.8	26.9	11.2
HCM Lane LOS	C	B	B	C	D	B
HCM 95th-tile Q	2.7	1.6	0.1	3.4	6.4	1

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	12
Future Vol, veh/h	12
Peak Hour Factor	0.93
Heavy Vehicles, %	1
Mvmt Flow	13
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

Intersection	
Int Delay, s/veh	10.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	265	246	147	198	190	181
Future Vol, veh/h	265	246	147	198	190	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	273	254	152	204	196	187

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	602	196	383	0	-	0
Stage 1	196	-	-	-	-	-
Stage 2	406	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.115	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	449	847	1180	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	391	847	1180	-	-	-
Mov Cap-2 Maneuver	391	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.5	3.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1180	-	391	847	-	-
HCM Lane V/C Ratio	0.128	-	0.699	0.299	-	-
HCM Control Delay (s)	8.5	-	33	11.1	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.4	-	5.2	1.3	-	-

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15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	67	0	129	14	0	0	0	0	283	34
Future Volume (Veh/h)	27	0	67	0	129	14	0	0	0	0	283	34
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	32	0	80	0	154	17	0	0	0	0	337	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	442	357	357	437	377	0	377			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	442	357	357	437	377	0	377			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	88	100	72	98	100			100		
cM capacity (veh/h)	408	571	689	470	556	1088	1187			1630		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	112	171	377
Volume Left	32	0	0
Volume Right	80	17	40
cSH	576	601	1700
Volume to Capacity	0.19	0.28	0.22
Queue Length 95th (ft)	18	29	0
Control Delay (s)	12.8	13.4	0.0
Lane LOS	B	B	
Approach Delay (s)	12.8	13.4	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		5.6		
Intersection Capacity Utilization		39.4%	ICU Level of Service	A
Analysis Period (min)		15		

16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	386	651	187	411	96	354	1029	559	300
v/c Ratio	0.17	0.70	0.61	0.33	0.40	0.55	0.67	0.76	0.75	0.32
Control Delay	50.8	54.6	40.5	36.9	2.8	68.5	57.6	17.9	52.4	35.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	54.6	40.5	36.9	2.8	68.5	57.6	17.9	52.4	35.3
Queue Length 50th (ft)	34	148	223	112	5	76	145	167	221	97
Queue Length 95th (ft)	79	228	351	215	53	149	221	269	315	150
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	372	735	1232	668	1126	247	861	1488	1046	1415
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.53	0.53	0.28	0.37	0.39	0.41	0.69	0.53	0.21

Intersection Summary

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16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	281	93	631	181	399	93	343	998	542	236	55
Future Volume (veh/h)	46	281	93	631	181	399	93	343	998	542	236	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	47	290	96	651	187	411	96	354	1029	559	243	57
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	252	373	121	888	480	701	121	863	1394	656	1019	234
Arrive On Green	0.14	0.14	0.14	0.25	0.25	0.25	0.07	0.24	0.24	0.19	0.35	0.35
Sat Flow, veh/h	1795	2649	857	3483	1885	1572	1795	3582	2812	3483	2891	665
Grp Volume(v), veh/h	47	194	192	651	187	411	96	354	1029	559	149	151
Grp Sat Flow(s),veh/h/ln	1795	1791	1715	1742	1885	1572	1795	1791	1406	1742	1791	1765
Q Serve(g_s), s	2.7	12.2	12.7	20.0	9.6	23.1	6.2	9.7	28.2	18.2	6.9	7.1
Cycle Q Clear(g_c), s	2.7	12.2	12.7	20.0	9.6	23.1	6.2	9.7	28.2	18.2	6.9	7.1
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	252	252	241	888	480	701	121	863	1394	656	631	622
V/C Ratio(X)	0.19	0.77	0.80	0.73	0.39	0.59	0.79	0.41	0.74	0.85	0.24	0.24
Avail Cap(c_a), veh/h	374	374	358	1239	670	860	249	863	1394	1051	724	714
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	48.4	48.6	39.9	36.1	24.6	53.7	37.4	22.0	45.9	26.8	26.8
Incr Delay (d2), s/veh	0.4	5.6	7.4	1.4	0.5	0.8	10.9	0.3	2.1	4.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.9	6.0	8.5	4.4	8.4	3.1	4.2	15.3	8.2	3.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	54.0	56.0	41.4	36.6	25.3	64.6	37.7	24.1	49.9	27.0	27.0
LnGrp LOS	D	D	E	D	D	C	E	D	C	D	C	C
Approach Vol, veh/h		433			1249			1479			859	
Approach Delay, s/veh		53.9			35.4			30.0			41.9	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	26.7	34.0		21.1	13.7	47.0		35.2
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 35	28.2		24.4	16.2	* 47		41.6
Max Q Clear Time (g_c+I1), s	20.2	30.2		14.7	8.2	9.1		25.1
Green Ext Time (p_c), s	1.9	0.0		1.8	0.1	1.9		4.8

Intersection Summary			
HCM 6th Ctrl Delay			36.8
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

17: S. River Road & Niblick Road

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	252	833	604	101	769	415	330	163	535
v/c Ratio	0.58	0.65	0.67	0.52	0.70	0.72	0.40	0.63	0.72
Control Delay	49.8	31.8	9.8	56.4	34.1	49.6	34.6	55.1	42.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	31.8	9.8	56.4	34.1	49.6	34.6	55.1	42.4
Queue Length 50th (ft)	84	253	46	66	229	138	94	106	168
Queue Length 95th (ft)	139	364	186	132	331	215	154	191	249
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	558	1505	967	269	1440	703	1009	362	1004
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.55	0.62	0.38	0.53	0.59	0.33	0.45	0.53

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	800	580	97	613	125	398	263	54	156	392	122
Future Volume (veh/h)	242	800	580	97	613	125	398	263	54	156	392	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	252	833	604	101	639	130	415	274	56	162	408	127
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	354	1203	537	131	911	185	532	732	147	204	558	172
Arrive On Green	0.10	0.34	0.34	0.07	0.31	0.31	0.15	0.25	0.25	0.11	0.21	0.21
Sat Flow, veh/h	3483	3582	1598	1795	2964	602	3483	2970	598	1795	2693	829
Grp Volume(v), veh/h	252	833	604	101	386	383	415	164	166	162	270	265
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1775	1742	1791	1778	1795	1791	1732
Q Serve(g_s), s	5.5	15.7	15.6	4.3	14.8	14.9	8.9	5.9	6.1	6.9	11.0	11.2
Cycle Q Clear(g_c), s	5.5	15.7	15.6	4.3	14.8	14.9	8.9	5.9	6.1	6.9	11.0	11.2
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.34	1.00		0.48
Lane Grp Cap(c), veh/h	354	1203	537	131	550	546	532	441	438	204	371	359
V/C Ratio(X)	0.71	0.69	1.13	0.77	0.70	0.70	0.78	0.37	0.38	0.79	0.73	0.74
Avail Cap(c_a), veh/h	693	1861	830	334	907	900	871	632	627	449	632	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	22.4	9.2	35.5	23.8	23.8	31.8	24.4	24.4	33.7	28.9	28.9
Incr Delay (d2), s/veh	2.6	0.7	70.3	9.0	1.6	1.7	2.5	0.5	0.5	6.8	2.7	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.1	14.7	2.1	6.0	5.9	3.7	2.4	2.5	3.2	4.7	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	23.1	79.5	44.5	25.5	25.5	34.3	24.9	25.0	40.5	31.6	31.9
LnGrp LOS	D	C	F	D	C	C	C	C	C	D	C	C
Approach Vol, veh/h		1689			870			745			697	
Approach Delay, s/veh		45.3			27.7			30.1			33.8	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	30.7	16.4	20.6	12.4	28.5	13.4	23.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	40.5	19.5	27.5	15.5	39.5	19.5	27.5
Max Q Clear Time (g_c+I1), s	6.3	17.7	10.9	13.2	7.5	16.9	8.9	8.1
Green Ext Time (p_c), s	0.1	8.5	1.0	2.6	0.5	4.6	0.3	1.7

Intersection Summary	
HCM 6th Ctrl Delay	36.6
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	2	4	463	784	83
Future Vol, veh/h	44	2	4	463	784	83
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	2	4	482	817	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1351	861	904	0	-	0
Stage 1	861	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	166	355	752	-	-	-
Stage 1	414	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	165	355	751	-	-	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34.5	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	751	-	169	-	-
HCM Lane V/C Ratio	0.006	-	0.284	-	-
HCM Control Delay (s)	9.8	0	34.5	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	1.1	-	-

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Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	15	16	474	724	53
Future Vol, veh/h	35	15	16	474	724	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	16	18	521	796	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1382	825	854	0	-	0
Stage 1	825	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	158	371	781	-	-	-
Stage 1	429	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	153	371	781	-	-	-
Mov Cap-2 Maneuver	346	-	-	-	-	-
Stage 1	415	-	-	-	-	-
Stage 2	572	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.1	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	781	-	353	-	-
HCM Lane V/C Ratio	0.023	-	0.156	-	-
HCM Control Delay (s)	9.7	0	17.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Intersection Delay, s/veh	90.2
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	409	88	25	639	86
Future Vol, veh/h	9	409	88	25	639	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	445	96	27	695	93
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	21.1	11.3	142.3
HCM LOS	C	B	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	2%	88%
Vol Thru, %	78%	0%	12%
Vol Right, %	22%	98%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	113	418	725
LT Vol	0	9	639
Through Vol	88	0	86
RT Vol	25	409	0
Lane Flow Rate	123	454	788
Geometry Grp	1	1	1
Degree of Util (X)	0.21	0.687	1.244
Departure Headway (Hd)	6.536	5.983	5.682
Convergence, Y/N	Yes	Yes	Yes
Cap	553	609	646
Service Time	4.536	3.983	3.688
HCM Lane V/C Ratio	0.222	0.745	1.22
HCM Control Delay	11.3	21.1	142.3
HCM Lane LOS	B	C	F
HCM 95th-tile Q	0.8	5.4	29.4

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	657	397	5	4	9
Future Vol, veh/h	5	657	397	5	4	9
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	722	436	5	4	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	455	0	-	0	1185	453
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	732	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1111	-	-	-	210	609
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	478	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1096	-	-	-	203	601
Mov Cap-2 Maneuver	-	-	-	-	203	-
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	472	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1096	-	-	-	375
HCM Lane V/C Ratio	0.005	-	-	-	0.038
HCM Control Delay (s)	8.3	-	-	-	15
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	630	2	2	393	16	1	0	1	17	0	20
Future Vol, veh/h	22	630	2	2	393	16	1	0	1	17	0	20
Conflicting Peds, #/hr	12	0	0	0	0	12	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	663	2	2	414	17	1	0	1	18	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	443	0	0	665	0	0	1147	1157	664	1150	1150	435
Stage 1	-	-	-	-	-	-	710	710	-	439	439	-
Stage 2	-	-	-	-	-	-	437	447	-	711	711	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1112	-	-	919	-	-	175	195	459	174	197	619
Stage 1	-	-	-	-	-	-	423	435	-	595	576	-
Stage 2	-	-	-	-	-	-	596	572	-	422	435	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1099	-	-	919	-	-	166	188	459	169	190	612
Mov Cap-2 Maneuver	-	-	-	-	-	-	166	188	-	169	190	-
Stage 1	-	-	-	-	-	-	414	426	-	576	569	-
Stage 2	-	-	-	-	-	-	574	565	-	412	426	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	19.9	20
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	244	1099	-	-	919	-	-	278
HCM Lane V/C Ratio	0.009	0.021	-	-	0.002	-	-	0.14
HCM Control Delay (s)	19.9	8.3	-	-	8.9	-	-	20
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	652	383	4	4	7
Future Vol, veh/h	8	652	383	4	4	7
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	9	709	416	4	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	429	0	-	0	1154	427
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	727	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1136	-	-	-	219	630
Stage 1	-	-	-	-	660	-
Stage 2	-	-	-	-	480	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1126	-	-	-	213	625
Mov Cap-2 Maneuver	-	-	-	-	213	-
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	476	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1126	-	-	-	367
HCM Lane V/C Ratio	0.008	-	-	-	0.033
HCM Control Delay (s)	8.2	-	-	-	15.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	144	497	318	24	25	82
Future Vol, veh/h	144	497	318	24	25	82
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	158	546	349	26	27	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	377	0	-	0	1226	364
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	862	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1187	-	-	-	198	683
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	415	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1185	-	-	-	171	682
Mov Cap-2 Maneuver	-	-	-	-	171	-
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	414	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1185	-	-	-	402
HCM Lane V/C Ratio	0.134	-	-	-	0.292
HCM Control Delay (s)	8.5	-	-	-	17.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.5	-	-	-	1.2

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Intersection	
Intersection Delay, s/veh	4.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	264	113	55	40
Demand Flow Rate, veh/h	267	114	55	40
Vehicles Circulating, veh/h	14	107	203	161
Vehicles Exiting, veh/h	187	151	78	60
Ped Vol Crossing Leg, #/h	0	0	0	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.3	3.7	3.6	3.4
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	267	114	55	40
Cap Entry Lane, veh/h	1360	1237	1122	1171
Entry HV Adj Factor	0.987	0.991	0.999	0.999
Flow Entry, veh/h	264	113	55	40
Cap Entry, veh/h	1343	1226	1121	1169
V/C Ratio	0.196	0.092	0.049	0.034
Control Delay, s/veh	4.3	3.7	3.6	3.4
LOS	A	A	A	A
95th %tile Queue, veh	1	0	0	0

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Existing Plus 911-Unit Project (Mitigated)

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Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	705	27	256	891	0	0	0	237	0	0	0
Future Vol, veh/h	1	705	27	256	891	0	0	0	237	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	1	860	33	312	1087	0	0	0	289	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1087	0	0	893	0	0	-	-	447	2143	2606	544
Stage 1	-	-	-	-	-	-	-	-	-	1711	1711	-
Stage 2	-	-	-	-	-	-	-	-	-	432	895	-
Critical Hdwy	4.32	-	-	4.32	-	-	-	-	7.12	7.72	6.72	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.72	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.72	5.72	-
Follow-up Hdwy	2.31	-	-	2.31	-	-	-	-	3.41	3.61	4.11	3.41
Pot Cap-1 Maneuver	587	-	-	701	-	-	0	0	535	24	21	461
Stage 1	-	-	-	-	-	-	0	0	-	86	132	-
Stage 2	-	-	-	-	-	-	0	0	-	549	337	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	587	-	-	701	-	-	-	-	535	7	12	461
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	7	12	-
Stage 1	-	-	-	-	-	-	-	-	-	86	73	-
Stage 2	-	-	-	-	-	-	-	-	-	252	336	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.2	19.4	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	535	587	-	-	701	-	-	-	-
HCM Lane V/C Ratio	0.54	0.002	-	-	0.445	-	-	-	-
HCM Control Delay (s)	19.4	11.1	-	-	14.2	-	-	0	0
HCM Lane LOS	C	B	-	-	B	-	-	A	A
HCM 95th %tile Q(veh)	3.2	0	-	-	2.3	-	-	-	-

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	361	512	697	456
Demand Flow Rate, veh/h	371	527	717	469
Vehicles Circulating, veh/h	726	577	303	494
Vehicles Exiting, veh/h	237	443	794	610
Ped Vol Crossing Leg, #/h	0	0	3	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	15.5	18.2	15.5	12.8
Approach LOS	C	C	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	371	527	717	469
Cap Entry Lane, veh/h	658	766	1013	834
Entry HV Adj Factor	0.973	0.972	0.972	0.971
Flow Entry, veh/h	361	512	697	456
Cap Entry, veh/h	640	745	984	810
V/C Ratio	0.564	0.688	0.708	0.563
Control Delay, s/veh	15.5	18.2	15.5	12.8
LOS	C	C	C	B
95th %tile Queue, veh	4	6	6	4

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	347	373	428	679	7	22	151	303	304	35
v/c Ratio	0.01	0.35	0.86	0.42	0.46	0.07	0.20	0.28	0.70	0.69	0.07
Control Delay	41.0	29.5	41.0	13.4	4.8	42.7	45.8	7.0	40.8	40.0	0.2
Queue Delay	0.0	0.0	0.4	0.8	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	29.5	41.3	14.2	6.1	42.7	45.8	7.0	40.8	40.0	0.2
Queue Length 50th (ft)	1	97	210	195	153	4	12	9	157	157	0
Queue Length 95th (ft)	5	120	#317	294	235	17	35	43	#254	251	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	100	1089	469	1031	1465	105	111	562	449	458	540
Starvation Cap Reductn	0	0	7	327	535	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.32	0.81	0.61	0.73	0.07	0.20	0.27	0.67	0.66	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	267	28	317	364	577	6	19	128	429	87	30
Future Volume (veh/h)	1	267	28	317	364	577	6	19	128	429	87	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	314	33	373	428	679	7	22	151	578	0	35
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	1027	107	416	1027	1177	96	101	455	690	0	303
Arrive On Green	0.00	0.32	0.32	0.08	0.18	0.18	0.05	0.05	0.05	0.20	0.00	0.20
Sat Flow, veh/h	1767	3217	335	1767	1856	1572	1767	1856	1564	3534	0	1552
Grp Volume(v), veh/h	1	171	176	373	428	679	7	22	151	578	0	35
Grp Sat Flow(s),veh/h/ln	1767	1763	1790	1767	1856	1572	1767	1856	1564	1767	0	1552
Q Serve(g_s), s	0.1	6.7	6.8	19.3	18.8	21.3	0.3	1.0	5.0	14.5	0.0	1.7
Cycle Q Clear(g_c), s	0.1	6.7	6.8	19.3	18.8	21.3	0.3	1.0	5.0	14.5	0.0	1.7
Prop In Lane	1.00		0.19	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	563	572	416	1027	1177	96	101	455	690	0	303
V/C Ratio(X)	0.41	0.30	0.31	0.90	0.42	0.58	0.07	0.22	0.33	0.84	0.00	0.12
Avail Cap(c_a), veh/h	96	563	572	471	1027	1177	96	101	455	849	0	373
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.68	0.68	0.68	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.9	23.6	23.6	41.3	24.5	10.2	41.3	41.6	25.7	35.6	0.0	30.5
Incr Delay (d2), s/veh	85.3	1.4	1.4	13.4	0.2	0.5	0.3	1.1	0.4	6.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.0	3.1	10.6	9.3	15.9	0.2	0.5	2.6	6.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	131.2	25.0	25.0	54.7	24.7	10.7	41.6	42.7	26.1	41.8	0.0	30.6
LnGrp LOS	F	C	C	D	C	B	D	D	C	D	A	C
Approach Vol, veh/h		348			1480			180			613	
Approach Delay, s/veh		25.3			25.8			28.7			41.1	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.2	33.9		22.5	4.6	55.4		9.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	24.5	22.4		22.1	5.0	41.9		5.0				
Max Q Clear Time (g_c+I1), s	12.3	8.8		16.5	2.1	23.3		7.0				
Green Ext Time (p_c), s	0.4	1.7		1.2	0.0	5.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	941	56	1293	414	251	14	273	6	9
v/c Ratio	0.50	0.50	0.24	0.66	0.41	0.80	0.03	0.50	0.02	0.02
Control Delay	57.1	8.4	37.0	17.8	4.8	52.6	25.6	8.3	25.4	0.0
Queue Delay	0.0	0.1	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	57.1	8.4	37.0	17.8	4.8	53.1	25.6	8.3	25.4	0.0
Queue Length 50th (ft)	42	143	26	295	28	135	6	10	3	0
Queue Length 95th (ft)	m75	144	58	317	57	186	18	47	11	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	164	2067	242	1973	1000	369	491	601	367	574
Starvation Cap Reductn	0	155	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	60	0	12	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.49	0.23	0.68	0.41	0.70	0.03	0.45	0.02	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	706	46	45	1034	331	201	11	218	5	0	7
Future Volume (veh/h)	61	706	46	45	1034	331	201	11	218	5	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	882	58	56	1292	0	251	14	272	6	0	9
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	98	1160	76	523	2067		367	392	332	301	0	332
Arrive On Green	0.02	0.11	0.11	0.30	0.59	0.00	0.21	0.21	0.21	0.21	0.00	0.21
Sat Flow, veh/h	1767	3356	221	1767	3526	1572	1395	1856	1572	1085	0	1572
Grp Volume(v), veh/h	76	463	477	56	1292	0	251	14	272	6	0	9
Grp Sat Flow(s),veh/h/ln	1767	1763	1814	1767	1763	1572	1395	1856	1572	1085	0	1572
Q Serve(g_s), s	3.9	23.5	23.5	2.1	22.0	0.0	16.0	0.6	15.2	0.4	0.0	0.4
Cycle Q Clear(g_c), s	3.9	23.5	23.5	2.1	22.0	0.0	16.4	0.6	15.2	1.0	0.0	0.4
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	609	627	523	2067		367	392	332	301	0	332
V/C Ratio(X)	0.77	0.76	0.76	0.11	0.63		0.68	0.04	0.82	0.02	0.00	0.03
Avail Cap(c_a), veh/h	163	895	921	523	2067		443	494	419	361	0	419
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.6	37.1	37.1	23.5	12.4	0.0	35.3	28.8	34.6	29.2	0.0	28.8
Incr Delay (d2), s/veh	10.8	7.7	7.5	0.1	1.4	0.0	3.3	0.0	9.8	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	12.3	12.6	0.9	8.3	0.0	5.6	0.2	6.5	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	44.8	44.6	23.6	13.9	0.0	38.6	28.9	44.4	29.2	0.0	28.8
LnGrp LOS	E	D	D	C	B		D	C	D	C	A	C
Approach Vol, veh/h		1016			1348	A		537			15	
Approach Delay, s/veh		45.4			14.3			41.3			29.0	
Approach LOS		D			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	31.7	36.3		23.9	9.6	58.4		23.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	75.3	46.7		24.5	8.5	45.5		24.5				
Max Q Clear Time (g_c+I1), s	4.9	25.5		3.0	5.9	24.0		18.4				
Green Ext Time (p_c), s	0.0	6.3		0.0	0.0	10.3		1.0				

Intersection Summary

HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	163	139	38	565	39	454	90
v/c Ratio	0.50	0.46	0.24	0.69	0.25	0.56	0.12
Control Delay	25.2	14.2	32.3	24.6	32.4	20.1	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	14.2	32.3	24.6	32.4	20.1	3.2
Queue Length 50th (ft)	39	7	11	138	12	102	0
Queue Length 95th (ft)	98	49	41	#392	42	#269	16
Internal Link Dist (ft)	560	1033		1337		2227	
Turn Bay Length (ft)			30		70		60
Base Capacity (vph)	846	850	158	813	158	814	734
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.16	0.24	0.69	0.25	0.56	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	6	39	7	15	95	32	471	3	33	381	76
Future Volume (veh/h)	92	6	39	7	15	95	32	471	3	33	381	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	7	46	8	18	113	38	561	4	39	454	90
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	10	64	11	25	158	71	720	5	72	728	612
Arrive On Green	0.13	0.13	0.13	0.12	0.12	0.12	0.04	0.39	0.39	0.04	0.39	0.39
Sat Flow, veh/h	1158	74	484	93	210	1320	1781	1855	13	1781	1870	1573
Grp Volume(v), veh/h	163	0	0	139	0	0	38	0	565	39	454	90
Grp Sat Flow(s),veh/h/ln	1716	0	0	1624	0	0	1781	0	1868	1781	1870	1573
Q Serve(g_s), s	5.1	0.0	0.0	4.7	0.0	0.0	1.2	0.0	15.0	1.2	11.1	2.1
Cycle Q Clear(g_c), s	5.1	0.0	0.0	4.7	0.0	0.0	1.2	0.0	15.0	1.2	11.1	2.1
Prop In Lane	0.67		0.28	0.06		0.81	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	228	0	0	194	0	0	71	0	726	72	728	612
V/C Ratio(X)	0.71	0.00	0.00	0.72	0.00	0.00	0.54	0.00	0.78	0.54	0.62	0.15
Avail Cap(c_a), veh/h	820	0	0	776	0	0	158	0	726	158	728	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	0.0	0.0	24.0	0.0	0.0	26.6	0.0	15.2	26.6	13.9	11.2
Incr Delay (d2), s/veh	4.1	0.0	0.0	4.9	0.0	0.0	6.2	0.0	8.1	6.2	4.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	2.0	0.0	0.0	0.6	0.0	6.9	0.6	4.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.6	0.0	0.0	28.8	0.0	0.0	32.8	0.0	23.2	32.8	17.9	11.7
LnGrp LOS	C	A	A	C	A	A	C	A	C	C	B	B
Approach Vol, veh/h		163			139			603			583	
Approach Delay, s/veh		27.6			28.8			23.8			18.0	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	26.5		12.0	6.7	26.5		11.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	18.0		27.0	5.0	22.0		27.0
Max Q Clear Time (g_c+I1), s	3.2	17.0		7.1	3.2	13.1		6.7
Green Ext Time (p_c), s	0.0	0.4		0.8	0.0	2.0		0.8

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

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Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	43	253	300	11	272	128	259	239
v/c Ratio	0.34	0.63	0.53	0.09	0.48	0.21	0.75	0.12
Control Delay	40.5	34.2	6.9	40.4	28.3	2.4	45.7	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	34.2	6.9	40.4	28.3	2.4	45.7	11.1
Queue Length 50th (ft)	17	117	0	5	116	0	122	27
Queue Length 95th (ft)	49	176	47	22	202	12	#237	65
Internal Link Dist (ft)	284	314			712			1337
Turn Bay Length (ft)			100	150			250	
Base Capacity (vph)	128	659	737	121	563	605	401	1940
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.38	0.41	0.09	0.48	0.21	0.65	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	9	7	210	5	255	9	231	109	220	193	10
Future Volume (veh/h)	20	9	7	210	5	255	9	231	109	220	193	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85	1.00		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	11	8	247	6	300	11	272	128	259	227	12
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	17	12	461	11	397	24	525	439	301	1497	79
Arrive On Green	0.04	0.04	0.04	0.26	0.26	0.26	0.01	0.28	0.28	0.17	0.44	0.44
Sat Flow, veh/h	948	435	316	1741	42	1498	1781	1870	1565	1781	3433	180
Grp Volume(v), veh/h	43	0	0	253	0	300	11	272	128	259	117	122
Grp Sat Flow(s),veh/h/ln	1699	0	0	1783	0	1498	1781	1870	1565	1781	1777	1836
Q Serve(g_s), s	2.0	0.0	0.0	9.6	0.0	14.6	0.5	9.7	5.1	11.2	3.1	3.2
Cycle Q Clear(g_c), s	2.0	0.0	0.0	9.6	0.0	14.6	0.5	9.7	5.1	11.2	3.1	3.2
Prop In Lane	0.56		0.19	0.98		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	66	0	0	473	0	397	24	525	439	301	775	801
V/C Ratio(X)	0.65	0.00	0.00	0.54	0.00	0.76	0.46	0.52	0.29	0.86	0.15	0.15
Avail Cap(c_a), veh/h	107	0	0	609	0	512	113	525	439	372	775	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	0.0	0.0	24.9	0.0	26.7	38.7	23.9	22.3	31.9	13.5	13.5
Incr Delay (d2), s/veh	10.5	0.0	0.0	0.9	0.0	4.7	12.8	3.6	1.7	15.4	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	4.1	0.0	5.6	0.3	4.4	1.9	5.9	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	0.0	0.0	25.8	0.0	31.4	51.5	27.6	24.0	47.4	13.9	13.9
LnGrp LOS	D	A	A	C	A	C	D	C	C	D	B	B
Approach Vol, veh/h		43			553			411			498	
Approach Delay, s/veh		48.0			28.9			27.1			31.3	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.9	28.2		7.6	5.6	40.5		25.5
Change Period (Y+Rc), s	4.5	6.0		4.5	4.5	* 6		4.5
Max Green Setting (Gmax), s	16.5	22.0		5.0	5.0	* 35		27.0
Max Q Clear Time (g_c+I1), s	13.2	11.7		4.0	2.5	5.2		16.6
Green Ext Time (p_c), s	0.2	1.3		0.0	0.0	1.3		2.1

Intersection Summary

HCM 6th Ctrl Delay	29.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	115	624	289	101	930	271	676	394	251	497
v/c Ratio	0.70	0.73	0.33	0.60	0.91	0.42	0.84	0.38	0.78	0.68
Control Delay	73.9	43.6	2.8	62.4	50.4	5.9	49.3	31.7	57.4	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.9	43.6	2.8	62.4	50.4	5.9	49.3	31.7	57.4	36.3
Queue Length 50th (ft)	42	216	9	69	332	0	230	112	185	150
Queue Length 95th (ft)	#82	271	33	122	#423	54	286	161	259	200
Internal Link Dist (ft)		1510			1609			962		896
Turn Bay Length (ft)	140			80			150		110	
Base Capacity (vph)	164	860	917	191	1060	652	886	1027	415	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.73	0.32	0.53	0.88	0.42	0.76	0.38	0.60	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	543	251	88	809	236	588	305	37	260	257	134
Future Volume (veh/h)	100	543	251	88	809	236	588	305	37	260	257	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	624	289	101	930	271	676	351	43	249	365	154
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	1052	835	129	1121	495	796	836	102	294	494	205
Arrive On Green	0.05	0.30	0.30	0.07	0.32	0.32	0.23	0.26	0.26	0.16	0.20	0.20
Sat Flow, veh/h	3456	3554	1585	1781	3554	1570	3456	3187	387	1781	2511	1042
Grp Volume(v), veh/h	115	624	289	101	930	271	676	194	200	249	270	249
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1570	1728	1777	1798	1781	1870	1683
Q Serve(g_s), s	2.9	13.2	2.4	4.9	21.4	12.6	16.5	8.0	8.1	12.0	12.0	12.3
Cycle Q Clear(g_c), s	2.9	13.2	2.4	4.9	21.4	12.6	16.5	8.0	8.1	12.0	12.0	12.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.62
Lane Grp Cap(c), veh/h	184	1052	835	129	1121	495	796	466	472	294	368	331
V/C Ratio(X)	0.62	0.59	0.35	0.78	0.83	0.55	0.85	0.42	0.42	0.85	0.73	0.75
Avail Cap(c_a), veh/h	200	1052	835	232	1286	568	1078	554	561	556	583	525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	26.5	4.1	40.2	28.0	25.0	32.5	26.9	27.0	35.7	33.3	33.4
Incr Delay (d2), s/veh	5.3	0.9	0.2	9.7	4.2	0.9	4.9	0.6	0.6	6.7	2.9	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	5.4	1.0	2.4	9.1	4.5	7.1	3.3	3.4	5.5	5.5	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.1	27.4	4.4	49.9	32.2	25.9	37.4	27.5	27.6	42.5	36.1	36.8
LnGrp LOS	D	C	A	D	C	C	D	C	C	D	D	D
Approach Vol, veh/h		1028			1302			1070			768	
Approach Delay, s/veh		23.0			32.3			33.8			38.4	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	30.6	24.8	21.8	9.2	32.3	19.0	27.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.5	25.5	27.5	27.5	5.1	31.9	27.5	27.5
Max Q Clear Time (g_c+I1), s	6.9	15.2	18.5	14.3	4.9	23.4	14.0	10.1
Green Ext Time (p_c), s	0.1	3.6	1.8	2.4	0.0	4.4	0.6	1.9

Intersection Summary

HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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Intersection	
Intersection Delay, s/veh	5.4
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	795	109	382
Demand Flow Rate, veh/h	811	111	390
Vehicles Circulating, veh/h	103	335	25
Vehicles Exiting, veh/h	343	80	888
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	11.6	4.8	5.3
Approach LOS	B	A	A

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	811	111	390
Cap Entry Lane, veh/h	1242	981	1345
Entry HV Adj Factor	0.980	0.982	0.979
Flow Entry, veh/h	795	109	382
Cap Entry, veh/h	1218	963	1317
V/C Ratio	0.653	0.113	0.290
Control Delay, s/veh	11.6	4.8	5.3
LOS	B	A	A
95th %tile Queue, veh	5	0	1

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Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	935	62	293	884	0	0	0	302	0	0	0
Future Vol, veh/h	0	935	62	293	884	0	0	0	302	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	964	64	302	911	0	0	0	311	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	912	0	0	1028	0	0	-	-	514	1998	2544	457
Stage 1	-	-	-	-	-	-	-	-	-	1516	1516	-
Stage 2	-	-	-	-	-	-	-	-	-	482	1028	-
Critical Hdwy	4.24	-	-	4.24	-	-	-	-	7.04	7.64	6.64	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.64	5.64	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.64	5.64	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	-	-	3.37	3.57	4.07	3.37
Pot Cap-1 Maneuver	712	-	-	642	-	-	0	0	493	33	25	537
Stage 1	-	-	-	-	-	-	0	0	-	119	172	-
Stage 2	-	-	-	-	-	-	0	0	-	521	299	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	711	-	-	642	-	-	-	-	493	8	13	536
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	8	13	-
Stage 1	-	-	-	-	-	-	-	-	-	119	91	-
Stage 2	-	-	-	-	-	-	-	-	-	192	299	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.9	24	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	493	711	-	-	642	-	-	-	-
HCM Lane V/C Ratio	0.632	-	-	-	0.471	-	-	-	-
HCM Control Delay (s)	24	0	-	-	15.5	-	-	0	0
HCM Lane LOS	C	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	4.3	0	-	-	2.5	-	-	-	-

Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	348	595	585	543
Demand Flow Rate, veh/h	352	601	592	548
Vehicles Circulating, veh/h	745	384	316	550
Vehicles Exiting, veh/h	353	524	781	435
Ped Vol Crossing Leg, #/h	1	1	1	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.9	13.9	11.7	17.9
Approach LOS	B	B	B	C

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	352	601	592	548
Cap Entry Lane, veh/h	645	933	1000	787
Entry HV Adj Factor	0.988	0.990	0.989	0.991
Flow Entry, veh/h	348	595	585	543
Cap Entry, veh/h	638	923	988	780
V/C Ratio	0.545	0.644	0.592	0.696
Control Delay, s/veh	14.9	13.9	11.7	17.9
LOS	B	B	B	C
95th %tile Queue, veh	3	5	4	6

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	467	255	436	562	6	39	281	329	337	91
v/c Ratio	0.15	0.41	0.75	0.43	0.41	0.05	0.32	0.61	0.72	0.73	0.17
Control Delay	43.7	27.4	39.7	9.8	1.6	41.2	48.0	16.6	39.9	40.1	0.7
Queue Delay	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	43.7	27.4	39.7	10.0	1.7	41.2	48.0	16.7	39.9	40.1	0.7
Queue Length 50th (ft)	9	126	144	99	0	3	21	37	166	171	0
Queue Length 95th (ft)	29	166	225	113	0	16	54	94	#283	#289	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	107	1233	380	1021	1392	115	121	496	484	492	575
Starvation Cap Reductn	0	0	0	130	149	0	0	0	0	0	0
Spillback Cap Reductn	0	11	0	0	0	0	0	14	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.38	0.67	0.49	0.45	0.05	0.32	0.58	0.68	0.68	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	408	31	240	410	528	6	37	264	542	84	86
Future Volume (veh/h)	15	408	31	240	410	528	6	37	264	542	84	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	16	434	33	255	436	562	6	39	281	641	0	91
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	33	588	45	641	967	1141	100	105	659	765	0	339
Arrive On Green	0.02	0.17	0.17	0.12	0.17	0.17	0.06	0.06	0.06	0.21	0.00	0.21
Sat Flow, veh/h	1795	3371	255	1795	1885	1560	1795	1885	1598	3591	0	1590
Grp Volume(v), veh/h	16	230	237	255	436	562	6	39	281	641	0	91
Grp Sat Flow(s),veh/h/ln	1795	1791	1836	1795	1885	1560	1795	1885	1598	1795	0	1590
Q Serve(g_s), s	0.8	10.9	11.0	11.8	18.7	17.2	0.3	1.8	0.0	15.4	0.0	4.3
Cycle Q Clear(g_c), s	0.8	10.9	11.0	11.8	18.7	17.2	0.3	1.8	0.0	15.4	0.0	4.3
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	33	312	320	641	967	1141	100	105	659	765	0	339
V/C Ratio(X)	0.49	0.74	0.74	0.40	0.45	0.49	0.06	0.37	0.43	0.84	0.00	0.27
Avail Cap(c_a), veh/h	100	478	490	641	967	1141	100	105	659	978	0	433
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.80	0.80	0.80	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.8	35.2	35.2	30.8	26.0	9.8	40.3	41.0	18.9	33.9	0.0	29.6
Incr Delay (d2), s/veh	10.7	14.3	14.3	0.3	0.3	0.3	0.2	2.2	0.4	5.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	6.0	6.2	5.7	9.4	12.7	0.1	0.9	4.0	7.0	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	49.5	49.5	31.1	26.2	10.0	40.5	43.2	19.3	39.1	0.0	30.0
LnGrp LOS	D	D	D	C	C	B	D	D	B	D	A	C
Approach Vol, veh/h		483			1253			326			732	
Approach Delay, s/veh		49.7			20.0			22.5			38.0	
Approach LOS		D			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	36.6	20.2		23.7	6.1	50.7		9.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	18.5	24.0		24.5	5.0	37.5		5.0
Max Q Clear Time (g_c+I1), s	13.8	13.0		17.4	2.8	20.7		3.8
Green Ext Time (p_c), s	0.3	2.2		1.7	0.0	4.8		0.2

Intersection Summary

HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	89	1203	20	961	255	263	30	438	8	26
v/c Ratio	0.50	0.56	0.18	0.52	0.28	0.73	0.06	0.82	0.02	0.04
Control Delay	42.0	10.2	44.3	18.2	4.1	42.3	22.5	32.3	21.4	0.1
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	10.6	44.3	18.2	4.1	42.3	22.5	32.3	21.4	0.1
Queue Length 50th (ft)	43	202	11	198	7	135	13	149	3	0
Queue Length 95th (ft)	m77	300	34	294	53	204	31	246	13	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	203	2134	110	1842	918	456	616	633	454	722
Starvation Cap Reductn	0	398	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	15	0	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.69	0.18	0.53	0.28	0.58	0.05	0.69	0.02	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	1089	30	19	894	237	245	28	407	7	0	24
Future Volume (veh/h)	83	1089	30	19	894	237	245	28	407	7	0	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	89	1171	32	20	961	0	263	30	438	8	0	26
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	115	1400	38	284	1746		481	563	477	348	0	477
Arrive On Green	0.06	0.39	0.39	0.16	0.49	0.00	0.30	0.30	0.30	0.30	0.00	0.30
Sat Flow, veh/h	1795	3558	97	1795	3582	1598	1396	1885	1598	932	0	1598
Grp Volume(v), veh/h	89	589	614	20	961	0	263	30	438	8	0	26
Grp Sat Flow(s),veh/h/ln	1795	1791	1864	1795	1791	1598	1396	1885	1598	932	0	1598
Q Serve(g_s), s	4.4	26.8	26.8	0.9	16.9	0.0	14.9	1.0	23.8	0.6	0.0	1.0
Cycle Q Clear(g_c), s	4.4	26.8	26.8	0.9	16.9	0.0	15.9	1.0	23.8	1.6	0.0	1.0
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	704	733	284	1746		481	563	477	348	0	477
V/C Ratio(X)	0.78	0.84	0.84	0.07	0.55		0.55	0.05	0.92	0.02	0.00	0.05
Avail Cap(c_a), veh/h	201	834	868	284	1746		521	618	524	375	0	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	24.7	24.7	32.3	16.2	0.0	28.2	22.5	30.5	23.1	0.0	22.5
Incr Delay (d2), s/veh	8.7	9.4	9.1	0.1	1.3	0.0	1.0	0.0	20.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	12.6	13.1	0.4	6.8	0.0	4.9	0.4	11.4	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.2	34.1	33.8	32.4	17.4	0.0	29.2	22.5	50.7	23.1	0.0	22.5
LnGrp LOS	D	C	C	C	B		C	C	D	C	A	C
Approach Vol, veh/h		1292			981	A		731			34	
Approach Delay, s/veh		35.0			17.7			41.8			22.7	
Approach LOS		D			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.7	39.9		31.4	10.3	48.4		31.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	41.9		29.5	10.1	36.9		29.5				
Max Q Clear Time (g_c+I1), s	2.9	28.8		3.6	6.4	18.9		25.8				
Green Ext Time (p_c), s	0.0	6.6		0.1	0.1	6.6		1.0				

Intersection Summary

HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	118	43	20	393	48	493	127
v/c Ratio	0.39	0.20	0.12	0.39	0.29	0.44	0.13
Control Delay	26.6	14.5	30.7	15.8	33.5	13.2	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	14.5	30.7	15.8	33.5	13.2	4.1
Queue Length 50th (ft)	35	2	6	114	16	108	2
Queue Length 95th (ft)	90	29	29	217	53	286	35
Internal Link Dist (ft)	560	1033		1337		2227	
Turn Bay Length (ft)			30		70		60
Base Capacity (vph)	880	823	163	1094	163	1128	974
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.05	0.12	0.36	0.29	0.44	0.13

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	4	13	4	1	38	20	379	10	48	488	126
Future Volume (veh/h)	100	4	13	4	1	38	20	379	10	48	488	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	101	4	13	4	1	38	20	383	10	48	493	127
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	161	6	21	9	2	86	44	607	16	92	675	568
Arrive On Green	0.11	0.11	0.11	0.06	0.06	0.06	0.02	0.33	0.33	0.05	0.36	0.36
Sat Flow, veh/h	1514	60	195	149	37	1419	1795	1828	48	1795	1885	1586
Grp Volume(v), veh/h	118	0	0	43	0	0	20	0	393	48	493	127
Grp Sat Flow(s),veh/h/ln	1769	0	0	1605	0	0	1795	0	1876	1795	1885	1586
Q Serve(g_s), s	2.7	0.0	0.0	1.1	0.0	0.0	0.5	0.0	7.5	1.1	9.6	2.4
Cycle Q Clear(g_c), s	2.7	0.0	0.0	1.1	0.0	0.0	0.5	0.0	7.5	1.1	9.6	2.4
Prop In Lane	0.86		0.11	0.09		0.88	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	189	0	0	98	0	0	44	0	622	92	675	568
V/C Ratio(X)	0.63	0.00	0.00	0.44	0.00	0.00	0.45	0.00	0.63	0.52	0.73	0.22
Avail Cap(c_a), veh/h	1131	0	0	1026	0	0	213	0	1199	213	1205	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	0.0	19.1	0.0	0.0	20.3	0.0	11.9	19.5	11.8	9.5
Incr Delay (d2), s/veh	3.4	0.0	0.0	3.1	0.0	0.0	7.0	0.0	1.1	4.6	1.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.5	0.0	0.0	0.3	0.0	2.5	0.5	3.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	0.0	22.2	0.0	0.0	27.3	0.0	13.0	24.1	13.3	9.7
LnGrp LOS	C	A	A	C	A	A	C	A	B	C	B	A
Approach Vol, veh/h		118			43			413			668	
Approach Delay, s/veh		21.4			22.2			13.7			13.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	19.0		9.0	6.0	20.1		7.1				
Change Period (Y+Rc), s	5.0	5.0		4.5	5.0	5.0		4.5				
Max Green Setting (Gmax), s	5.0	27.0		27.0	5.0	27.0		27.0				
Max Q Clear Time (g_c+I1), s	3.1	9.5		4.7	2.5	11.6		3.1				
Green Ext Time (p_c), s	0.0	2.1		0.6	0.0	3.1		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	14.6
HCM 6th LOS	B

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Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	148	174	12	258	225	271	270
v/c Ratio	0.12	0.44	0.38	0.07	0.57	0.41	0.61	0.13
Control Delay	26.1	28.8	6.0	33.2	26.9	6.1	30.2	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	28.8	6.0	33.2	26.9	6.1	30.2	8.2
Queue Length 50th (ft)	3	41	0	4	71	0	70	14
Queue Length 95th (ft)	27	117	37	22	178	50	#236	64
Internal Link Dist (ft)	284	314			712			1337
Turn Bay Length (ft)			100	150			250	
Base Capacity (vph)	169	890	875	164	761	781	542	2303
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.17	0.20	0.07	0.34	0.29	0.50	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	9	135	3	162	11	240	209	252	239	12
Future Volume (veh/h)	8	2	9	135	3	162	11	240	209	252	239	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	9	2	10	145	3	174	12	258	225	271	257	13
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	18	4	20	311	6	279	28	406	342	340	1349	68
Arrive On Green	0.03	0.03	0.03	0.18	0.18	0.18	0.02	0.22	0.22	0.19	0.39	0.39
Sat Flow, veh/h	726	161	807	1761	36	1584	1795	1885	1586	1795	3465	174
Grp Volume(v), veh/h	21	0	0	148	0	174	12	258	225	271	132	138
Grp Sat Flow(s),veh/h/ln	1695	0	0	1797	0	1584	1795	1885	1586	1795	1791	1848
Q Serve(g_s), s	0.6	0.0	0.0	3.7	0.0	5.0	0.3	6.2	6.4	7.1	2.4	2.4
Cycle Q Clear(g_c), s	0.6	0.0	0.0	3.7	0.0	5.0	0.3	6.2	6.4	7.1	2.4	2.4
Prop In Lane	0.43		0.48	0.98		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	43	0	0	317	0	279	28	406	342	340	697	719
V/C Ratio(X)	0.49	0.00	0.00	0.47	0.00	0.62	0.44	0.64	0.66	0.80	0.19	0.19
Avail Cap(c_a), veh/h	171	0	0	980	0	863	181	837	705	598	1247	1287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.8	0.0	0.0	18.3	0.0	18.9	24.2	17.7	17.8	19.2	10.0	10.0
Incr Delay (d2), s/veh	8.4	0.0	0.0	1.1	0.0	2.3	10.4	1.7	2.2	4.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.5	0.0	1.9	0.2	2.3	2.1	3.0	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	0.0	0.0	19.4	0.0	21.1	34.6	19.3	19.9	23.5	10.1	10.1
LnGrp LOS	C	A	A	B	A	C	C	B	B	C	B	B
Approach Vol, veh/h		21			322			495			541	
Approach Delay, s/veh		32.2			20.3			20.0			16.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.9	16.7		5.8	5.3	25.3		13.2
Change Period (Y+Rc), s	4.5	6.0		4.5	4.5	* 6		4.5
Max Green Setting (Gmax), s	16.5	22.0		5.0	5.0	* 35		27.0
Max Q Clear Time (g_c+I1), s	9.1	8.4		2.6	2.3	4.4		7.0
Green Ext Time (p_c), s	0.5	1.8		0.0	0.0	1.5		1.4

Intersection Summary

HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	252	833	604	101	639	130	415	330	163	535
v/c Ratio	0.74	0.72	0.68	0.61	0.64	0.23	0.77	0.38	0.66	0.65
Control Delay	50.8	29.0	13.3	54.9	28.0	2.4	44.6	24.2	47.9	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	29.0	13.3	54.9	28.0	2.4	44.6	24.2	47.9	28.9
Queue Length 50th (ft)	64	192	84	49	138	0	104	67	77	117
Queue Length 95th (ft)	#142	302	224	#137	224	18	#206	104	#180	168
Internal Link Dist (ft)		1510			1609			962		896
Turn Bay Length (ft)	140			80			150		110	
Base Capacity (vph)	342	1224	864	167	1205	652	543	1270	273	1251
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.68	0.70	0.60	0.53	0.20	0.76	0.26	0.60	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	800	580	97	613	125	398	263	54	156	392	122
Future Volume (veh/h)	242	800	580	97	613	125	398	263	54	156	392	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	252	833	604	101	639	130	415	274	56	162	408	127
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	344	1112	732	130	1018	453	515	737	148	203	575	177
Arrive On Green	0.10	0.31	0.31	0.07	0.28	0.28	0.15	0.25	0.25	0.11	0.21	0.21
Sat Flow, veh/h	3483	3582	1598	1795	3582	1594	3483	2970	598	1795	2693	829
Grp Volume(v), veh/h	252	833	604	101	639	130	415	164	166	162	270	265
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1594	1742	1791	1778	1795	1791	1732
Q Serve(g_s), s	4.9	14.7	7.3	3.9	10.9	4.5	8.1	5.3	5.5	6.2	9.8	10.0
Cycle Q Clear(g_c), s	4.9	14.7	7.3	3.9	10.9	4.5	8.1	5.3	5.5	6.2	9.8	10.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		0.48
Lane Grp Cap(c), veh/h	344	1112	732	130	1018	453	515	445	441	203	382	370
V/C Ratio(X)	0.73	0.75	0.82	0.78	0.63	0.29	0.81	0.37	0.38	0.80	0.71	0.72
Avail Cap(c_a), veh/h	371	1323	826	181	1303	580	589	695	689	296	687	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	21.8	5.9	32.1	21.9	19.6	29.0	21.9	21.9	30.4	25.6	25.7
Incr Delay (d2), s/veh	6.8	2.0	6.2	13.1	0.6	0.3	7.2	0.5	0.5	9.2	2.4	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	5.8	3.3	2.1	4.2	1.5	3.6	2.1	2.2	3.0	4.1	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	23.8	12.1	45.2	22.6	20.0	36.2	22.4	22.5	39.6	28.0	28.3
LnGrp LOS	D	C	B	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1689			870			745			697	
Approach Delay, s/veh		21.7			24.8			30.1			30.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	26.4	14.9	19.5	11.4	24.5	12.5	22.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.1	26.0	11.9	27.0	7.5	25.6	11.6	27.3
Max Q Clear Time (g_c+I1), s	5.9	16.7	10.1	12.0	6.9	12.9	8.2	7.5
Green Ext Time (p_c), s	0.0	5.1	0.3	2.7	0.1	3.7	0.1	1.7

Intersection Summary

HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

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Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	455	123	788
Demand Flow Rate, veh/h	459	124	796
Vehicles Circulating, veh/h	97	702	10
Vehicles Exiting, veh/h	729	104	546
Ped Vol Crossing Leg, #/h	0	0	1
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.4	7.5	9.2
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	459	124	796
Cap Entry Lane, veh/h	1250	674	1366
Entry HV Adj Factor	0.991	0.992	0.990
Flow Entry, veh/h	455	123	788
Cap Entry, veh/h	1239	669	1352
V/C Ratio	0.367	0.184	0.583
Control Delay, s/veh	6.4	7.5	9.2
LOS	A	A	A
95th %tile Queue, veh	2	1	4

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Near Term

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	252	1227	1280	126	159	263
v/c Ratio	0.71	0.38	0.83	0.17	0.62	0.42
Control Delay	55.6	0.3	31.4	3.6	58.3	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	0.3	31.4	3.6	58.3	22.3
Queue Length 50th (ft)	164	0	404	0	107	103
Queue Length 95th (ft)	#354	0	606	33	219	225
Internal Link Dist (ft)		942	856		514	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	459	3223	2628	1199	459	895
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.38	0.49	0.11	0.35	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	232	1129	1178	116	146	242
Future Volume (vph)	232	1129	1178	116	146	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1612	3223	3223	1442	1612	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1612	3223	3223	1442	1612	1442
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	252	1227	1280	126	159	263
RTOR Reduction (vph)	0	0	0	66	0	27
Lane Group Flow (vph)	252	1227	1280	60	159	236
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	24.6	110.4	53.0	53.0	17.8	46.4
Effective Green, g (s)	24.6	110.4	53.0	53.0	17.8	46.4
Actuated g/C Ratio	0.22	1.00	0.48	0.48	0.16	0.42
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	359	3223	1547	692	259	606
v/s Ratio Prot	c0.16	0.38	c0.40		c0.10	0.16
v/s Ratio Perm				0.04		
v/c Ratio	0.70	0.38	0.83	0.09	0.61	0.39
Uniform Delay, d1	39.5	0.0	24.8	15.6	43.1	22.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.1	0.3	4.0	0.1	4.5	0.4
Delay (s)	45.6	0.3	28.7	15.7	47.6	22.6
Level of Service	D	A	C	B	D	C
Approach Delay (s)		8.1	27.6		32.0	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	227	850	309	39	959	186	296	310	93	179	151
v/c Ratio	0.57	0.63	0.39	0.11	0.82	0.29	0.62	0.41	0.35	0.63	0.41
Control Delay	54.5	31.9	4.8	47.4	39.2	5.0	53.0	38.8	57.1	56.4	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	31.9	4.8	47.4	39.2	5.0	53.0	38.8	57.1	56.4	10.9
Queue Length 50th (ft)	79	283	0	12	320	0	102	96	32	120	0
Queue Length 95th (ft)	147	426	63	34	481	49	185	170	72	230	61
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	537	2153	1067	559	2153	1026	596	1249	596	663	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.39	0.29	0.07	0.45	0.18	0.50	0.25	0.16	0.27	0.23

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	782	284	36	882	171	272	267	18	86	165	139
Future Volume (veh/h)	209	782	284	36	882	171	272	267	18	86	165	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	227	850	309	39	959	186	296	290	20	93	179	151
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	318	1138	508	293	1249	557	396	677	46	157	247	209
Arrive On Green	0.10	0.34	0.34	0.09	0.38	0.38	0.12	0.22	0.22	0.05	0.14	0.14
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	3131	215	3209	1737	1472
Grp Volume(v), veh/h	227	850	309	39	959	186	296	152	158	93	179	151
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1695	1605	1737	1472
Q Serve(g_s), s	5.5	18.2	8.3	0.9	20.4	7.2	7.1	6.4	6.4	2.3	7.9	7.9
Cycle Q Clear(g_c), s	5.5	18.2	8.3	0.9	20.4	7.2	7.1	6.4	6.4	2.3	7.9	7.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	318	1138	508	293	1249	557	396	357	367	157	247	209
V/C Ratio(X)	0.71	0.75	0.61	0.13	0.77	0.33	0.75	0.43	0.43	0.59	0.73	0.72
Avail Cap(c_a), veh/h	721	2885	1287	721	2885	1287	802	845	868	802	889	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	23.1	7.7	33.5	21.8	17.7	33.9	27.1	27.1	37.3	32.9	32.8
Incr Delay (d2), s/veh	3.0	1.0	1.2	0.1	1.0	0.3	2.9	0.8	0.8	3.6	4.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.2	4.1	0.3	6.8	2.3	2.8	2.4	2.5	0.9	3.4	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	24.1	8.9	33.5	22.8	18.1	36.8	27.9	27.9	40.9	36.9	37.5
LnGrp LOS	D	C	A	C	C	B	D	C	C	D	D	D
Approach Vol, veh/h		1386			1184			606			423	
Approach Delay, s/veh		23.0			22.4			32.2			38.0	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	34.9	13.9	16.7	11.9	37.6	7.9	22.6
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	2.9	20.2	9.1	9.9	7.5	22.4	4.3	8.4
Green Ext Time (p_c), s	0.0	7.4	0.7	1.5	0.5	7.9	0.2	1.7

Intersection Summary

HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	839	46	279	1080	0	9	0	253	0	0	0
Future Vol, veh/h	1	839	46	279	1080	0	9	0	253	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	1	912	50	303	1174	0	10	0	275	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1174	0	0	962	0	0	2132	2719	481	2238	2744	587
Stage 1	-	-	-	-	-	-	939	939	-	1780	1780	-
Stage 2	-	-	-	-	-	-	1193	1780	-	458	964	-
Critical Hdwy	4.32	-	-	4.32	-	-	7.72	6.72	7.12	7.72	6.72	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Follow-up Hdwy	2.31	-	-	2.31	-	-	3.61	4.11	3.41	3.61	4.11	3.41
Pot Cap-1 Maneuver	542	-	-	658	-	-	25	18	508	21	17	431
Stage 1	-	-	-	-	-	-	267	321	-	77	121	-
Stage 2	-	-	-	-	-	-	184	121	-	529	312	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	542	-	-	658	-	-	16	10	508	6	9	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	16	10	-	6	9	-
Stage 1	-	-	-	-	-	-	266	320	-	77	65	-
Stage 2	-	-	-	-	-	-	99	65	-	242	311	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.1	33.4	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	16	508	542	-	-	658	-	-	-	-
HCM Lane V/C Ratio	0.611	0.541	0.002	-	-	0.461	-	-	-	-
HCM Control Delay (s)	$ 406.3	20.1	11.7	-	-	15.1	-	-	0	0
HCM Lane LOS	F	C	B	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	1.6	3.2	0	-	-	2.4	-	-	-	-

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	360	732	1175	19	5	184
Future Vol, veh/h	360	732	1175	19	5	184
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	391	796	1277	21	5	200

Major/Minor	Major1			Major2		
Conflicting Flow All	1298	0	-	0	2457	639
Stage 1	-	-	-	-	1277	-
Stage 2	-	-	-	-	1180	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	489	-	-	-	23	400
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	238	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	489	-	-	-	~ 5	400
Mov Cap-2 Maneuver	-	-	-	-	39	-
Stage 1	-	-	-	-	42	-
Stage 2	-	-	-	-	238	-

Approach	EB	WB	SB
HCM Control Delay, s	11.8	0	25.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	489	-	-	-	39	400
HCM Lane V/C Ratio	0.8	-	-	-	0.139	0.5
HCM Control Delay (s)	35.8	-	-	-	111.7	22.7
HCM Lane LOS	E	-	-	-	F	C
HCM 95th %tile Q(veh)	7.5	-	-	-	0.4	2.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	718	19	2	1186	0	8	0	1	0	0	0
Future Vol, veh/h	0	718	19	2	1186	0	8	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	13	13	13	13	13	13	13	13	13	13	13	13
Mvmt Flow	0	780	21	2	1289	0	9	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1289	0	0	801	0	0	1429	2073	390	1683	2094	645
Stage 1	-	-	-	-	-	-	780	780	-	1293	1293	-
Stage 2	-	-	-	-	-	-	649	1293	-	390	801	-
Critical Hdwy	4.36	-	-	4.36	-	-	7.76	6.76	7.16	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Follow-up Hdwy	2.33	-	-	2.33	-	-	3.63	4.13	3.43	3.63	4.13	3.43
Pot Cap-1 Maneuver	478	-	-	751	-	-	86	47	579	55	45	390
Stage 1	-	-	-	-	-	-	331	379	-	157	211	-
Stage 2	-	-	-	-	-	-	399	211	-	577	370	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	478	-	-	751	-	-	86	47	579	55	45	390
Mov Cap-2 Maneuver	-	-	-	-	-	-	254	178	-	146	176	-
Stage 1	-	-	-	-	-	-	331	379	-	157	210	-
Stage 2	-	-	-	-	-	-	398	210	-	576	370	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.8	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	254	579	478	-	-	751	-	-	-
HCM Lane V/C Ratio	0.034	0.002	-	-	-	0.003	-	-	-
HCM Control Delay (s)	19.7	11.2	0	-	-	9.8	-	-	0
HCM Lane LOS	C	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	331	484	706	446
Demand Flow Rate, veh/h	341	498	727	459
Vehicles Circulating, veh/h	703	586	283	466
Vehicles Exiting, veh/h	222	424	761	618
Ped Vol Crossing Leg, #/h	0	0	3	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	13.5	17.0	15.1	11.9
Approach LOS	B	C	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	341	498	727	459
Cap Entry Lane, veh/h	674	759	1034	858
Entry HV Adj Factor	0.971	0.971	0.971	0.971
Flow Entry, veh/h	331	484	706	446
Cap Entry, veh/h	654	737	1004	833
V/C Ratio	0.506	0.656	0.703	0.535
Control Delay, s/veh	13.5	17.0	15.1	11.9
LOS	B	C	C	B
95th %tile Queue, veh	3	5	6	3

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	353	345	435	647	7	21	139	286	285	35
v/c Ratio	0.01	0.58	0.75	0.49	0.59	0.05	0.13	0.53	0.70	0.68	0.07
Control Delay	48.0	37.6	41.1	18.9	4.0	43.7	44.3	16.0	41.2	40.2	0.3
Queue Delay	0.0	0.0	0.1	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.0	37.6	41.2	19.3	4.3	43.7	44.3	16.0	41.2	40.2	0.3
Queue Length 50th (ft)	1	87	163	141	0	3	10	0	140	138	0
Queue Length 95th (ft)	6	167	328	326	66	19	40	59	301	298	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	109	997	713	1166	1229	395	415	456	594	605	628
Starvation Cap Reductn	0	0	29	303	151	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.35	0.50	0.50	0.60	0.02	0.05	0.30	0.48	0.47	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	295	29	317	400	595	6	19	128	438	87	32
Future Volume (veh/h)	1	295	29	317	400	595	6	19	128	438	87	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	321	32	345	435	647	7	21	139	544	0	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	783	77	397	863	731	199	209	176	701	0	308
Arrive On Green	0.00	0.24	0.24	0.22	0.47	0.47	0.11	0.11	0.11	0.20	0.00	0.20
Sat Flow, veh/h	1767	3234	320	1767	1856	1572	1767	1856	1568	3534	0	1553
Grp Volume(v), veh/h	1	174	179	345	435	647	7	21	139	544	0	35
Grp Sat Flow(s),veh/h/ln	1767	1763	1792	1767	1856	1572	1767	1856	1568	1767	0	1553
Q Serve(g_s), s	0.0	6.7	6.8	15.2	13.2	30.2	0.3	0.8	7.0	11.8	0.0	1.5
Cycle Q Clear(g_c), s	0.0	6.7	6.8	15.2	13.2	30.2	0.3	0.8	7.0	11.8	0.0	1.5
Prop In Lane	1.00		0.18	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	427	434	397	863	731	199	209	176	701	0	308
V/C Ratio(X)	0.41	0.41	0.41	0.87	0.50	0.88	0.04	0.10	0.79	0.78	0.00	0.11
Avail Cap(c_a), veh/h	109	502	510	711	1160	983	394	414	350	1247	0	548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	25.7	25.8	30.2	15.1	19.6	31.9	32.2	34.9	30.7	0.0	26.6
Incr Delay (d2), s/veh	85.0	0.6	0.6	6.0	0.5	7.6	0.1	0.2	7.6	1.9	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.8	2.9	6.9	5.3	11.6	0.1	0.4	2.9	5.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	125.3	26.4	26.4	36.1	15.6	27.3	32.0	32.4	42.5	32.6	0.0	26.7
LnGrp LOS	F	C	C	D	B	C	C	C	D	C	A	C
Approach Vol, veh/h		354			1427			167			579	
Approach Delay, s/veh		26.7			25.8			40.8			32.2	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.6	24.0		20.5	4.6	42.1		13.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	32.5	23.0		28.5	5.0	50.5		18.0				
Max Q Clear Time (g_c+I1), s	17.2	8.8		13.8	2.0	32.2		9.0				
Green Ext Time (p_c), s	0.9	1.8		1.9	0.0	5.3		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	68	866	49	1186	361	234	12	249	5	8
v/c Ratio	0.35	0.46	0.27	0.68	0.41	0.67	0.03	0.43	0.01	0.01
Control Delay	45.7	14.1	45.3	19.3	6.1	40.9	26.9	6.5	26.8	0.0
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.7	14.3	45.3	19.3	6.1	40.9	26.9	6.5	26.8	0.0
Queue Length 50th (ft)	34	148	25	241	28	115	5	0	2	0
Queue Length 95th (ft)	88	254	69	398	99	216	20	57	12	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	262	2316	237	2306	1094	607	808	826	606	802
Starvation Cap Reductn	0	573	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.50	0.21	0.51	0.33	0.39	0.01	0.30	0.01	0.01

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	749	48	45	1091	332	215	11	229	5	0	7
Future Volume (veh/h)	63	749	48	45	1091	332	215	11	229	5	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	68	814	52	49	1186	0	234	12	249	5	0	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	102	1672	107	83	1716		429	413	350	366	0	350
Arrive On Green	0.06	0.50	0.50	0.05	0.49	0.00	0.22	0.22	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1767	3363	215	1767	3526	1572	1396	1856	1572	1110	0	1572
Grp Volume(v), veh/h	68	427	439	49	1186	0	234	12	249	5	0	8
Grp Sat Flow(s),veh/h/ln	1767	1763	1815	1767	1763	1572	1396	1856	1572	1110	0	1572
Q Serve(g_s), s	2.2	9.3	9.3	1.6	15.0	0.0	9.1	0.3	8.5	0.2	0.0	0.2
Cycle Q Clear(g_c), s	2.2	9.3	9.3	1.6	15.0	0.0	9.3	0.3	8.5	0.5	0.0	0.2
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	876	902	83	1716		429	413	350	366	0	350
V/C Ratio(X)	0.67	0.49	0.49	0.59	0.69		0.54	0.03	0.71	0.01	0.00	0.02
Avail Cap(c_a), veh/h	321	1564	1611	290	3068		860	985	835	708	0	835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.7	9.6	9.6	27.0	11.5	0.0	21.2	17.6	20.8	17.8	0.0	17.6
Incr Delay (d2), s/veh	7.4	0.4	0.4	6.5	0.5	0.0	1.1	0.0	2.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.0	3.1	0.8	4.9	0.0	2.8	0.1	3.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	10.1	10.1	33.4	12.0	0.0	22.3	17.6	23.5	17.8	0.0	17.6
LnGrp LOS	C	B	B	C	B		C	B	C	B	A	B
Approach Vol, veh/h		934			1235	A		495			13	
Approach Delay, s/veh		11.8			12.8			22.8			17.7	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.2	33.2		17.4	7.8	32.6		17.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.5	51.3		30.7	10.5	50.3		30.7
Max Q Clear Time (g_c+I1), s	3.6	11.3		2.5	4.2	17.0		11.3
Green Ext Time (p_c), s	0.0	6.6		0.0	0.1	11.1		1.5

Intersection Summary			
HCM 6th Ctrl Delay			14.3
HCM 6th LOS			B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	214	856	61	908	399	188	49	137	596
v/c Ratio	0.55	0.63	0.39	0.77	0.68	0.23	0.11	0.58	0.77
Control Delay	50.6	25.4	55.6	34.6	47.0	34.0	1.0	53.7	33.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	25.4	55.6	34.6	47.0	34.0	1.0	53.7	33.0
Queue Length 50th (ft)	68	211	38	269	125	51	0	84	126
Queue Length 95th (ft)	124	321	91	388	205	96	4	165	216
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	455	1662	197	1610	747	1036	530	347	1012
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.52	0.31	0.56	0.53	0.18	0.09	0.39	0.59

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	505	282	56	737	98	367	173	45	126	185	363
Future Volume (veh/h)	197	505	282	56	737	98	367	173	45	126	185	363
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	549	0	61	801	107	399	188	49	137	201	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	1416		93	1118	149	550	571	255	179	362	
Arrive On Green	0.10	0.40	0.00	0.05	0.36	0.36	0.16	0.16	0.16	0.10	0.10	0.00
Sat Flow, veh/h	3456	3647	0	1781	3145	420	3456	3554	1585	1781	3647	0
Grp Volume(v), veh/h	214	549	0	61	452	456	399	188	49	137	201	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1788	1728	1777	1585	1781	1777	0
Q Serve(g_s), s	3.7	6.9	0.0	2.1	13.8	13.8	6.9	2.9	1.7	4.7	3.4	0.0
Cycle Q Clear(g_c), s	3.7	6.9	0.0	2.1	13.8	13.8	6.9	2.9	1.7	4.7	3.4	0.0
Prop In Lane	1.00		0.00	1.00		0.23	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	330	1416		93	631	636	550	571	255	179	362	
V/C Ratio(X)	0.65	0.39		0.66	0.72	0.72	0.73	0.33	0.19	0.77	0.55	
Avail Cap(c_a), veh/h	691	2588		299	1237	1245	1134	1564	698	527	1450	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.3	13.4	0.0	29.1	17.4	17.4	25.0	23.2	22.7	27.4	26.7	0.0
Incr Delay (d2), s/veh	2.2	0.2	0.0	7.6	1.5	1.5	1.8	0.3	0.4	6.7	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.5	0.0	1.0	5.2	5.2	2.7	1.1	0.6	2.1	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	13.5	0.0	36.6	19.0	18.9	26.8	23.6	23.1	34.1	28.0	0.0
LnGrp LOS	C	B		D	B	B	C	C	C	C	C	
Approach Vol, veh/h		763	A		969			636			338	A
Approach Delay, s/veh		18.0			20.1			25.6			30.5	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	29.4	14.4	10.9	10.5	26.7	10.8	14.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	45.5	20.5	25.5	12.5	43.5	18.5	27.5
Max Q Clear Time (g_c+I1), s	4.1	8.9	8.9	5.4	5.7	15.8	6.7	4.9
Green Ext Time (p_c), s	0.0	4.2	1.1	1.0	0.4	6.3	0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	71	425	1122	541	101
v/c Ratio	0.34	0.21	0.74	0.64	0.22
Control Delay	44.4	10.2	20.9	34.1	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	10.2	20.9	34.1	9.0
Queue Length 50th (ft)	31	38	172	115	0
Queue Length 95th (ft)	103	138	#501	#278	47
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	273	2623	2026	1190	614
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.16	0.55	0.45	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	391	541	491	498	93
Future Volume (vph)	65	391	541	491	498	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	3231		3400	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	3231		3400	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	425	588	534	541	101
RTOR Reduction (vph)	0	0	122	0	0	77
Lane Group Flow (vph)	71	425	1000	0	541	24
Confl. Peds. (#/hr)				3		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	6.8	44.4	33.1		18.9	18.9
Effective Green, g (s)	6.8	44.4	33.1		18.9	18.9
Actuated g/C Ratio	0.08	0.55	0.41		0.24	0.24
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	148	1940	1333		801	369
v/s Ratio Prot	c0.04	0.12	c0.31			
v/s Ratio Perm					c0.16	0.02
v/c Ratio	0.48	0.22	0.75		0.68	0.06
Uniform Delay, d1	35.0	9.1	20.0		27.9	23.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.4	0.1	2.4		2.3	0.1
Delay (s)	37.5	9.2	22.5		30.1	23.9
Level of Service	D	A	C		C	C
Approach Delay (s)		13.2	22.5		29.1	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	136	372	136	68	1033	216	539	264	599
v/c Ratio	0.59	0.63	0.23	0.50	1.13	0.73	0.72	0.84	0.63
Control Delay	46.0	31.6	5.7	51.7	98.1	48.7	35.4	59.3	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	31.6	5.7	51.7	98.1	48.7	35.4	59.3	18.2
Queue Length 50th (ft)	68	175	0	35	~301	108	136	137	76
Queue Length 95th (ft)	131	288	40	#87	#461	#209	195	#289	136
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	283	612	603	144	916	346	953	325	1052
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.61	0.23	0.47	1.13	0.62	0.57	0.81	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	342	125	63	541	409	199	456	40	243	266	285
Future Volume (veh/h)	125	342	125	63	541	409	199	456	40	243	266	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.91	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	136	372	136	68	588	445	216	496	43	264	289	310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	172	575	481	88	494	374	260	700	60	306	426	377
Arrive On Green	0.10	0.31	0.31	0.05	0.27	0.27	0.15	0.22	0.22	0.18	0.25	0.25
Sat Flow, veh/h	1739	1826	1526	1739	1853	1401	1739	3201	276	1739	1735	1536
Grp Volume(v), veh/h	136	372	136	68	550	483	216	268	271	264	289	310
Grp Sat Flow(s),veh/h/ln	1739	1826	1526	1739	1735	1520	1739	1735	1743	1739	1735	1536
Q Serve(g_s), s	5.7	13.2	5.0	2.9	20.0	20.0	9.1	10.7	10.8	11.1	11.3	14.3
Cycle Q Clear(g_c), s	5.7	13.2	5.0	2.9	20.0	20.0	9.1	10.7	10.8	11.1	11.3	14.3
Prop In Lane	1.00		1.00	1.00		0.92	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	172	575	481	88	462	405	260	379	381	306	426	377
V/C Ratio(X)	0.79	0.65	0.28	0.77	1.19	1.19	0.83	0.71	0.71	0.86	0.68	0.82
Avail Cap(c_a), veh/h	313	647	541	160	462	405	382	532	534	359	509	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.1	22.1	19.3	35.2	27.5	27.5	31.0	27.1	27.1	30.0	25.6	26.8
Incr Delay (d2), s/veh	7.9	1.9	0.3	13.4	105.6	108.2	9.7	2.5	2.6	17.0	2.8	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	5.4	1.7	1.5	21.1	18.8	4.3	4.4	4.5	5.8	4.7	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	24.0	19.7	48.7	133.1	135.7	40.7	29.5	29.7	47.0	28.5	36.8
LnGrp LOS	D	C	B	D	F	F	D	C	C	D	C	D
Approach Vol, veh/h		644			1101			755			863	
Approach Delay, s/veh		26.7			129.0			32.8			37.1	
Approach LOS		C			F			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	20.9	8.3	28.1	15.7	22.9	11.9	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	23.0	6.9	26.6	16.5	22.0	13.5	20.0
Max Q Clear Time (g_c+I1), s	13.1	12.8	4.9	15.2	11.1	16.3	7.7	22.0
Green Ext Time (p_c), s	0.2	2.3	0.0	2.0	0.3	1.8	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	64.2
HCM 6th LOS	E

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Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	99	6	38	8	15	98	29	356	3	33	328	85
Future Vol, veh/h	99	6	38	8	15	98	29	356	3	33	328	85
Conflicting Peds, #/hr	1	0	0	0	0	1	6	0	2	2	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	7	41	9	16	107	32	387	3	36	357	92

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	950	891	363	954	982	392	455	0	0	392	0	0
Stage 1	435	435	-	455	455	-	-	-	-	-	-	-
Stage 2	515	456	-	499	527	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	240	282	682	238	249	657	1106	-	-	1167	-	-
Stage 1	600	580	-	585	569	-	-	-	-	-	-	-
Stage 2	543	568	-	554	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	180	263	678	209	232	655	1100	-	-	1165	-	-
Mov Cap-2 Maneuver	180	263	-	209	232	-	-	-	-	-	-	-
Stage 1	579	559	-	567	551	-	-	-	-	-	-	-
Stage 2	428	550	-	498	508	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	49.5	15.3	0.6	0.6
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1100	-	-	227	479	1165	-	-
HCM Lane V/C Ratio	0.029	-	-	0.685	0.275	0.031	-	-
HCM Control Delay (s)	8.4	-	-	49.5	15.3	8.2	-	-
HCM Lane LOS	A	-	-	E	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.4	1.1	0.1	-	-

Intersection	
Intersection Delay, s/veh	17.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	9	5	213	5	191	0	4	177	111	197	167
Future Vol, veh/h	20	9	5	213	5	191	0	4	177	111	197	167
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	10	5	232	5	208	0	4	192	121	214	182
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	10.8	22.5	12.4	17.2
HCM LOS	B	C	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	0%	59%	52%	70%	0%
Vol Thru, %	98%	0%	26%	1%	30%	89%
Vol Right, %	0%	100%	15%	47%	0%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	181	111	34	409	281	94
LT Vol	4	0	20	213	197	0
Through Vol	177	0	9	5	84	84
RT Vol	0	111	5	191	0	10
Lane Flow Rate	197	121	37	445	305	102
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.371	0.203	0.074	0.718	0.588	0.184
Departure Headway (Hd)	6.782	6.054	7.194	5.817	6.937	6.501
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	525	586	501	618	518	548
Service Time	4.582	3.853	5.194	3.9	4.728	4.292
HCM Lane V/C Ratio	0.375	0.206	0.074	0.72	0.589	0.186
HCM Control Delay	13.6	10.4	10.8	22.5	19.3	10.8
HCM Lane LOS	B	B	B	C	C	B
HCM 95th-tile Q	1.7	0.8	0.2	6	3.7	0.7

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	10
Future Vol, veh/h	10
Peak Hour Factor	0.92
Heavy Vehicles, %	2
Mvmt Flow	11
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	155	81	123	137	90	295
Future Vol, veh/h	155	81	123	137	90	295
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	168	88	134	149	98	321

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	441	98	419	0	-	0
Stage 1	98	-	-	-	-	-
Stage 2	343	-	-	-	-	-
Critical Hdwy	6.645	6.245	4.145	-	-	-
Critical Hdwy Stg 1	5.445	-	-	-	-	-
Critical Hdwy Stg 2	5.845	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	557	954	1132	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	491	954	1132	-	-	-
Mov Cap-2 Maneuver	491	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	688	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	4.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1132	-	491	954	-	-
HCM Lane V/C Ratio	0.118	-	0.343	0.092	-	-
HCM Control Delay (s)	8.6	-	16.1	9.2	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	1.5	0.3	-	-

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15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	55	1	110	9	0	0	0	0	324	15
Future Volume (Veh/h)	27	0	55	1	110	9	0	0	0	0	324	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	60	1	120	10	0	0	0	0	352	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	425	360	360	420	368	0	368			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	425	360	360	420	368	0	368			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	91	100	79	99	100			100		
cM capacity (veh/h)	447	567	684	496	561	1085	1191			1623		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	89	131	368
Volume Left	29	1	0
Volume Right	60	10	16
cSH	583	607	1700
Volume to Capacity	0.15	0.22	0.22
Queue Length 95th (ft)	13	20	0
Control Delay (s)	12.3	12.8	0.0
Lane LOS	B	B	
Approach Delay (s)	12.3	12.8	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		4.7		
Intersection Capacity Utilization		36.2%	ICU Level of Service	A
Analysis Period (min)		15		

16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	325	1118	287	470	91	293	574	330	276
v/c Ratio	0.09	0.69	0.75	0.36	0.42	0.59	0.64	0.34	0.66	0.42
Control Delay	55.2	50.2	34.7	26.6	2.2	76.1	60.5	5.2	59.1	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	50.2	34.7	26.6	2.2	76.1	60.5	5.2	59.1	44.9
Queue Length 50th (ft)	16	110	388	154	0	76	127	38	139	105
Queue Length 95th (ft)	44	176	571	271	43	#158	192	65	208	155
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	300	627	1758	954	1173	179	682	1852	693	1016
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.64	0.30	0.40	0.51	0.43	0.31	0.48	0.27

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	184	115	1029	264	432	84	270	528	304	205	49
Future Volume (veh/h)	18	184	115	1029	264	432	84	270	528	304	205	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	200	125	1118	287	470	91	293	574	330	223	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	270	161	1377	745	815	116	570	1559	417	588	137
Arrive On Green	0.13	0.13	0.13	0.40	0.40	0.40	0.07	0.16	0.16	0.12	0.21	0.21
Sat Flow, veh/h	1781	2140	1277	3456	1870	1564	1781	3554	2790	3456	2860	666
Grp Volume(v), veh/h	20	164	161	1118	287	470	91	293	574	330	137	139
Grp Sat Flow(s),veh/h/ln	1781	1777	1640	1728	1870	1564	1781	1777	1395	1728	1777	1749
Q Serve(g_s), s	1.0	9.4	10.0	30.3	11.5	21.8	5.3	8.0	12.1	9.8	7.0	7.2
Cycle Q Clear(g_c), s	1.0	9.4	10.0	30.3	11.5	21.8	5.3	8.0	12.1	9.8	7.0	7.2
Prop In Lane	1.00		0.78	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	225	224	207	1377	745	815	116	570	1559	417	365	360
V/C Ratio(X)	0.09	0.73	0.78	0.81	0.39	0.58	0.79	0.51	0.37	0.79	0.37	0.39
Avail Cap(c_a), veh/h	345	344	317	2019	1093	1105	206	782	1725	796	595	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	44.4	44.6	28.2	22.5	17.4	48.6	40.5	12.9	45.1	36.1	36.2
Incr Delay (d2), s/veh	0.2	4.6	6.4	1.7	0.3	0.6	11.0	0.7	0.1	3.4	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.4	4.4	12.1	4.9	7.4	2.6	3.4	7.4	4.4	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	49.0	51.1	29.9	22.9	18.1	59.6	41.2	13.1	48.5	36.7	36.8
LnGrp LOS	D	D	D	C	C	B	E	D	B	D	D	D
Approach Vol, veh/h		345			1875			958			606	
Approach Delay, s/veh		49.5			25.8			26.1			43.1	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.4	22.7		17.9	12.7	27.5		47.4
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 24	23.2		20.4	12.2	* 35		61.6
Max Q Clear Time (g_c+I1), s	11.8	14.1		12.0	7.3	9.2		32.3
Green Ext Time (p_c), s	0.9	2.9		1.3	0.1	1.6		9.7

Intersection Summary			
HCM 6th Ctrl Delay			30.8
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	111	674	243	129	1352	600	358	310	432
v/c Ratio	0.54	0.53	0.34	0.66	0.96	0.83	0.65	0.84	0.73
Control Delay	61.5	30.9	5.0	64.7	47.5	52.9	47.1	62.2	42.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	30.9	5.0	64.7	47.5	52.9	47.1	62.2	42.4
Queue Length 50th (ft)	40	203	0	88	476	207	122	206	124
Queue Length 95th (ft)	74	291	58	#171	#716	292	171	#371	180
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	206	1271	724	220	1412	774	839	411	901
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.53	0.34	0.59	0.96	0.78	0.43	0.75	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	620	224	119	968	276	552	276	53	285	253	144
Future Volume (veh/h)	102	620	224	119	968	276	552	276	53	285	253	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	111	674	243	129	1052	300	600	300	58	310	275	157
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	1330	593	159	1131	320	682	509	97	344	369	204
Arrive On Green	0.05	0.37	0.37	0.09	0.41	0.41	0.20	0.17	0.17	0.19	0.17	0.17
Sat Flow, veh/h	3456	3554	1585	1781	2729	772	3456	2973	567	1781	2205	1222
Grp Volume(v), veh/h	111	674	243	129	682	670	600	178	180	310	220	212
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1725	1728	1777	1762	1781	1777	1650
Q Serve(g_s), s	3.3	15.3	6.5	7.4	38.2	38.9	17.6	9.6	9.9	17.8	12.3	12.8
Cycle Q Clear(g_c), s	3.3	15.3	6.5	7.4	38.2	38.9	17.6	9.6	9.9	17.8	12.3	12.8
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.32	1.00		0.74
Lane Grp Cap(c), veh/h	169	1330	593	159	736	715	682	304	302	344	297	276
V/C Ratio(X)	0.66	0.51	0.41	0.81	0.93	0.94	0.88	0.58	0.60	0.90	0.74	0.77
Avail Cap(c_a), veh/h	215	1330	593	230	753	731	796	442	438	429	460	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	25.3	7.2	46.8	29.1	29.3	40.8	39.9	40.0	41.2	41.4	41.6
Incr Delay (d2), s/veh	4.8	0.3	0.5	13.3	17.3	19.4	10.0	1.8	1.9	18.8	3.6	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.2	4.0	3.8	18.7	18.9	8.2	4.2	4.3	9.3	5.5	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	25.6	7.7	60.1	46.4	48.8	50.7	41.7	41.9	59.9	45.0	46.1
LnGrp LOS	D	C	A	E	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1028			1481			958			742	
Approach Delay, s/veh		24.4			48.7			47.4			51.6	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	43.6	25.1	22.0	9.6	47.8	24.7	22.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	37.3	24.1	27.1	6.5	44.3	25.2	26.0
Max Q Clear Time (g_c+I1), s	9.4	17.3	19.6	14.8	5.3	40.9	19.8	11.9
Green Ext Time (p_c), s	0.1	5.1	1.0	1.9	0.0	2.4	0.4	1.6

Intersection Summary	
HCM 6th Ctrl Delay	43.0
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	1	5	768	310	41
Future Vol, veh/h	86	1	5	768	310	41
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	93	1	5	835	337	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1205	361	382	0	-	0
Stage 1	360	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	202	681	1171	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	200	680	1171	-	-	-
Mov Cap-2 Maneuver	200	-	-	-	-	-
Stage 1	698	-	-	-	-	-
Stage 2	420	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.6	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1171	-	202	-	-
HCM Lane V/C Ratio	0.005	-	0.468	-	-
HCM Control Delay (s)	8.1	0	37.6	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	2.3	-	-

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	6	9	637	280	19
Future Vol, veh/h	55	6	9	637	280	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	7	10	692	304	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1027	315	325	0	-	0
Stage 1	315	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	260	725	1235	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	257	725	1235	-	-	-
Mov Cap-2 Maneuver	432	-	-	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	486	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1235	-	450	-	-
HCM Lane V/C Ratio	0.008	-	0.147	-	-
HCM Control Delay (s)	7.9	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	557	86	7	237	46
Future Vol, veh/h	21	557	86	7	237	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	605	93	8	258	50
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	23.5	10.3	14.6
HCM LOS	C	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	4%	84%
Vol Thru, %	92%	0%	16%
Vol Right, %	8%	96%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	93	578	283
LT Vol	0	21	237
Through Vol	86	0	46
RT Vol	7	557	0
Lane Flow Rate	101	628	308
Geometry Grp	1	1	1
Degree of Util (X)	0.168	0.803	0.499
Departure Headway (Hd)	5.998	4.603	5.839
Convergence, Y/N	Yes	Yes	Yes
Cap	595	792	615
Service Time	4.059	2.603	3.886
HCM Lane V/C Ratio	0.17	0.793	0.501
HCM Control Delay	10.3	23.5	14.6
HCM Lane LOS	B	C	B
HCM 95th-tile Q	0.6	8.5	2.8

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	248	572	2	4	7
Future Vol, veh/h	4	248	572	2	4	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	270	622	2	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	630	0	-	0	907	629
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	278	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	952	-	-	-	306	482
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	769	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	947	-	-	-	301	479
Mov Cap-2 Maneuver	-	-	-	-	301	-
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	764	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	947	-	-	-	394
HCM Lane V/C Ratio	0.005	-	-	-	0.03
HCM Control Delay (s)	8.8	-	-	-	14.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	235	1	1	527	24	3	0	1	33	0	44
Future Vol, veh/h	16	235	1	1	527	24	3	0	1	33	0	44
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	255	1	1	573	26	3	0	1	36	0	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	606	0	0	256	0	0	902	898	256	885	885	593
Stage 1	-	-	-	-	-	-	290	290	-	595	595	-
Stage 2	-	-	-	-	-	-	612	608	-	290	290	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	972	-	-	1309	-	-	259	279	783	266	284	506
Stage 1	-	-	-	-	-	-	718	672	-	491	492	-
Stage 2	-	-	-	-	-	-	480	486	-	718	672	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	966	-	-	1309	-	-	231	272	783	260	277	503
Mov Cap-2 Maneuver	-	-	-	-	-	-	231	272	-	260	277	-
Stage 1	-	-	-	-	-	-	705	660	-	479	488	-
Stage 2	-	-	-	-	-	-	434	482	-	704	660	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	18.1	18.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	280	966	-	-	1309	-	-	359
HCM Lane V/C Ratio	0.016	0.018	-	-	0.001	-	-	0.233
HCM Control Delay (s)	18.1	8.8	-	-	7.8	-	-	18.1
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.9

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	261	543	2	6	5
Future Vol, veh/h	4	261	543	2	6	5
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	284	590	2	7	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	601	0	-	0	892	600
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	292	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	976	-	-	-	312	501
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	758	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	968	-	-	-	305	497
Mov Cap-2 Maneuver	-	-	-	-	305	-
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	751	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	968	-	-	-	370
HCM Lane V/C Ratio	0.004	-	-	-	0.032
HCM Control Delay (s)	8.7	-	-	-	15.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	56	211	410	35	19	135
Future Vol, veh/h	56	211	410	35	19	135
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	61	229	446	38	21	147

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	492	0	-	0	824	473
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	351	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1077	-	-	-	344	593
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	715	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1069	-	-	-	319	588
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1069	-	-	-	533
HCM Lane V/C Ratio	0.057	-	-	-	0.314
HCM Control Delay (s)	8.6	-	-	-	14.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.3

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Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	114	0	0	244	1	0	0	0	0	0	164
Future Vol, veh/h	41	114	0	0	244	1	0	0	0	0	0	164
Conflicting Peds, #/hr	8	0	0	0	0	8	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	45	124	0	0	265	1	0	0	0	0	0	178

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	274	0	0	124	0	0	569	488	124	488	488	274
Stage 1	-	-	-	-	-	-	214	214	-	274	274	-
Stage 2	-	-	-	-	-	-	355	274	-	214	214	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1295	-	-	1469	-	-	434	482	929	492	482	767
Stage 1	-	-	-	-	-	-	790	727	-	734	685	-
Stage 2	-	-	-	-	-	-	664	685	-	790	727	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1285	-	-	1469	-	-	323	460	929	474	460	761
Mov Cap-2 Maneuver	-	-	-	-	-	-	323	460	-	474	460	-
Stage 1	-	-	-	-	-	-	760	699	-	701	680	-
Stage 2	-	-	-	-	-	-	508	680	-	760	699	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0	0	11.2
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1285	-	-	1469	-	-	761
HCM Lane V/C Ratio	-	0.035	-	-	-	-	-	0.234
HCM Control Delay (s)	0	7.9	0	-	0	-	-	11.2
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.9

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	257	1291	1300	110	115	231
v/c Ratio	0.68	0.39	0.82	0.14	0.51	0.37
Control Delay	48.5	0.3	28.5	3.6	53.5	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	0.3	28.5	3.6	53.5	20.1
Queue Length 50th (ft)	151	0	366	0	70	80
Queue Length 95th (ft)	305	0	561	30	155	179
Internal Link Dist (ft)		1017	748		574	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	511	3312	2871	1299	511	992
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.39	0.45	0.08	0.23	0.23

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	254	1278	1287	109	114	229
Future Volume (vph)	254	1278	1287	109	114	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	3312	3312	1482	1656	1482
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	3312	3312	1482	1656	1482
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	257	1291	1300	110	115	231
RTOR Reduction (vph)	0	0	0	57	0	26
Lane Group Flow (vph)	257	1291	1300	53	115	205
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	23.6	101.4	48.8	48.8	14.0	41.6
Effective Green, g (s)	23.6	101.4	48.8	48.8	14.0	41.6
Actuated g/C Ratio	0.23	1.00	0.48	0.48	0.14	0.41
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	385	3312	1593	713	228	608
v/s Ratio Prot	c0.16	0.39	c0.39		0.07	0.14
v/s Ratio Perm				0.04		
v/c Ratio	0.67	0.39	0.82	0.07	0.50	0.34
Uniform Delay, d1	35.3	0.0	22.5	14.1	40.5	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	0.3	3.5	0.1	2.1	0.3
Delay (s)	39.7	0.3	26.0	14.2	42.6	20.8
Level of Service	D	A	C	B	D	C
Approach Delay (s)		6.9	25.1		28.0	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	196	971	268	52	887	127	240	268	193	311	312
v/c Ratio	0.52	0.75	0.37	0.19	0.79	0.22	0.57	0.32	0.52	0.75	0.57
Control Delay	56.8	37.0	4.9	56.7	41.5	6.3	55.9	35.7	56.8	54.5	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	37.0	4.9	56.7	41.5	6.3	55.9	35.7	56.8	54.5	14.6
Queue Length 50th (ft)	69	324	0	18	298	0	84	77	68	207	37
Queue Length 95th (ft)	139	533	60	47	492	46	164	146	137	389	148
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	546	2189	1050	546	2189	1010	607	1259	607	675	726
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.44	0.26	0.10	0.41	0.13	0.40	0.21	0.32	0.46	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	942	260	50	860	123	233	213	47	187	302	303
Future Volume (veh/h)	190	942	260	50	860	123	233	213	47	187	302	303
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	196	971	268	52	887	127	240	220	48	193	311	312
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	276	1246	555	106	1193	532	326	731	156	275	442	375
Arrive On Green	0.08	0.37	0.37	0.03	0.35	0.35	0.10	0.26	0.26	0.08	0.25	0.25
Sat Flow, veh/h	3319	3413	1520	3319	3413	1521	3319	2795	598	3319	1796	1522
Grp Volume(v), veh/h	196	971	268	52	887	127	240	133	135	193	311	312
Grp Sat Flow(s),veh/h/ln	1659	1706	1520	1659	1706	1521	1659	1706	1687	1659	1796	1522
Q Serve(g_s), s	5.3	23.3	8.2	1.4	21.1	5.5	6.5	5.7	6.0	5.2	14.6	17.9
Cycle Q Clear(g_c), s	5.3	23.3	8.2	1.4	21.1	5.5	6.5	5.7	6.0	5.2	14.6	17.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	276	1246	555	106	1193	532	326	446	441	275	442	375
V/C Ratio(X)	0.71	0.78	0.48	0.49	0.74	0.24	0.74	0.30	0.31	0.70	0.70	0.83
Avail Cap(c_a), veh/h	647	2587	1152	647	2587	1153	719	758	749	719	798	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	26.0	9.6	44.0	26.4	21.3	40.5	27.3	27.4	41.2	31.7	33.0
Incr Delay (d2), s/veh	3.4	1.1	0.7	1.3	0.9	0.2	3.3	0.4	0.4	3.3	2.1	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	8.5	4.0	0.6	7.7	1.9	2.7	2.3	2.3	2.2	6.3	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	27.1	10.3	45.3	27.3	21.5	43.7	27.7	27.8	44.5	33.8	37.9
LnGrp LOS	D	C	B	D	C	C	D	C	C	D	C	D
Approach Vol, veh/h		1435			1066			508			816	
Approach Delay, s/veh		26.4			27.5			35.3			37.9	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	41.0	13.1	28.0	11.7	39.6	11.6	29.4
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	3.4	25.3	8.5	19.9	7.3	23.1	7.2	8.0
Green Ext Time (p_c), s	0.0	8.4	0.6	2.8	0.4	6.8	0.5	1.5

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	17.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1074	102	313	1015	0	18	0	381	0	0	0
Future Vol, veh/h	0	1074	102	313	1015	0	18	0	381	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	1107	105	323	1046	0	19	0	393	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1047	0	0	1212	0	0	2329	2853	606	2247	2905	524
Stage 1	-	-	-	-	-	-	1160	1160	-	1693	1693	-
Stage 2	-	-	-	-	-	-	1169	1693	-	554	1212	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.64	7.04	7.64	6.64	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4.07	3.37	3.57	4.07	3.37
Pot Cap-1 Maneuver	631	-	-	544	-	-	~ 18	15	428	21	14	485
Stage 1	-	-	-	-	-	-	200	258	-	92	140	-
Stage 2	-	-	-	-	-	-	197	140	-	472	243	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	630	-	-	544	-	-	~ 9	6	428	1	6	485
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 9	6	-	1	6	-
Stage 1	-	-	-	-	-	-	200	258	-	92	57	-
Stage 2	-	-	-	-	-	-	80	57	-	39	243	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	4.9	112.7	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	9	428	630	-	-	544	-	-	-	-
HCM Lane V/C Ratio	2.062	0.918	-	-	-	0.593	-	-	-	-
HCM Control Delay (s)	$ 1298.3	56.7	0	-	-	20.8	-	-	0	0
HCM Lane LOS	F	F	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	3.3	10.1	0	-	-	3.8	-	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	280	1176	971	13	11	356
Future Vol, veh/h	280	1176	971	13	11	356
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	298	1251	1033	14	12	379

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	1047	0	-	0	2255	517
Stage 1	-	-	-	-	1033	-
Stage 2	-	-	-	-	1222	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	615	-	-	-	31	483
Stage 1	-	-	-	-	287	-
Stage 2	-	-	-	-	226	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	615	-	-	-	16	483
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	226	-

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	34.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	615	-	-	-	116	483
HCM Lane V/C Ratio	0.484	-	-	-	0.101	0.784
HCM Control Delay (s)	16.2	-	-	-	39.5	34.5
HCM Lane LOS	C	-	-	-	E	D
HCM 95th %tile Q(veh)	2.6	-	-	-	0.3	7.1

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Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1176	11	1	968	0	17	0	4	0	0	1
Future Vol, veh/h	0	1176	11	1	968	0	17	0	4	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	1212	11	1	998	0	18	0	4	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	998	0	0	1223	0	0	1713	2212	606	1606	2223	499
Stage 1	-	-	-	-	-	-	1212	1212	-	1000	1000	-
Stage 2	-	-	-	-	-	-	501	1000	-	606	1223	-
Critical Hdwy	4.34	-	-	4.34	-	-	7.74	6.74	7.14	7.74	6.74	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Follow-up Hdwy	2.32	-	-	2.32	-	-	3.62	4.12	3.42	3.62	4.12	3.42
Pot Cap-1 Maneuver	632	-	-	513	-	-	52	38	416	63	38	491
Stage 1	-	-	-	-	-	-	178	234	-	242	298	-
Stage 2	-	-	-	-	-	-	496	298	-	427	231	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	632	-	-	513	-	-	52	38	416	62	38	491
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	176	-	205	175	-
Stage 1	-	-	-	-	-	-	178	234	-	242	297	-
Stage 2	-	-	-	-	-	-	494	297	-	423	231	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	26.8	12.3
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	162	416	632	-	-	513	-	-	491
HCM Lane V/C Ratio	0.108	0.01	-	-	-	0.002	-	-	0.002
HCM Control Delay (s)	29.9	13.7	0	-	-	12	-	-	12.3
HCM Lane LOS	D	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.4	0	0	-	-	0	-	-	0

Intersection	
Intersection Delay, s/veh	19.7
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	396	653	640	601
Demand Flow Rate, veh/h	401	659	647	607
Vehicles Circulating, veh/h	824	417	368	595
Vehicles Exiting, veh/h	378	598	857	481
Ped Vol Crossing Leg, #/h	1	1	1	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.2	17.8	15.1	25.8
Approach LOS	C	C	C	D

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	401	659	647	607
Cap Entry Lane, veh/h	595	902	948	752
Entry HV Adj Factor	0.989	0.991	0.989	0.991
Flow Entry, veh/h	396	653	640	601
Cap Entry, veh/h	589	893	938	745
V/C Ratio	0.674	0.731	0.683	0.807
Control Delay, s/veh	21.2	17.8	15.1	25.8
LOS	C	C	C	D
95th %tile Queue, veh	5	7	6	9

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	484	255	437	627	6	47	281	336	343	110
v/c Ratio	0.19	0.66	0.69	0.54	0.61	0.03	0.25	0.68	0.73	0.73	0.21
Control Delay	53.1	39.2	45.9	24.6	4.9	43.5	45.8	14.8	41.6	41.7	4.2
Queue Delay	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	39.2	45.9	25.3	5.2	43.5	45.8	14.8	41.6	41.7	4.2
Queue Length 50th (ft)	12	129	133	161	0	3	25	0	176	181	0
Queue Length 95th (ft)	44	236	268	372	78	17	69	80	358	365	28
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	113	1038	565	1027	1134	395	415	572	659	669	688
Starvation Cap Reductn	0	0	9	291	138	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.47	0.46	0.59	0.63	0.02	0.11	0.49	0.51	0.51	0.16

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	424	31	240	411	589	6	44	264	555	84	103
Future Volume (veh/h)	20	424	31	240	411	589	6	44	264	555	84	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	21	451	33	255	437	627	6	47	281	654	0	110
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	39	946	69	291	792	655	312	327	277	774	0	343
Arrive On Green	0.02	0.28	0.28	0.16	0.42	0.42	0.17	0.17	0.17	0.22	0.00	0.22
Sat Flow, veh/h	1795	3383	247	1795	1885	1559	1795	1885	1598	3591	0	1590
Grp Volume(v), veh/h	21	238	246	255	437	627	6	47	281	654	0	110
Grp Sat Flow(s),veh/h/ln	1795	1791	1839	1795	1885	1559	1795	1885	1598	1795	0	1590
Q Serve(g_s), s	1.2	11.8	11.8	14.8	18.6	41.5	0.3	2.3	18.5	18.6	0.0	6.2
Cycle Q Clear(g_c), s	1.2	11.8	11.8	14.8	18.6	41.5	0.3	2.3	18.5	18.6	0.0	6.2
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	39	501	514	291	792	655	312	327	277	774	0	343
V/C Ratio(X)	0.54	0.48	0.48	0.88	0.55	0.96	0.02	0.14	1.01	0.85	0.00	0.32
Avail Cap(c_a), veh/h	89	501	514	447	809	669	312	327	277	1096	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.6	31.9	31.9	43.6	23.3	30.0	36.5	37.3	44.0	40.1	0.0	35.2
Incr Delay (d2), s/veh	11.0	0.7	0.7	11.8	0.8	24.5	0.0	0.2	57.3	4.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.2	5.4	7.5	8.3	19.4	0.1	1.0	11.6	8.5	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	32.6	32.6	55.3	24.1	54.4	36.5	37.5	101.3	44.5	0.0	35.7
LnGrp LOS	E	C	C	E	C	D	D	D	F	D	A	D
Approach Vol, veh/h		505			1319			334			764	
Approach Delay, s/veh		33.8			44.5			91.2			43.2	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.8	34.3		27.5	6.8	49.2		23.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	26.5	24.5		32.5	5.3	45.7		18.5				
Max Q Clear Time (g_c+I1), s	16.8	13.8		20.6	3.2	43.5		20.5				
Green Ext Time (p_c), s	0.5	2.2		2.3	0.0	1.2		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		47.7	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	91	1245	20	1030	252	276	30	447	8	27
v/c Ratio	0.40	0.67	0.14	0.68	0.33	0.65	0.05	0.76	0.02	0.04
Control Delay	44.4	17.7	46.8	23.2	7.7	34.0	22.3	26.8	22.1	0.1
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	18.3	46.8	23.2	7.7	34.0	22.3	26.8	22.1	0.1
Queue Length 50th (ft)	45	194	10	222	22	124	11	141	3	0
Queue Length 95th (ft)	109	438	38	382	87	233	33	286	14	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	324	2328	142	2102	993	757	1023	937	755	962
Starvation Cap Reductn	0	614	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.73	0.14	0.49	0.25	0.36	0.03	0.48	0.01	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1127	31	19	958	234	257	28	416	7	0	25
Future Volume (veh/h)	85	1127	31	19	958	234	257	28	416	7	0	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	91	1212	33	20	1030	0	276	30	447	8	0	27
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	119	1620	44	41	1476		543	616	522	396	0	522
Arrive On Green	0.07	0.46	0.46	0.02	0.41	0.00	0.33	0.33	0.33	0.33	0.00	0.33
Sat Flow, veh/h	1795	3559	97	1795	3582	1598	1394	1885	1598	925	0	1598
Grp Volume(v), veh/h	91	610	635	20	1030	0	276	30	447	8	0	27
Grp Sat Flow(s),veh/h/ln	1795	1791	1865	1795	1791	1598	1394	1885	1598	925	0	1598
Q Serve(g_s), s	3.5	19.5	19.5	0.8	16.4	0.0	11.7	0.8	18.1	0.4	0.0	0.8
Cycle Q Clear(g_c), s	3.5	19.5	19.5	0.8	16.4	0.0	12.5	0.8	18.1	1.2	0.0	0.8
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	815	849	41	1476		543	616	522	396	0	522
V/C Ratio(X)	0.77	0.75	0.75	0.48	0.70		0.51	0.05	0.86	0.02	0.00	0.05
Avail Cap(c_a), veh/h	324	1255	1307	143	2148		843	1021	866	595	0	866
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.8	15.6	15.6	33.4	16.8	0.0	20.2	15.9	21.8	16.3	0.0	16.0
Incr Delay (d2), s/veh	9.8	1.4	1.3	8.5	0.6	0.0	0.7	0.0	4.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	7.3	7.6	0.4	6.2	0.0	3.6	0.3	6.8	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	17.0	16.9	41.9	17.4	0.0	21.0	16.0	26.4	16.4	0.0	16.0
LnGrp LOS	D	B	B	D	B		C	B	C	B	A	B
Approach Vol, veh/h		1336			1050	A		753			35	
Approach Delay, s/veh		18.6			17.9			24.0			16.1	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	36.0		27.1	9.1	33.0		27.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	48.5		37.5	12.5	41.5		37.5
Max Q Clear Time (g_c+I1), s	2.8	21.5		3.2	5.5	18.4		20.1
Green Ext Time (p_c), s	0.0	10.0		0.1	0.1	8.0		2.5

Intersection Summary			
HCM 6th Ctrl Delay			19.6
HCM 6th LOS			B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	415	1217	63	736	278	227	67	72	570
v/c Ratio	0.68	0.77	0.40	0.62	0.61	0.27	0.14	0.45	0.75
Control Delay	46.4	26.1	55.9	29.6	50.0	35.5	0.6	58.2	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	26.1	55.9	29.6	50.0	35.5	0.6	58.2	27.2
Queue Length 50th (ft)	131	331	39	201	89	66	0	45	93
Queue Length 95th (ft)	211	482	94	303	154	112	0	104	171
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	813	2013	204	1637	548	1103	587	189	1038
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.60	0.31	0.45	0.51	0.21	0.11	0.38	0.55

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	394	800	356	60	621	78	264	216	64	68	216	326
Future Volume (veh/h)	394	800	356	60	621	78	264	216	64	68	216	326
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	415	842	0	63	654	82	278	227	67	72	227	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	581	1473		98	955	120	412	624	278	105	409	
Arrive On Green	0.17	0.41	0.00	0.05	0.30	0.30	0.12	0.17	0.17	0.06	0.11	0.00
Sat Flow, veh/h	3483	3676	0	1795	3197	400	3483	3582	1598	1795	3676	0
Grp Volume(v), veh/h	415	842	0	63	366	370	278	227	67	72	227	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1807	1742	1791	1598	1795	1791	0
Q Serve(g_s), s	6.7	10.8	0.0	2.1	10.7	10.8	4.6	3.3	2.2	2.3	3.6	0.0
Cycle Q Clear(g_c), s	6.7	10.8	0.0	2.1	10.7	10.8	4.6	3.3	2.2	2.3	3.6	0.0
Prop In Lane	1.00		0.00	1.00		0.22	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	581	1473		98	535	539	412	624	278	105	409	
V/C Ratio(X)	0.71	0.57		0.65	0.68	0.69	0.67	0.36	0.24	0.69	0.55	
Avail Cap(c_a), veh/h	1256	3214		316	1277	1288	847	1700	758	292	1412	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.5	13.5	0.0	27.6	18.4	18.4	25.2	21.7	21.2	27.5	25.0	0.0
Incr Delay (d2), s/veh	1.6	0.4	0.0	7.0	1.6	1.6	1.9	0.4	0.4	7.7	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.9	0.0	1.0	4.1	4.2	1.8	1.3	0.8	1.1	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	13.9	0.0	34.6	20.0	20.0	27.1	22.1	21.7	35.2	26.1	0.0
LnGrp LOS	C	B		C	B	C	C	C	C	D	C	
Approach Vol, veh/h		1257	A		799			572			299	A
Approach Delay, s/veh		17.6			21.1			24.5			28.3	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	29.0	11.6	11.3	14.4	22.3	8.0	14.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	53.5	14.5	23.5	21.5	42.5	9.7	28.3
Max Q Clear Time (g_c+I1), s	4.1	12.8	6.6	5.6	8.7	12.8	4.3	5.3
Green Ext Time (p_c), s	0.0	7.2	0.6	1.1	1.2	4.9	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	58	446	926	597	73
v/c Ratio	0.25	0.26	0.66	0.58	0.14
Control Delay	39.5	11.6	18.1	27.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	11.6	18.1	27.5	9.0
Queue Length 50th (ft)	21	38	115	101	0
Queue Length 95th (ft)	88	149	343	295	40
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	322	2895	2309	1610	782
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.15	0.40	0.37	0.09

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	433	460	438	579	71
Future Volume (vph)	56	433	460	438	579	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3288		3467	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3288		3467	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	446	474	452	597	73
RTOR Reduction (vph)	0	0	137	0	0	53
Lane Group Flow (vph)	58	446	789	0	597	20
Confl. Peds. (#/hr)				4		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	4.5	34.7	25.7		19.6	19.6
Effective Green, g (s)	4.5	34.7	25.7		19.6	19.6
Actuated g/C Ratio	0.06	0.49	0.36		0.28	0.28
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	113	1751	1193		959	442
v/s Ratio Prot	c0.03	0.12	c0.24			
v/s Ratio Perm					c0.17	0.01
v/c Ratio	0.51	0.25	0.66		0.62	0.05
Uniform Delay, d1	32.1	10.5	18.9		22.4	18.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.9	0.1	1.4		1.3	0.0
Delay (s)	36.0	10.6	20.3		23.6	18.8
Level of Service	D	B	C		C	B
Approach Delay (s)		13.5	20.3		23.1	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	167	591	285	116	807	183	358	367	569
v/c Ratio	0.64	1.03	0.42	0.58	0.86	0.68	0.55	1.02	0.68
Control Delay	46.4	78.1	5.6	48.5	34.1	48.1	31.5	90.3	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	78.1	5.6	48.5	34.1	48.1	31.5	90.3	31.2
Queue Length 50th (ft)	85	~376	0	60	168	93	85	~224	137
Queue Length 95th (ft)	154	#611	59	118	#300	#179	127	#414	193
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	315	574	677	228	978	315	902	359	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	1.03	0.42	0.51	0.83	0.58	0.40	1.02	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	567	274	111	442	333	176	286	58	352	409	137
Future Volume (veh/h)	160	567	274	111	442	333	176	286	58	352	409	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	167	591	285	116	460	347	183	298	60	367	426	143
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	582	485	148	532	400	224	465	92	381	644	214
Arrive On Green	0.12	0.31	0.31	0.08	0.28	0.28	0.13	0.16	0.16	0.21	0.25	0.25
Sat Flow, veh/h	1781	1870	1560	1781	1914	1438	1781	2936	581	1781	2616	869
Grp Volume(v), veh/h	167	591	285	116	427	380	183	178	180	367	288	281
Grp Sat Flow(s),veh/h/ln	1781	1870	1560	1781	1777	1575	1781	1777	1741	1781	1777	1709
Q Serve(g_s), s	7.0	24.0	11.9	4.9	17.6	17.7	7.7	7.2	7.5	15.7	11.2	11.4
Cycle Q Clear(g_c), s	7.0	24.0	11.9	4.9	17.6	17.7	7.7	7.2	7.5	15.7	11.2	11.4
Prop In Lane	1.00		1.00	1.00		0.91	1.00		0.33	1.00		0.51
Lane Grp Cap(c), veh/h	207	582	485	148	494	438	224	281	275	381	437	421
V/C Ratio(X)	0.81	1.02	0.59	0.78	0.86	0.87	0.82	0.63	0.65	0.96	0.66	0.67
Avail Cap(c_a), veh/h	335	582	485	243	494	438	335	484	474	381	530	510
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	26.6	22.4	34.7	26.5	26.5	32.8	30.4	30.5	30.0	26.2	26.2
Incr Delay (d2), s/veh	7.2	41.2	1.8	8.7	14.7	16.8	9.2	2.4	2.6	36.4	2.2	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	16.3	4.2	2.4	8.8	8.1	3.8	3.1	3.2	10.2	4.7	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	67.8	24.2	43.3	41.2	43.3	42.0	32.7	33.1	66.4	28.4	28.7
LnGrp LOS	D	F	C	D	D	D	D	C	C	E	C	C
Approach Vol, veh/h		1043			923			541			936	
Approach Delay, s/veh		51.5			42.3			36.0			43.4	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	16.7	10.9	28.5	14.2	23.5	13.5	25.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	21.0	10.5	24.0	14.5	23.0	14.5	20.0
Max Q Clear Time (g_c+I1), s	17.7	9.5	6.9	26.0	9.7	13.4	9.0	19.7
Green Ext Time (p_c), s	0.0	1.5	0.1	0.0	0.2	2.4	0.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	44.4
HCM 6th LOS	D

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Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	111	4	7	4	1	38	17	277	10	48	341	133
Future Vol, veh/h	111	4	7	4	1	38	17	277	10	48	341	133
Conflicting Peds, #/hr	4	0	0	0	0	4	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	112	4	7	4	1	38	17	280	10	48	344	134

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	788	769	349	832	898	289	483	0	0	290	0	0
Stage 1	445	445	-	319	319	-	-	-	-	-	-	-
Stage 2	343	324	-	513	579	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	310	333	697	290	280	752	1085	-	-	1278	-	-
Stage 1	594	576	-	695	655	-	-	-	-	-	-	-
Stage 2	674	651	-	546	502	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	279	314	694	273	264	749	1080	-	-	1278	-	-
Mov Cap-2 Maneuver	279	314	-	273	264	-	-	-	-	-	-	-
Stage 1	582	551	-	684	645	-	-	-	-	-	-	-
Stage 2	626	641	-	516	480	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.3	11.2	0.5	0.7
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1080	-	-	290	622	1278	-	-
HCM Lane V/C Ratio	0.016	-	-	0.425	0.07	0.038	-	-
HCM Control Delay (s)	8.4	-	-	26.3	11.2	7.9	-	-
HCM Lane LOS	A	-	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2	0.2	0.1	-	-

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	8	2	3	123	3	98	0	7	198	197	168	172
Future Vol, veh/h	8	2	3	123	3	98	0	7	198	197	168	172
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	2	1	1	1	1	1
Mvmt Flow	9	2	3	132	3	105	0	8	213	212	181	185
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	9.6	12.2	10.9	12.9
HCM LOS	A	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	3%	0%	62%	55%	66%	0%
Vol Thru, %	97%	0%	15%	1%	34%	88%
Vol Right, %	0%	100%	23%	44%	0%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	205	197	13	224	254	98
LT Vol	7	0	8	123	168	0
Through Vol	198	0	2	3	86	86
RT Vol	0	197	3	98	0	12
Lane Flow Rate	220	212	14	241	273	105
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.357	0.3	0.025	0.381	0.467	0.168
Departure Headway (Hd)	5.828	5.101	6.396	5.694	6.161	5.739
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	617	705	558	631	584	625
Service Time	3.56	2.833	4.452	3.731	3.895	3.473
HCM Lane V/C Ratio	0.357	0.301	0.025	0.382	0.467	0.168
HCM Control Delay	11.8	10	9.6	12.2	14.2	9.6
HCM Lane LOS	B	A	A	B	B	A
HCM 95th-tile Q	1.6	1.3	0.1	1.8	2.5	0.6

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	12
Future Vol, veh/h	12
Peak Hour Factor	0.93
Heavy Vehicles, %	1
Mvmt Flow	13
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	256	121	67	146	118	180
Future Vol, veh/h	256	121	67	146	118	180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	264	125	69	151	122	186

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	336	122	308	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	214	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.115	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	649	932	1258	-	-	-
Stage 1	906	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	613	932	1258	-	-	-
Mov Cap-2 Maneuver	613	-	-	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	2.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1258	-	613	932	-	-
HCM Lane V/C Ratio	0.055	-	0.431	0.134	-	-
HCM Control Delay (s)	8	-	15.2	9.5	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	2.2	0.5	-	-

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15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	109	0	166	14	0	0	0	0	283	34
Future Volume (Veh/h)	27	0	109	0	166	14	0	0	0	0	283	34
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	118	0	180	15	0	0	0	0	308	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	424	326	326	444	345	0	345			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	424	326	326	444	345	0	345			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	100	84	100	69	99	100			100		
cM capacity (veh/h)	406	593	717	439	580	1088	1220			1630		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	147	195	345
Volume Left	29	0	0
Volume Right	118	15	37
cSH	623	614	1700
Volume to Capacity	0.24	0.32	0.20
Queue Length 95th (ft)	23	34	0
Control Delay (s)	12.6	13.6	0.0
Lane LOS	B	B	
Approach Delay (s)	12.6	13.6	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		6.5		
Intersection Capacity Utilization		43.9%	ICU Level of Service	A
Analysis Period (min)		15		

16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	419	696	193	425	99	368	1097	591	324
v/c Ratio	0.18	0.74	0.66	0.34	0.42	0.58	0.69	0.82	0.77	0.34
Control Delay	51.8	57.8	43.5	38.6	3.6	71.9	60.3	22.5	54.7	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	57.8	43.5	38.6	3.6	71.9	60.3	22.5	54.7	36.5
Queue Length 50th (ft)	39	170	263	126	16	83	160	213	246	111
Queue Length 95th (ft)	86	251	381	222	70	154	230	307	337	162
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	353	697	1168	633	1098	234	816	1427	991	1342
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.60	0.60	0.30	0.39	0.42	0.45	0.77	0.60	0.24

Intersection Summary

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	305	102	675	187	412	96	357	1064	573	256	58
Future Volume (veh/h)	50	305	102	675	187	412	96	357	1064	573	256	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	52	314	105	696	193	425	99	368	1097	591	264	60
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	266	391	128	899	486	719	124	825	1373	683	1013	226
Arrive On Green	0.15	0.15	0.15	0.26	0.26	0.26	0.07	0.23	0.23	0.20	0.35	0.35
Sat Flow, veh/h	1795	2640	865	3483	1885	1572	1795	3582	2812	3483	2909	650
Grp Volume(v), veh/h	52	211	208	696	193	425	99	368	1097	591	161	163
Grp Sat Flow(s),veh/h/ln	1795	1791	1714	1742	1885	1572	1795	1791	1406	1742	1791	1768
Q Serve(g_s), s	3.1	13.9	14.4	22.7	10.4	24.8	6.7	10.8	28.2	20.1	7.9	8.1
Cycle Q Clear(g_c), s	3.1	13.9	14.4	22.7	10.4	24.8	6.7	10.8	28.2	20.1	7.9	8.1
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	266	265	254	899	486	719	124	825	1373	683	624	616
V/C Ratio(X)	0.20	0.80	0.82	0.77	0.40	0.59	0.80	0.45	0.80	0.87	0.26	0.27
Avail Cap(c_a), veh/h	358	357	342	1183	640	847	238	825	1373	1004	692	683
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	50.4	50.6	42.1	37.6	25.0	56.2	40.4	23.2	47.6	28.6	28.6
Incr Delay (d2), s/veh	0.4	8.6	11.0	2.4	0.5	0.8	11.1	0.4	3.4	5.5	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.9	7.0	9.8	4.8	9.0	3.3	4.7	17.3	9.2	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.1	59.0	61.5	44.5	38.1	25.8	67.2	40.8	26.7	53.2	28.8	28.9
LnGrp LOS	D	E	E	D	D	C	E	D	C	D	C	C
Approach Vol, veh/h		471			1314			1564			915	
Approach Delay, s/veh		58.7			37.5			32.6			44.5	
Approach LOS		E			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	28.7	34.0		22.7	14.3	48.5		37.0
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 35	28.2		24.4	16.2	* 47		41.6
Max Q Clear Time (g_c+I1), s	22.1	30.2		16.4	8.7	10.1		26.8
Green Ext Time (p_c), s	1.9	0.0		1.7	0.1	2.1		4.8

Intersection Summary			
HCM 6th Ctrl Delay			39.5
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	269	999	547	120	883	377	333	199	511
v/c Ratio	0.61	0.79	0.62	0.59	0.74	0.69	0.47	0.72	0.73
Control Delay	51.6	36.6	7.4	59.4	34.6	50.2	35.8	59.4	43.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	36.6	7.4	59.4	34.6	50.2	35.8	59.4	43.6
Queue Length 50th (ft)	92	314	22	80	266	129	97	132	165
Queue Length 95th (ft)	148	458	128	153	392	196	147	#233	234
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	533	1437	940	257	1375	671	965	346	962
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.70	0.58	0.47	0.64	0.56	0.35	0.58	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	258	959	525	115	703	145	362	237	83	191	362	129
Future Volume (veh/h)	258	959	525	115	703	145	362	237	83	191	362	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	269	999	547	120	732	151	377	247	86	199	377	134
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	364	1319	589	153	1033	213	482	525	178	241	508	178
Arrive On Green	0.10	0.37	0.37	0.09	0.35	0.35	0.14	0.20	0.20	0.13	0.20	0.20
Sat Flow, veh/h	3483	3582	1598	1795	2956	610	3483	2625	891	1795	2597	910
Grp Volume(v), veh/h	269	999	547	120	443	440	377	167	166	199	258	253
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1774	1742	1791	1725	1795	1791	1716
Q Serve(g_s), s	6.4	20.7	17.1	5.6	18.2	18.2	8.9	7.0	7.3	9.2	11.5	11.8
Cycle Q Clear(g_c), s	6.4	20.7	17.1	5.6	18.2	18.2	8.9	7.0	7.3	9.2	11.5	11.8
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.52	1.00		0.53
Lane Grp Cap(c), veh/h	364	1319	589	153	626	620	482	358	345	241	350	336
V/C Ratio(X)	0.74	0.76	0.93	0.78	0.71	0.71	0.78	0.46	0.48	0.83	0.74	0.75
Avail Cap(c_a), veh/h	636	1710	763	307	834	826	801	581	559	413	581	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	23.5	9.7	38.0	23.9	23.9	35.3	29.9	30.0	35.8	32.1	32.2
Incr Delay (d2), s/veh	3.0	1.5	15.2	8.4	1.8	1.9	2.8	0.9	1.0	7.1	3.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	8.2	7.3	2.7	7.4	7.3	3.8	2.9	3.0	4.3	5.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	24.9	24.8	46.5	25.7	25.7	38.1	30.9	31.1	42.8	35.1	35.6
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	D	D
Approach Vol, veh/h		1815			1003			710			710	
Approach Delay, s/veh		27.1			28.2			34.8			37.4	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	35.7	16.2	21.1	13.4	34.1	15.9	21.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	40.5	19.5	27.5	15.5	39.5	19.5	27.5
Max Q Clear Time (g_c+I1), s	7.6	22.7	10.9	13.8	8.4	20.2	11.2	9.3
Green Ext Time (p_c), s	0.1	8.5	0.9	2.4	0.5	5.2	0.3	1.7

Intersection Summary	
HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	2	4	449	702	88
Future Vol, veh/h	51	2	4	449	702	88
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	2	4	468	731	92

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1254	778	824	0	-	0
Stage 1	778	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	190	396	806	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	188	396	805	-	-	-
Mov Cap-2 Maneuver	188	-	-	-	-	-
Stage 1	449	-	-	-	-	-
Stage 2	624	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.1	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	805	-	192	-	-
HCM Lane V/C Ratio	0.005	-	0.288	-	-
HCM Control Delay (s)	9.5	0	31.1	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	1.1	-	-

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Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	9	12	404	615	53
Future Vol, veh/h	35	9	12	404	615	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	10	13	439	668	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1162	697	726	0	-	0
Stage 1	697	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	215	439	872	-	-	-
Stage 1	492	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	211	439	872	-	-	-
Mov Cap-2 Maneuver	405	-	-	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	630	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	872	-	412	-	-
HCM Lane V/C Ratio	0.015	-	0.116	-	-
HCM Control Delay (s)	9.2	0	14.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Intersection Delay, s/veh	40.6
Intersection LOS	E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	330	89	25	531	90
Future Vol, veh/h	9	330	89	25	531	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	359	97	27	577	98
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	15.4	10.5	59.8
HCM LOS	C	B	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	3%	86%
Vol Thru, %	78%	0%	14%
Vol Right, %	22%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	114	339	621
LT Vol	0	9	531
Through Vol	89	0	90
RT Vol	25	330	0
Lane Flow Rate	124	368	675
Geometry Grp	1	1	1
Degree of Util (X)	0.203	0.562	1.008
Departure Headway (Hd)	5.901	5.487	5.375
Convergence, Y/N	Yes	Yes	Yes
Cap	605	652	675
Service Time	3.972	3.553	3.417
HCM Lane V/C Ratio	0.205	0.564	1
HCM Control Delay	10.5	15.4	59.8
HCM Lane LOS	B	C	F
HCM 95th-tile Q	0.8	3.5	16.2

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Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	546	331	5	4	9
Future Vol, veh/h	5	546	331	5	4	9
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	593	360	5	4	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	379	0	-	0	980	377
Stage 1	-	-	-	-	377	-
Stage 2	-	-	-	-	603	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1185	-	-	-	278	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	548	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1169	-	-	-	270	663
Mov Cap-2 Maneuver	-	-	-	-	270	-
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	541	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1169	-	-	-	458
HCM Lane V/C Ratio	0.005	-	-	-	0.031
HCM Control Delay (s)	8.1	-	-	-	13.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	514	2	2	307	20	1	0	1	19	0	28
Future Vol, veh/h	34	514	2	2	307	20	1	0	1	19	0	28
Conflicting Peds, #/hr	12	0	0	0	0	12	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	36	541	2	2	323	21	1	0	1	20	0	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	356	0	0	543	0	0	966	974	542	965	965	346
Stage 1	-	-	-	-	-	-	614	614	-	350	350	-
Stage 2	-	-	-	-	-	-	352	360	-	615	615	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1197	-	-	1021	-	-	233	251	538	233	254	695
Stage 1	-	-	-	-	-	-	477	481	-	664	631	-
Stage 2	-	-	-	-	-	-	663	625	-	477	481	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1183	-	-	1021	-	-	217	240	538	224	243	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	217	240	-	224	243	-
Stage 1	-	-	-	-	-	-	463	467	-	636	623	-
Stage 2	-	-	-	-	-	-	633	617	-	462	467	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.1	16.7	16.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	309	1183	-	-	1021	-	-	374
HCM Lane V/C Ratio	0.007	0.03	-	-	0.002	-	-	0.132
HCM Control Delay (s)	16.7	8.1	-	-	8.5	-	-	16.1
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	531	322	4	4	7
Future Vol, veh/h	8	531	322	4	4	7
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	9	577	350	4	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	363	0	-	0	956	361
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	595	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1201	-	-	-	287	686
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	553	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1191	-	-	-	280	680
Mov Cap-2 Maneuver	-	-	-	-	280	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	548	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1191	-	-	-	448
HCM Lane V/C Ratio	0.007	-	-	-	0.027
HCM Control Delay (s)	8	-	-	-	13.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	153	382	243	17	15	83
Future Vol, veh/h	153	382	243	17	15	83
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	166	415	264	18	16	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	284	0	-	0	1022	275
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	747	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1284	-	-	-	263	766
Stage 1	-	-	-	-	774	-
Stage 2	-	-	-	-	470	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1282	-	-	-	228	765
Mov Cap-2 Maneuver	-	-	-	-	228	-
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	469	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1282	-	-	-	562
HCM Lane V/C Ratio	0.13	-	-	-	0.19
HCM Control Delay (s)	8.2	-	-	-	12.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.7

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Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	210	0	0	144	0	0	0	0	2	0	103
Future Vol, veh/h	60	210	0	0	144	0	0	0	0	2	0	103
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	62	216	0	0	148	0	0	0	0	2	0	106

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	149	0	0	216	0	0	541	489	216	489	489	149
Stage 1	-	-	-	-	-	-	340	340	-	149	149	-
Stage 2	-	-	-	-	-	-	201	149	-	340	340	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1439	-	-	1360	-	-	453	481	826	491	481	900
Stage 1	-	-	-	-	-	-	677	641	-	856	776	-
Stage 2	-	-	-	-	-	-	803	776	-	677	641	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1438	-	-	1360	-	-	385	457	826	472	457	899
Mov Cap-2 Maneuver	-	-	-	-	-	-	385	457	-	472	457	-
Stage 1	-	-	-	-	-	-	644	610	-	813	775	-
Stage 2	-	-	-	-	-	-	708	775	-	644	610	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0	0	9.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1438	-	-	1360	-	-	884
HCM Lane V/C Ratio	-	0.043	-	-	-	-	-	0.122
HCM Control Delay (s)	0	7.6	0	-	0	-	-	9.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.4

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	252	1227	1280	135	163	263
v/c Ratio	0.72	0.38	0.83	0.18	0.62	0.42
Control Delay	56.1	0.3	31.5	3.6	58.7	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	0.3	31.5	3.6	58.7	22.4
Queue Length 50th (ft)	165	0	407	0	110	104
Queue Length 95th (ft)	#358	0	610	34	224	226
Internal Link Dist (ft)		942	856		514	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	457	3223	2616	1195	457	890
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.38	0.49	0.11	0.36	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	232	1129	1178	124	150	242
Future Volume (vph)	232	1129	1178	124	150	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1612	3223	3223	1442	1612	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1612	3223	3223	1442	1612	1442
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	252	1227	1280	135	163	263
RTOR Reduction (vph)	0	0	0	70	0	27
Lane Group Flow (vph)	252	1227	1280	65	163	236
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	24.7	111.1	53.3	53.3	18.1	46.8
Effective Green, g (s)	24.7	111.1	53.3	53.3	18.1	46.8
Actuated g/C Ratio	0.22	1.00	0.48	0.48	0.16	0.42
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	358	3223	1546	691	262	607
v/s Ratio Prot	c0.16	0.38	c0.40		c0.10	0.16
v/s Ratio Perm				0.04		
v/c Ratio	0.70	0.38	0.83	0.09	0.62	0.39
Uniform Delay, d1	39.8	0.0	24.9	15.7	43.3	22.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	0.3	4.0	0.1	4.8	0.4
Delay (s)	46.0	0.3	28.9	15.8	48.1	22.7
Level of Service	D	A	C	B	D	C
Approach Delay (s)		8.1	27.7		32.4	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	111.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	227	850	313	39	959	186	304	328	93	188	151
v/c Ratio	0.57	0.63	0.40	0.11	0.82	0.29	0.63	0.42	0.35	0.65	0.41
Control Delay	55.4	32.4	4.8	48.1	39.8	5.0	54.0	39.1	57.8	57.1	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	32.4	4.8	48.1	39.8	5.0	54.0	39.1	57.8	57.1	10.6
Queue Length 50th (ft)	80	288	0	12	326	0	106	103	33	128	0
Queue Length 95th (ft)	149	432	64	35	487	49	192	181	73	242	61
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	529	2122	1058	551	2122	1014	588	1233	588	654	649
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.40	0.30	0.07	0.45	0.18	0.52	0.27	0.16	0.29	0.23

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	782	288	36	882	171	280	283	18	86	173	139
Future Volume (veh/h)	209	782	288	36	882	171	280	283	18	86	173	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	227	850	313	39	959	186	304	308	20	93	188	151
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	317	1134	506	293	1243	554	402	702	45	156	255	216
Arrive On Green	0.10	0.34	0.34	0.09	0.38	0.38	0.13	0.22	0.22	0.05	0.15	0.15
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	3144	203	3209	1737	1472
Grp Volume(v), veh/h	227	850	313	39	959	186	304	161	167	93	188	151
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1697	1605	1737	1472
Q Serve(g_s), s	5.6	18.6	8.6	0.9	20.8	7.4	7.5	6.8	6.9	2.3	8.4	8.0
Cycle Q Clear(g_c), s	5.6	18.6	8.6	0.9	20.8	7.4	7.5	6.8	6.9	2.3	8.4	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	317	1134	506	293	1243	554	402	369	379	156	255	216
V/C Ratio(X)	0.72	0.75	0.62	0.13	0.77	0.34	0.76	0.44	0.44	0.60	0.74	0.70
Avail Cap(c_a), veh/h	708	2832	1263	708	2832	1263	787	829	853	787	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	23.7	8.0	34.1	22.3	18.1	34.5	27.3	27.3	38.0	33.3	33.1
Incr Delay (d2), s/veh	3.0	1.0	1.2	0.1	1.0	0.4	2.9	0.8	0.8	3.6	4.1	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.4	4.3	0.3	7.0	2.3	2.9	2.6	2.7	0.9	3.7	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	24.7	9.2	34.2	23.4	18.5	37.4	28.1	28.1	41.6	37.4	37.1
LnGrp LOS	D	C	A	C	C	B	D	C	C	D	D	D
Approach Vol, veh/h		1390			1184			632			432	
Approach Delay, s/veh		23.5			23.0			32.6			38.2	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	35.3	14.2	17.3	12.0	38.0	8.0	23.5
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	2.9	20.6	9.5	10.4	7.6	22.8	4.3	8.9
Green Ext Time (p_c), s	0.0	7.4	0.8	1.5	0.5	7.9	0.2	1.8

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	839	46	283	1080	0	9	0	261	0	0	0
Future Vol, veh/h	1	839	46	283	1080	0	9	0	261	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	1	912	50	308	1174	0	10	0	284	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1174	0	0	962	0	0	2142	2729	481	2248	2754	587
Stage 1	-	-	-	-	-	-	939	939	-	1790	1790	-
Stage 2	-	-	-	-	-	-	1203	1790	-	458	964	-
Critical Hdwy	4.32	-	-	4.32	-	-	7.72	6.72	7.12	7.72	6.72	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Follow-up Hdwy	2.31	-	-	2.31	-	-	3.61	4.11	3.41	3.61	4.11	3.41
Pot Cap-1 Maneuver	542	-	-	658	-	-	25	18	508	20	17	431
Stage 1	-	-	-	-	-	-	267	321	-	76	120	-
Stage 2	-	-	-	-	-	-	182	120	-	529	312	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	542	-	-	658	-	-	16	10	508	6	9	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	16	10	-	6	9	-
Stage 1	-	-	-	-	-	-	266	320	-	76	64	-
Stage 2	-	-	-	-	-	-	97	64	-	233	311	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.2	33.6	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	16	508	542	-	-	658	-	-	-	-
HCM Lane V/C Ratio	0.611	0.558	0.002	-	-	0.467	-	-	-	-
HCM Control Delay (s)	$ 406.3	20.7	11.7	-	-	15.2	-	-	0	0
HCM Lane LOS	F	C	B	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	1.6	3.4	0	-	-	2.5	-	-	-	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	364	736	1177	19	5	186
Future Vol, veh/h	364	736	1177	19	5	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	396	800	1279	21	5	202

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	1300	0	-	0	2471	640
Stage 1	-	-	-	-	1279	-
Stage 2	-	-	-	-	1192	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	488	-	-	-	22	399
Stage 1	-	-	-	-	210	-
Stage 2	-	-	-	-	235	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	488	-	-	-	~ 4	399
Mov Cap-2 Maneuver	-	-	-	-	37	-
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	235	-

Approach	EB	WB	SB
HCM Control Delay, s	12.2	0	25.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	488	-	-	-	37	399
HCM Lane V/C Ratio	0.811	-	-	-	0.147	0.507
HCM Control Delay (s)	36.9	-	-	-	118.4	22.9
HCM Lane LOS	E	-	-	-	F	C
HCM 95th %tile Q(veh)	7.7	-	-	-	0.5	2.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	722	19	2	1188	0	8	0	1	0	0	0
Future Vol, veh/h	0	722	19	2	1188	0	8	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	13	13	13	13	13	13	13	13	13	13	13	13
Mvmt Flow	0	785	21	2	1291	0	9	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1291	0	0	806	0	0	1435	2080	393	1688	2101	646
Stage 1	-	-	-	-	-	-	785	785	-	1295	1295	-
Stage 2	-	-	-	-	-	-	650	1295	-	393	806	-
Critical Hdwy	4.36	-	-	4.36	-	-	7.76	6.76	7.16	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Follow-up Hdwy	2.33	-	-	2.33	-	-	3.63	4.13	3.43	3.63	4.13	3.43
Pot Cap-1 Maneuver	477	-	-	747	-	-	85	46	576	54	45	389
Stage 1	-	-	-	-	-	-	329	377	-	156	211	-
Stage 2	-	-	-	-	-	-	399	211	-	574	368	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	477	-	-	747	-	-	85	46	576	54	45	389
Mov Cap-2 Maneuver	-	-	-	-	-	-	253	177	-	145	176	-
Stage 1	-	-	-	-	-	-	329	377	-	156	210	-
Stage 2	-	-	-	-	-	-	398	210	-	573	368	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.8	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	253	576	477	-	-	747	-	-	-
HCM Lane V/C Ratio	0.034	0.002	-	-	-	0.003	-	-	-
HCM Control Delay (s)	19.7	11.3	0	-	-	9.8	-	-	0
HCM Lane LOS	C	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	16.1
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	331	490	753	465
Demand Flow Rate, veh/h	341	504	775	479
Vehicles Circulating, veh/h	729	621	283	472
Vehicles Exiting, veh/h	222	437	787	653
Ped Vol Crossing Leg, #/h	0	0	3	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.2	18.9	17.2	12.6
Approach LOS	B	C	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	341	504	775	479
Cap Entry Lane, veh/h	656	732	1034	853
Entry HV Adj Factor	0.971	0.972	0.972	0.971
Flow Entry, veh/h	331	490	753	465
Cap Entry, veh/h	637	712	1004	828
V/C Ratio	0.520	0.688	0.750	0.562
Control Delay, s/veh	14.2	18.9	17.2	12.6
LOS	B	C	C	B
95th %tile Queue, veh	3	6	7	4

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	367	345	460	672	7	21	139	289	296	35
v/c Ratio	0.01	0.59	0.75	0.52	0.61	0.05	0.13	0.53	0.70	0.70	0.07
Control Delay	49.0	38.1	41.7	19.5	4.1	44.0	44.6	16.2	41.3	41.4	0.3
Queue Delay	0.0	0.0	0.1	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	38.1	41.8	20.0	4.4	44.0	44.6	16.2	41.3	41.4	0.3
Queue Length 50th (ft)	1	93	166	153	0	4	11	0	144	148	0
Queue Length 95th (ft)	6	175	329	349	67	20	40	59	305	311	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	108	985	704	1152	1231	390	410	452	587	597	622
Starvation Cap Reductn	0	0	29	303	151	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.37	0.51	0.54	0.62	0.02	0.05	0.31	0.49	0.50	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	308	29	317	423	618	6	19	128	451	87	32
Future Volume (veh/h)	1	308	29	317	423	618	6	19	128	451	87	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	335	32	345	460	672	7	21	139	558	0	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	828	79	394	884	749	197	207	175	705	0	310
Arrive On Green	0.00	0.25	0.25	0.22	0.48	0.48	0.11	0.11	0.11	0.20	0.00	0.20
Sat Flow, veh/h	1767	3249	308	1767	1856	1572	1767	1856	1568	3534	0	1553
Grp Volume(v), veh/h	1	181	186	345	460	672	7	21	139	558	0	35
Grp Sat Flow(s),veh/h/ln	1767	1763	1794	1767	1856	1572	1767	1856	1568	1767	0	1553
Q Serve(g_s), s	0.0	7.2	7.3	16.0	14.7	33.3	0.3	0.9	7.4	12.8	0.0	1.6
Cycle Q Clear(g_c), s	0.0	7.2	7.3	16.0	14.7	33.3	0.3	0.9	7.4	12.8	0.0	1.6
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	449	457	394	884	749	197	207	175	705	0	310
V/C Ratio(X)	0.41	0.40	0.41	0.88	0.52	0.90	0.04	0.10	0.80	0.79	0.00	0.11
Avail Cap(c_a), veh/h	104	476	485	675	1101	933	374	392	332	1184	0	520
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	26.3	26.4	31.9	15.5	20.4	33.7	34.0	36.9	32.4	0.0	27.9
Incr Delay (d2), s/veh	85.1	0.6	0.6	6.8	0.5	9.7	0.1	0.2	7.9	2.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.1	3.2	7.4	5.9	13.2	0.1	0.4	3.1	5.4	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	127.5	26.9	26.9	38.7	16.0	30.1	33.8	34.2	44.8	34.4	0.0	28.1
LnGrp LOS	F	C	C	D	B	C	C	C	D	C	A	C
Approach Vol, veh/h		368			1477			167			593	
Approach Delay, s/veh		27.2			27.7			43.0			34.1	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.5	26.2		21.5	4.6	45.0		14.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	32.5	23.0		28.5	5.0	50.5		18.0				
Max Q Clear Time (g_c+I1), s	18.0	9.3		14.8	2.0	35.3		9.4				
Green Ext Time (p_c), s	0.9	1.8		1.9	0.0	5.3		0.3				

Intersection Summary

HCM 6th Ctrl Delay			30.1									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	68	893	49	1237	374	234	12	249	5	8
v/c Ratio	0.36	0.47	0.28	0.70	0.42	0.68	0.03	0.43	0.01	0.01
Control Delay	46.5	14.2	46.0	19.7	6.5	41.8	27.2	6.5	27.0	0.0
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	14.4	46.0	19.7	6.5	41.8	27.2	6.5	27.0	0.0
Queue Length 50th (ft)	36	158	26	260	33	122	5	0	2	0
Queue Length 95th (ft)	88	265	69	424	109	216	20	57	12	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	254	2276	229	2267	1079	588	782	808	586	781
Starvation Cap Reductn	0	618	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.54	0.21	0.55	0.35	0.40	0.02	0.31	0.01	0.01

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	774	48	45	1138	344	215	11	229	5	0	7
Future Volume (veh/h)	63	774	48	45	1138	344	215	11	229	5	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	68	841	52	49	1237	0	234	12	249	5	0	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	100	1713	106	82	1756		422	409	347	359	0	347
Arrive On Green	0.06	0.51	0.51	0.05	0.50	0.00	0.22	0.22	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1767	3371	208	1767	3526	1572	1396	1856	1572	1110	0	1572
Grp Volume(v), veh/h	68	440	453	49	1237	0	234	12	249	5	0	8
Grp Sat Flow(s),veh/h/ln	1767	1763	1817	1767	1763	1572	1396	1856	1572	1110	0	1572
Q Serve(g_s), s	2.3	9.8	9.8	1.6	16.3	0.0	9.5	0.3	8.8	0.2	0.0	0.2
Cycle Q Clear(g_c), s	2.3	9.8	9.8	1.6	16.3	0.0	9.7	0.3	8.8	0.5	0.0	0.2
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	100	896	923	82	1756		422	409	347	359	0	347
V/C Ratio(X)	0.68	0.49	0.49	0.60	0.70		0.55	0.03	0.72	0.01	0.00	0.02
Avail Cap(c_a), veh/h	309	1507	1553	280	2955		829	949	804	682	0	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.8	9.7	9.7	28.1	11.6	0.0	22.1	18.4	21.7	18.6	0.0	18.3
Incr Delay (d2), s/veh	7.9	0.4	0.4	6.7	0.5	0.0	1.1	0.0	2.8	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.2	3.3	0.8	5.4	0.0	2.9	0.1	3.2	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	10.1	10.1	34.8	12.2	0.0	23.3	18.4	24.5	18.6	0.0	18.4
LnGrp LOS	D	B	B	C	B		C	B	C	B	A	B
Approach Vol, veh/h		961			1286	A		495			13	
Approach Delay, s/veh		11.9			13.0			23.8			18.4	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.3	35.0		17.7	7.9	34.4		17.7
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.5	51.3		30.7	10.5	50.3		30.7
Max Q Clear Time (g_c+I1), s	3.6	11.8		2.5	4.3	18.3		11.7
Green Ext Time (p_c), s	0.0	6.9		0.0	0.1	11.6		1.5

Intersection Summary			
HCM 6th Ctrl Delay			14.6
HCM 6th LOS			B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	214	884	61	942	428	192	49	137	598
v/c Ratio	0.56	0.64	0.40	0.79	0.73	0.24	0.11	0.59	0.86dr
Control Delay	52.0	25.8	57.2	35.6	49.3	34.5	1.0	55.2	34.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	25.8	57.2	35.6	49.3	34.5	1.0	55.2	34.6
Queue Length 50th (ft)	70	228	39	293	140	54	0	88	136
Queue Length 95th (ft)	124	334	91	407	220	97	4	165	221
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	442	1618	191	1565	725	1007	518	337	983
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.55	0.32	0.60	0.59	0.19	0.09	0.41	0.61

Intersection Summary

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	518	295	56	768	98	394	177	45	126	187	363
Future Volume (veh/h)	197	518	295	56	768	98	394	177	45	126	187	363
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	563	0	61	835	107	428	192	49	137	203	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	326	1438		91	1145	147	575	593	265	178	358	
Arrive On Green	0.09	0.40	0.00	0.05	0.36	0.36	0.17	0.17	0.17	0.10	0.10	0.00
Sat Flow, veh/h	3456	3647	0	1781	3163	405	3456	3554	1585	1781	3647	0
Grp Volume(v), veh/h	214	563	0	61	469	473	428	192	49	137	203	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1791	1728	1777	1585	1781	1777	0
Q Serve(g_s), s	3.9	7.3	0.0	2.2	14.9	14.9	7.7	3.1	1.7	4.9	3.5	0.0
Cycle Q Clear(g_c), s	3.9	7.3	0.0	2.2	14.9	14.9	7.7	3.1	1.7	4.9	3.5	0.0
Prop In Lane	1.00		0.00	1.00		0.23	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	326	1438		91	643	648	575	593	265	178	358	
V/C Ratio(X)	0.66	0.39		0.67	0.73	0.73	0.74	0.32	0.19	0.77	0.57	
Avail Cap(c_a), veh/h	664	2486		288	1188	1198	1089	1503	670	507	1393	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.4	13.7	0.0	30.3	18.0	18.0	25.8	23.9	23.3	28.5	27.9	0.0
Incr Delay (d2), s/veh	2.3	0.2	0.0	8.1	1.6	1.6	1.9	0.3	0.3	6.8	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.7	0.0	1.1	5.7	5.7	3.0	1.2	0.6	2.2	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.7	13.9	0.0	38.4	19.6	19.6	27.7	24.2	23.6	35.3	29.3	0.0
LnGrp LOS	C	B		D	B	B	C	C	C	D	C	
Approach Vol, veh/h		777	A		1003			669			340	A
Approach Delay, s/veh		18.5			20.7			26.4			31.7	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	30.8	15.3	11.1	10.6	28.0	11.0	15.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	45.5	20.5	25.5	12.5	43.5	18.5	27.5
Max Q Clear Time (g_c+I1), s	4.2	9.3	9.7	5.5	5.9	16.9	6.9	5.1
Green Ext Time (p_c), s	0.0	4.3	1.2	1.0	0.4	6.6	0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	71	448	1224	568	101
v/c Ratio	0.39	0.21	0.74	0.71	0.23
Control Delay	48.3	10.1	21.3	38.2	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	10.1	21.3	38.2	9.1
Queue Length 50th (ft)	35	42	207	140	0
Queue Length 95th (ft)	103	145	#590	#309	47
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	234	2450	1789	1020	541
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.18	0.68	0.56	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	412	588	538	523	93
Future Volume (vph)	65	412	588	538	523	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	3230		3400	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	3230		3400	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	448	639	585	568	101
RTOR Reduction (vph)	0	0	115	0	0	79
Lane Group Flow (vph)	71	448	1109	0	568	22
Confl. Peds. (#/hr)				3		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	6.9	51.5	40.1		19.7	19.7
Effective Green, g (s)	6.9	51.5	40.1		19.7	19.7
Actuated g/C Ratio	0.08	0.58	0.45		0.22	0.22
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	136	2039	1463		756	349
v/s Ratio Prot	c0.04	0.13	c0.34			
v/s Ratio Perm					c0.17	0.01
v/c Ratio	0.52	0.22	0.76		0.75	0.06
Uniform Delay, d1	39.2	8.9	20.2		32.1	27.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.6	0.1	2.3		4.2	0.1
Delay (s)	42.8	8.9	22.5		36.3	27.2
Level of Service	D	A	C		D	C
Approach Delay (s)		13.6	22.5		35.0	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	136	378	163	73	1063	263	640	273	645
v/c Ratio	0.60	0.66	0.28	0.54	1.19	0.83	0.79	0.88	0.69
Control Delay	47.4	33.4	5.5	55.4	122.1	57.6	37.9	65.5	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	33.4	5.5	55.4	122.1	57.6	37.9	65.5	22.8
Queue Length 50th (ft)	72	188	0	40	~339	141	169	150	104
Queue Length 95th (ft)	131	292	44	#96	#480	#277	235	#302	167
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	274	594	607	140	895	335	924	315	1003
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.64	0.27	0.52	1.19	0.79	0.69	0.87	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	348	150	67	553	425	242	541	48	251	308	285
Future Volume (veh/h)	125	348	150	67	553	425	242	541	48	251	308	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.91	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	136	378	163	73	601	462	263	588	52	273	335	310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	171	549	459	93	470	361	304	755	67	312	418	370
Arrive On Green	0.10	0.30	0.30	0.05	0.26	0.26	0.17	0.24	0.24	0.18	0.24	0.24
Sat Flow, veh/h	1739	1826	1526	1739	1839	1411	1739	3196	282	1739	1735	1536
Grp Volume(v), veh/h	136	378	163	73	567	496	263	318	322	273	335	310
Grp Sat Flow(s),veh/h/ln	1739	1826	1526	1739	1735	1515	1739	1735	1743	1739	1735	1536
Q Serve(g_s), s	6.0	14.3	6.5	3.2	20.0	20.0	11.5	13.4	13.5	12.0	14.2	15.0
Cycle Q Clear(g_c), s	6.0	14.3	6.5	3.2	20.0	20.0	11.5	13.4	13.5	12.0	14.2	15.0
Prop In Lane	1.00		1.00	1.00		0.93	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	171	549	459	93	443	387	304	410	412	312	418	370
V/C Ratio(X)	0.79	0.69	0.36	0.78	1.28	1.28	0.86	0.78	0.78	0.87	0.80	0.84
Avail Cap(c_a), veh/h	300	621	519	153	443	387	367	510	512	344	488	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	24.1	21.4	36.6	29.1	29.1	31.4	27.9	28.0	31.2	27.9	28.2
Incr Delay (d2), s/veh	8.1	2.8	0.5	13.4	142.0	144.8	16.5	5.9	6.1	20.0	8.1	12.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	6.1	2.2	1.7	25.1	22.3	6.0	5.9	6.0	6.5	6.5	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	26.9	21.9	50.0	171.1	174.0	47.9	33.9	34.1	51.2	36.0	40.2
LnGrp LOS	D	C	C	D	F	F	D	C	C	D	D	D
Approach Vol, veh/h		677			1136			903			918	
Approach Delay, s/veh		28.8			164.6			38.0			42.0	
Approach LOS		C			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	23.0	8.7	28.0	18.2	23.4	12.2	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	23.0	6.9	26.6	16.5	22.0	13.5	20.0
Max Q Clear Time (g_c+I1), s	14.0	15.5	5.2	16.3	13.5	17.0	8.0	22.0
Green Ext Time (p_c), s	0.1	2.3	0.0	2.0	0.2	1.8	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	76.9
HCM 6th LOS	E

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Intersection	
Int Delay, s/veh	19.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	99	6	40	8	15	98	33	507	3	33	408	85
Future Vol, veh/h	99	6	40	8	15	98	33	507	3	33	408	85
Conflicting Peds, #/hr	1	0	0	0	0	1	6	0	2	2	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	7	43	9	16	107	36	551	3	36	443	92

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1208	1149	449	1213	1240	556	541	0	0	556	0	0
Stage 1	521	521	-	627	627	-	-	-	-	-	-	-
Stage 2	687	628	-	586	613	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	160	198	610	159	175	531	1028	-	-	1015	-	-
Stage 1	539	532	-	471	476	-	-	-	-	-	-	-
Stage 2	437	476	-	496	483	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	111	183	607	136	162	529	1022	-	-	1013	-	-
Mov Cap-2 Maneuver	111	183	-	136	162	-	-	-	-	-	-	-
Stage 1	517	510	-	454	458	-	-	-	-	-	-	-
Stage 2	324	458	-	438	463	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	158.4	20.7	0.5	0.5
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1022	-	-	146	359	1013	-	-
HCM Lane V/C Ratio	0.035	-	-	1.08	0.366	0.035	-	-
HCM Control Delay (s)	8.7	-	-	158.4	20.7	8.7	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	8.4	1.6	0.1	-	-

Intersection	
Intersection Delay, s/veh	52.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	9	7	271	5	296	0	8	227	143	252	194
Future Vol, veh/h	20	9	7	271	5	296	0	8	227	143	252	194
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	10	8	295	5	322	0	9	247	155	274	211
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	12.7	95	17.4	32.4
HCM LOS	B	F	C	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	3%	0%	56%	47%	72%	0%
Vol Thru, %	97%	0%	25%	1%	28%	91%
Vol Right, %	0%	100%	19%	52%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	235	143	36	572	349	107
LT Vol	8	0	20	271	252	0
Through Vol	227	0	9	5	97	97
RT Vol	0	143	7	296	0	10
Lane Flow Rate	255	155	39	622	379	116
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.542	0.299	0.092	1.106	0.817	0.237
Departure Headway (Hd)	8.123	7.378	8.832	6.405	8.214	7.772
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	447	490	408	566	444	465
Service Time	5.823	5.078	6.832	4.492	5.914	5.472
HCM Lane V/C Ratio	0.57	0.316	0.096	1.099	0.854	0.249
HCM Control Delay	20	13.2	12.7	95	38.4	12.9
HCM Lane LOS	C	B	B	F	E	B
HCM 95th-tile Q	3.2	1.2	0.3	19.3	7.6	0.9

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	10
Future Vol, veh/h	10
Peak Hour Factor	0.92
Heavy Vehicles, %	2
Mvmt Flow	11
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	187	127	204	191	119	353
Future Vol, veh/h	187	127	204	191	119	353
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	203	138	222	208	129	384

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	677	129	513	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Critical Hdwy	6.645	6.245	4.145	-	-	-
Critical Hdwy Stg 1	5.445	-	-	-	-	-
Critical Hdwy Stg 2	5.845	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	400	917	1044	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	315	917	1044	-	-	-
Mov Cap-2 Maneuver	315	-	-	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	542	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.7	4.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1044	-	315	917	-	-
HCM Lane V/C Ratio	0.212	-	0.645	0.151	-	-
HCM Control Delay (s)	9.4	-	35	9.6	-	-
HCM Lane LOS	A	-	E	A	-	-
HCM 95th %tile Q(veh)	0.8	-	4.2	0.5	-	-

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15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	55	1	116	9	0	0	0	0	324	15
Future Volume (Veh/h)	27	0	55	1	116	9	0	0	0	0	324	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	60	1	126	10	0	0	0	0	352	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	428	360	360	420	368	0	368			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	428	360	360	420	368	0	368			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	100	91	100	78	99	100			100		
cM capacity (veh/h)	440	567	684	496	561	1085	1191			1623		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	89	137	368
Volume Left	29	1	0
Volume Right	60	10	16
cSH	580	605	1700
Volume to Capacity	0.15	0.23	0.22
Queue Length 95th (ft)	13	22	0
Control Delay (s)	12.3	12.9	0.0
Lane LOS	B	B	
Approach Delay (s)	12.3	12.9	0.0
Approach LOS	B	B	

Intersection Summary			
Average Delay		4.8	
Intersection Capacity Utilization		36.2%	ICU Level of Service	A
Analysis Period (min)		15	

16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	334	1190	304	487	91	293	613	347	276
v/c Ratio	0.09	0.71	0.79	0.37	0.43	0.61	0.65	0.37	0.68	0.41
Control Delay	55.6	53.6	37.0	27.4	2.5	78.9	62.6	5.9	60.9	45.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	53.6	37.0	27.4	2.5	78.9	62.6	5.9	60.9	45.7
Queue Length 50th (ft)	16	119	437	169	5	78	131	47	150	106
Queue Length 95th (ft)	44	186	625	288	50	#158	192	77	218	155
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	287	600	1686	914	1170	172	654	1802	665	975
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.56	0.71	0.33	0.42	0.53	0.45	0.34	0.52	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	192	115	1095	280	448	84	270	564	319	205	49
Future Volume (veh/h)	18	192	115	1095	280	448	84	270	564	319	205	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	209	125	1190	304	487	91	293	613	347	223	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	223	273	156	1424	770	840	115	571	1597	427	600	140
Arrive On Green	0.13	0.13	0.13	0.41	0.41	0.41	0.06	0.16	0.16	0.12	0.21	0.21
Sat Flow, veh/h	1781	2176	1247	3456	1870	1564	1781	3554	2790	3456	2860	666
Grp Volume(v), veh/h	20	169	165	1190	304	487	91	293	613	347	137	139
Grp Sat Flow(s),veh/h/ln	1781	1777	1646	1728	1870	1564	1781	1777	1395	1728	1777	1749
Q Serve(g_s), s	1.1	10.5	11.2	35.5	13.1	24.1	5.8	8.7	13.8	11.2	7.6	7.8
Cycle Q Clear(g_c), s	1.1	10.5	11.2	35.5	13.1	24.1	5.8	8.7	13.8	11.2	7.6	7.8
Prop In Lane	1.00		0.76	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	223	223	206	1424	770	840	115	571	1597	427	373	367
V/C Ratio(X)	0.09	0.76	0.80	0.84	0.39	0.58	0.79	0.51	0.38	0.81	0.37	0.38
Avail Cap(c_a), veh/h	317	316	293	1855	1004	1035	189	718	1713	732	546	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	48.5	48.8	30.3	23.7	18.0	52.9	44.1	13.4	49.0	38.8	38.9
Incr Delay (d2), s/veh	0.2	6.5	9.9	2.7	0.3	0.6	11.4	0.7	0.2	3.8	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.1	5.2	14.5	5.7	8.3	2.9	3.8	8.7	5.1	3.4	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	55.0	58.7	33.0	24.0	18.6	64.3	44.8	13.6	52.8	39.4	39.6
LnGrp LOS	D	E	E	C	C	B	E	D	B	D	D	D
Approach Vol, veh/h		354			1981			997			623	
Approach Delay, s/veh		56.2			28.1			27.4			46.9	
Approach LOS		E			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.9	24.2		19.0	13.2	29.9		52.7
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 24	23.2		20.4	12.2	* 35		61.6
Max Q Clear Time (g_c+I1), s	13.2	15.8		13.2	7.8	9.8		37.5
Green Ext Time (p_c), s	0.9	2.6		1.2	0.1	1.6		9.8

Intersection Summary		
HCM 6th Ctrl Delay		33.4
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

17: S. River Road & Niblick Road

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	111	697	289	129	1403	676	396	316	450
v/c Ratio	0.56	0.56	0.39	0.68	1.02	0.90	0.65	0.86	0.75
Control Delay	63.1	32.6	5.0	66.6	62.5	58.6	46.9	65.6	44.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	32.6	5.0	66.6	62.5	58.6	46.9	65.6	44.7
Queue Length 50th (ft)	40	216	0	89	~555	242	137	215	136
Queue Length 95th (ft)	74	302	61	#171	#761	#378	190	#382	192
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	200	1235	740	214	1376	754	818	401	875
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.56	0.39	0.60	1.02	0.90	0.48	0.79	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	641	266	119	1003	288	622	311	53	291	270	144
Future Volume (veh/h)	102	641	266	119	1003	288	622	311	53	291	270	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	111	697	289	129	1090	313	676	338	58	316	293	157
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	1295	578	158	1103	314	736	568	96	348	383	200
Arrive On Green	0.05	0.36	0.36	0.09	0.40	0.40	0.21	0.19	0.19	0.20	0.17	0.17
Sat Flow, veh/h	3456	3554	1585	1781	2726	775	3456	3034	515	1781	2257	1178
Grp Volume(v), veh/h	111	697	289	129	707	696	676	196	200	316	229	221
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1724	1728	1777	1773	1781	1777	1658
Q Serve(g_s), s	3.5	17.0	8.3	7.8	43.0	44.2	21.0	11.1	11.3	19.0	13.5	14.0
Cycle Q Clear(g_c), s	3.5	17.0	8.3	7.8	43.0	44.2	21.0	11.1	11.3	19.0	13.5	14.0
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.29	1.00		0.71
Lane Grp Cap(c), veh/h	167	1295	578	158	719	698	736	333	332	348	301	281
V/C Ratio(X)	0.66	0.54	0.50	0.82	0.98	1.00	0.92	0.59	0.60	0.91	0.76	0.79
Avail Cap(c_a), veh/h	205	1295	578	220	719	698	761	422	421	410	440	410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	27.5	7.8	49.0	32.2	32.5	42.2	40.6	40.7	43.1	43.3	43.6
Incr Delay (d2), s/veh	5.7	0.4	0.7	15.3	29.2	33.6	15.9	1.7	1.7	21.6	4.5	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	7.0	5.2	4.1	23.2	23.8	10.3	4.9	5.0	10.2	6.1	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	27.9	8.4	64.3	61.4	66.1	58.0	42.3	42.5	64.7	47.8	49.7
LnGrp LOS	E	C	A	E	E	E	E	D	D	E	D	D
Approach Vol, veh/h		1097			1532			1072			766	
Approach Delay, s/veh		25.7			63.8			52.3			55.3	
Approach LOS		C			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	44.4	27.8	23.1	9.8	48.8	25.9	25.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	37.3	24.1	27.1	6.5	44.3	25.2	26.0
Max Q Clear Time (g_c+I1), s	9.8	19.0	23.0	16.0	5.5	46.2	21.0	13.3
Green Ext Time (p_c), s	0.1	5.3	0.4	1.9	0.0	0.0	0.4	1.7

Intersection Summary	
HCM 6th Ctrl Delay	50.2
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	1	5	888	377	41
Future Vol, veh/h	86	1	5	888	377	41
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	93	1	5	965	410	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1408	434	455	0	-	0
Stage 1	433	-	-	-	-	-
Stage 2	975	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	152	620	1100	-	-	-
Stage 1	652	-	-	-	-	-
Stage 2	364	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	150	619	1100	-	-	-
Mov Cap-2 Maneuver	150	-	-	-	-	-
Stage 1	645	-	-	-	-	-
Stage 2	364	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	62.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1100	-	151	-	-
HCM Lane V/C Ratio	0.005	-	0.626	-	-
HCM Control Delay (s)	8.3	0	62.2	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	3.4	-	-

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	8	13	757	347	19
Future Vol, veh/h	55	8	13	757	347	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	9	14	823	377	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1239	388	398	0	-	0
Stage 1	388	-	-	-	-	-
Stage 2	851	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	194	660	1161	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	190	660	1161	-	-	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	419	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.2	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1161	-	391	-	-
HCM Lane V/C Ratio	0.012	-	0.175	-	-
HCM Control Delay (s)	8.1	0	16.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Intersection Delay, s/veh	46.3
Intersection LOS	E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	681	86	7	306	46
Future Vol, veh/h	21	681	86	7	306	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	740	93	8	333	50
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	63.7	11.3	20.9
HCM LOS	F	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	3%	87%
Vol Thru, %	92%	0%	13%
Vol Right, %	8%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	93	702	352
LT Vol	0	21	306
Through Vol	86	0	46
RT Vol	7	681	0
Lane Flow Rate	101	763	383
Geometry Grp	1	1	1
Degree of Util (X)	0.184	1.033	0.66
Departure Headway (Hd)	6.766	4.874	6.384
Convergence, Y/N	Yes	Yes	Yes
Cap	534	740	570
Service Time	4.766	2.916	4.384
HCM Lane V/C Ratio	0.189	1.031	0.672
HCM Control Delay	11.3	63.7	20.9
HCM Lane LOS	B	F	C
HCM 95th-tile Q	0.7	18.4	4.8

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21: Charolais Road & Holstein Drive

HCM 6th TWSC

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	317	696	2	4	7
Future Vol, veh/h	4	317	696	2	4	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	345	757	2	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	765	0	-	0	1117	764
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	353	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	848	-	-	-	229	404
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	711	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	843	-	-	-	225	402
Mov Cap-2 Maneuver	-	-	-	-	225	-
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	707	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	843	-	-	-	313
HCM Lane V/C Ratio	0.005	-	-	-	0.038
HCM Control Delay (s)	9.3	-	-	-	17
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

22: Otero Lane & Charolais Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	304	1	1	651	28	3	0	1	35	0	44
Future Vol, veh/h	16	304	1	1	651	28	3	0	1	35	0	44
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	330	1	1	708	30	3	0	1	38	0	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	745	0	0	331	0	0	1114	1112	331	1097	1097	730
Stage 1	-	-	-	-	-	-	365	365	-	732	732	-
Stage 2	-	-	-	-	-	-	749	747	-	365	365	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	863	-	-	1228	-	-	185	209	711	191	213	422
Stage 1	-	-	-	-	-	-	654	623	-	413	427	-
Stage 2	-	-	-	-	-	-	404	420	-	654	623	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	857	-	-	1228	-	-	161	203	711	186	207	419
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	203	-	186	207	-
Stage 1	-	-	-	-	-	-	641	611	-	402	424	-
Stage 2	-	-	-	-	-	-	358	417	-	640	611	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	23.4	24.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	200	857	-	-	1228	-	-	269
HCM Lane V/C Ratio	0.022	0.02	-	-	0.001	-	-	0.319
HCM Control Delay (s)	23.4	9.3	-	-	7.9	-	-	24.5
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	1.3

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23: Charolais Road & St. Andrews Circle

HCM 6th TWSC

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	332	671	2	6	5
Future Vol, veh/h	4	332	671	2	6	5
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	361	729	2	7	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	740	0	-	0	1108	739
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	369	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	867	-	-	-	232	417
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	860	-	-	-	227	413
Mov Cap-2 Maneuver	-	-	-	-	227	-
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	693	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	860	-	-	-	285
HCM Lane V/C Ratio	0.005	-	-	-	0.042
HCM Control Delay (s)	9.2	-	-	-	18.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

24: Charolais Road & Rambouillet Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	56	282	538	47	25	135
Future Vol, veh/h	56	282	538	47	25	135
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	61	307	585	51	27	147

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	644	0	-	0	1048	619
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	429	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	946	-	-	-	253	490
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	659	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	939	-	-	-	233	486
Mov Cap-2 Maneuver	-	-	-	-	233	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	654	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	19.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	939	-	-	-	416
HCM Lane V/C Ratio	0.065	-	-	-	0.418
HCM Control Delay (s)	9.1	-	-	-	19.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	2

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Intersection	
Intersection Delay, s/veh	4.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	219	315	59	180
Demand Flow Rate, veh/h	220	318	60	182
Vehicles Circulating, veh/h	4	101	195	369
Vehicles Exiting, veh/h	547	154	29	50
Ped Vol Crossing Leg, #/h	0	0	0	8
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	3.9	5.2	3.7	5.7
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	220	318	60	182
Cap Entry Lane, veh/h	1374	1245	1131	947
Entry HV Adj Factor	0.993	0.990	0.983	0.989
Flow Entry, veh/h	219	315	59	180
Cap Entry, veh/h	1365	1233	1111	936
V/C Ratio	0.160	0.255	0.053	0.192
Control Delay, s/veh	3.9	5.2	3.7	5.7
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	257	1291	1300	116	124	231
v/c Ratio	0.68	0.39	0.82	0.15	0.53	0.36
Control Delay	49.6	0.3	28.9	3.6	54.2	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	0.3	28.9	3.6	54.2	20.2
Queue Length 50th (ft)	153	0	372	0	77	81
Queue Length 95th (ft)	311	0	570	31	166	181
Internal Link Dist (ft)		1017	748		574	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	505	3312	2849	1291	505	980
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.39	0.46	0.09	0.25	0.24

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	254	1278	1287	115	123	229
Future Volume (vph)	254	1278	1287	115	123	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	3312	3312	1482	1656	1482
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	3312	3312	1482	1656	1482
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	257	1291	1300	116	124	231
RTOR Reduction (vph)	0	0	0	60	0	26
Lane Group Flow (vph)	257	1291	1300	56	124	205
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	23.8	102.8	49.4	49.4	14.6	42.4
Effective Green, g (s)	23.8	102.8	49.4	49.4	14.6	42.4
Actuated g/C Ratio	0.23	1.00	0.48	0.48	0.14	0.41
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	383	3312	1591	712	235	611
v/s Ratio Prot	c0.16	0.39	c0.39		c0.07	0.14
v/s Ratio Perm				0.04		
v/c Ratio	0.67	0.39	0.82	0.08	0.53	0.34
Uniform Delay, d1	35.9	0.0	22.8	14.4	40.9	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.6	0.3	3.6	0.1	2.4	0.3
Delay (s)	40.5	0.3	26.4	14.5	43.3	20.9
Level of Service	D	A	C	B	D	C
Approach Delay (s)		7.0	25.4		28.8	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	102.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	196	971	277	52	887	127	246	280	193	330	312
v/c Ratio	0.53	0.75	0.38	0.19	0.80	0.22	0.59	0.33	0.53	0.77	0.57
Control Delay	58.1	37.9	4.9	58.0	42.7	6.3	57.4	35.8	58.2	55.8	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	37.9	4.9	58.0	42.7	6.3	57.4	35.8	58.2	55.8	14.5
Queue Length 50th (ft)	71	336	0	18	310	0	89	83	70	227	39
Queue Length 95th (ft)	139	536	62	48	495	46	169	153	138	415	149
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	532	2135	1034	532	2135	988	591	1233	591	658	714
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.45	0.27	0.10	0.42	0.13	0.42	0.23	0.33	0.50	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	942	269	50	860	123	239	225	47	187	320	303
Future Volume (veh/h)	190	942	269	50	860	123	239	225	47	187	320	303
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	196	971	277	52	887	127	246	232	48	193	330	312
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	275	1245	555	105	1191	531	331	745	151	274	443	376
Arrive On Green	0.08	0.36	0.36	0.03	0.35	0.35	0.10	0.26	0.26	0.08	0.25	0.25
Sat Flow, veh/h	3319	3413	1520	3319	3413	1521	3319	2824	574	3319	1796	1522
Grp Volume(v), veh/h	196	971	277	52	887	127	246	139	141	193	330	312
Grp Sat Flow(s),veh/h/ln	1659	1706	1520	1659	1706	1521	1659	1706	1691	1659	1796	1522
Q Serve(g_s), s	5.4	23.5	8.6	1.4	21.3	5.5	6.7	6.1	6.3	5.3	15.8	18.1
Cycle Q Clear(g_c), s	5.4	23.5	8.6	1.4	21.3	5.5	6.7	6.1	6.3	5.3	15.8	18.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	275	1245	555	105	1191	531	331	450	446	274	443	376
V/C Ratio(X)	0.71	0.78	0.50	0.49	0.74	0.24	0.74	0.31	0.32	0.70	0.74	0.83
Avail Cap(c_a), veh/h	642	2567	1143	642	2567	1144	713	752	745	713	791	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	26.2	9.7	44.3	26.6	21.5	40.7	27.4	27.5	41.6	32.3	33.2
Incr Delay (d2), s/veh	3.4	1.1	0.7	1.3	0.9	0.2	3.3	0.4	0.4	3.3	2.5	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	8.6	4.2	0.6	7.8	1.9	2.8	2.4	2.5	2.2	6.8	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	27.3	10.4	45.6	27.6	21.7	44.0	27.8	27.9	44.9	34.8	38.0
LnGrp LOS	D	C	B	D	C	C	D	C	C	D	C	D
Approach Vol, veh/h		1444			1066			526			835	
Approach Delay, s/veh		26.5			27.8			35.4			38.3	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	41.3	13.3	28.3	11.7	39.8	11.7	29.9
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	3.4	25.5	8.7	20.1	7.4	23.3	7.3	8.3
Green Ext Time (p_c), s	0.0	8.4	0.6	2.9	0.4	6.8	0.5	1.6

Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	18.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1074	102	322	1015	0	18	0	387	0	0	0
Future Vol, veh/h	0	1074	102	322	1015	0	18	0	387	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	1107	105	332	1046	0	19	0	399	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1047	0	0	1212	0	0	2347	2871	606	2265	2923	524
Stage 1	-	-	-	-	-	-	1160	1160	-	1711	1711	-
Stage 2	-	-	-	-	-	-	1187	1711	-	554	1212	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.64	7.04	7.64	6.64	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4.07	3.37	3.57	4.07	3.37
Pot Cap-1 Maneuver	631	-	-	544	-	-	~ 18	15	428	21	14	485
Stage 1	-	-	-	-	-	-	200	258	-	89	137	-
Stage 2	-	-	-	-	-	-	192	137	-	472	243	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	630	-	-	544	-	-	~ 9	6	428	1	5	485
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 9	6	-	1	5	-
Stage 1	-	-	-	-	-	-	200	258	-	89	53	-
Stage 2	-	-	-	-	-	-	75	53	-	32	243	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	5.2	114.6	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	9	428	630	-	-	544	-	-	-	-
HCM Lane V/C Ratio	2.062	0.932	-	-	-	0.61	-	-	-	-
HCM Control Delay (s)	$ 1298.3	59.5	0	-	-	21.4	-	-	0	0
HCM Lane LOS	F	F	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	3.3	10.6	0	-	-	4.1	-	-	-	-

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	283	1179	975	13	11	360
Future Vol, veh/h	283	1179	975	13	11	360
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	301	1254	1037	14	12	383

Major/Minor	Major1			Major2		
Conflicting Flow All	1051	0	-	0	2266	519
Stage 1	-	-	-	-	1037	-
Stage 2	-	-	-	-	1229	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	612	-	-	-	31	481
Stage 1	-	-	-	-	285	-
Stage 2	-	-	-	-	224	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	612	-	-	-	16	481
Mov Cap-2 Maneuver	-	-	-	-	114	-
Stage 1	-	-	-	-	145	-
Stage 2	-	-	-	-	224	-

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	35.9
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	612	-	-	-	114	481
HCM Lane V/C Ratio	0.492	-	-	-	0.103	0.796
HCM Control Delay (s)	16.4	-	-	-	40.2	35.8
HCM Lane LOS	C	-	-	-	E	E
HCM 95th %tile Q(veh)	2.7	-	-	-	0.3	7.3

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Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1179	11	1	972	0	17	0	4	0	0	1
Future Vol, veh/h	0	1179	11	1	972	0	17	0	4	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	1215	11	1	1002	0	18	0	4	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1002	0	0	1226	0	0	1718	2219	608	1612	2230	501
Stage 1	-	-	-	-	-	-	1215	1215	-	1004	1004	-
Stage 2	-	-	-	-	-	-	503	1004	-	608	1226	-
Critical Hdwy	4.34	-	-	4.34	-	-	7.74	6.74	7.14	7.74	6.74	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Follow-up Hdwy	2.32	-	-	2.32	-	-	3.62	4.12	3.42	3.62	4.12	3.42
Pot Cap-1 Maneuver	629	-	-	512	-	-	52	38	415	63	37	490
Stage 1	-	-	-	-	-	-	177	233	-	241	297	-
Stage 2	-	-	-	-	-	-	494	297	-	426	230	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	629	-	-	512	-	-	52	38	415	62	37	490
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	176	-	205	174	-
Stage 1	-	-	-	-	-	-	177	233	-	241	296	-
Stage 2	-	-	-	-	-	-	492	296	-	422	230	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	27	12.4
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	161	415	629	-	-	512	-	-	490
HCM Lane V/C Ratio	0.109	0.01	-	-	-	0.002	-	-	0.002
HCM Control Delay (s)	30.1	13.8	0	-	-	12	-	-	12.4
HCM Lane LOS	D	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.4	0	0	-	-	0	-	-	0

Intersection	
Intersection Delay, s/veh	23.3
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	396	667	677	640
Demand Flow Rate, veh/h	401	673	684	646
Vehicles Circulating, veh/h	877	444	368	609
Vehicles Exiting, veh/h	378	608	910	508
Ped Vol Crossing Leg, #/h	1	1	1	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	24.3	20.2	16.7	32.8
Approach LOS	C	C	C	D

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	401	673	684	646
Cap Entry Lane, veh/h	564	877	948	741
Entry HV Adj Factor	0.989	0.991	0.990	0.991
Flow Entry, veh/h	396	667	677	640
Cap Entry, veh/h	558	869	938	735
V/C Ratio	0.711	0.767	0.722	0.871
Control Delay, s/veh	24.3	20.2	16.7	32.8
LOS	C	C	C	D
95th %tile Queue, veh	6	8	6	11

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	513	255	457	647	6	47	281	353	355	110
v/c Ratio	0.19	0.68	0.70	0.56	0.62	0.03	0.26	0.69	0.75	0.75	0.21
Control Delay	53.9	40.1	47.2	25.3	4.9	43.8	46.7	15.0	43.3	42.8	4.2
Queue Delay	0.0	0.0	0.0	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	40.1	47.2	26.3	5.3	43.8	46.7	15.0	43.3	42.8	4.2
Queue Length 50th (ft)	12	144	139	179	0	3	26	0	193	194	0
Queue Length 95th (ft)	44	252	268	393	80	17	69	80	#387	380	28
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	110	1006	549	996	1128	383	403	563	639	648	671
Starvation Cap Reductn	0	0	9	297	142	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.51	0.47	0.65	0.66	0.02	0.12	0.50	0.55	0.55	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	451	31	240	430	608	6	44	264	582	84	103
Future Volume (veh/h)	20	451	31	240	430	608	6	44	264	582	84	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	21	480	33	255	457	647	6	47	281	683	0	110
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	39	952	65	290	792	655	305	321	272	799	0	354
Arrive On Green	0.02	0.28	0.28	0.16	0.42	0.42	0.17	0.17	0.17	0.22	0.00	0.22
Sat Flow, veh/h	1795	3399	233	1795	1885	1559	1795	1885	1598	3591	0	1590
Grp Volume(v), veh/h	21	252	261	255	457	647	6	47	281	683	0	110
Grp Sat Flow(s),veh/h/ln	1795	1791	1841	1795	1885	1559	1795	1885	1598	1795	0	1590
Q Serve(g_s), s	1.3	12.8	12.9	15.1	20.2	44.7	0.3	2.3	18.5	19.9	0.0	6.3
Cycle Q Clear(g_c), s	1.3	12.8	12.9	15.1	20.2	44.7	0.3	2.3	18.5	19.9	0.0	6.3
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	39	502	516	290	792	655	305	321	272	799	0	354
V/C Ratio(X)	0.54	0.50	0.51	0.88	0.58	0.99	0.02	0.15	1.03	0.85	0.00	0.31
Avail Cap(c_a), veh/h	88	502	516	438	792	655	305	321	272	1073	0	475
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.7	32.8	32.8	44.5	24.1	31.2	37.6	38.4	45.1	40.6	0.0	35.3
Incr Delay (d2), s/veh	11.2	0.8	0.8	12.6	1.0	31.9	0.0	0.2	63.6	5.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.7	5.9	7.7	9.1	22.0	0.1	1.1	12.0	9.2	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.9	33.6	33.6	57.1	25.2	63.1	37.6	38.6	108.8	45.9	0.0	35.8
LnGrp LOS	E	C	C	E	C	E	D	D	F	D	A	D
Approach Vol, veh/h		534			1359			334			793	
Approach Delay, s/veh		34.8			49.2			97.6			44.5	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	22.1	35.0		28.7	6.8	50.2		23.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	26.5	24.5		32.5	5.3	45.7		18.5
Max Q Clear Time (g_c+I1), s	17.1	14.9		21.9	3.3	46.7		20.5
Green Ext Time (p_c), s	0.5	2.2		2.3	0.0	0.0		0.0

Intersection Summary

HCM 6th Ctrl Delay	50.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	91	1303	20	1070	261	276	30	447	8	27
v/c Ratio	0.41	0.69	0.15	0.69	0.33	0.66	0.05	0.77	0.02	0.04
Control Delay	45.3	18.3	47.4	23.6	8.1	34.7	22.6	27.9	22.4	0.1
Queue Delay	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	19.1	47.4	23.6	8.1	34.7	22.6	27.9	22.4	0.1
Queue Length 50th (ft)	46	212	10	238	26	130	11	150	3	0
Queue Length 95th (ft)	109	470	38	402	93	233	33	289	14	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	313	2310	137	2073	982	732	990	909	730	936
Starvation Cap Reductn	0	625	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.77	0.15	0.52	0.27	0.38	0.03	0.49	0.01	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1181	31	19	995	243	257	28	416	7	0	25
Future Volume (veh/h)	85	1181	31	19	995	243	257	28	416	7	0	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	91	1270	33	20	1070	0	276	30	447	8	0	27
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	119	1662	43	41	1516		535	611	518	389	0	518
Arrive On Green	0.07	0.47	0.47	0.02	0.42	0.00	0.32	0.32	0.32	0.32	0.00	0.32
Sat Flow, veh/h	1795	3564	93	1795	3582	1598	1394	1885	1598	925	0	1598
Grp Volume(v), veh/h	91	638	665	20	1070	0	276	30	447	8	0	27
Grp Sat Flow(s),veh/h/ln	1795	1791	1866	1795	1791	1598	1394	1885	1598	925	0	1598
Q Serve(g_s), s	3.6	21.4	21.4	0.8	17.8	0.0	12.3	0.8	19.0	0.4	0.0	0.8
Cycle Q Clear(g_c), s	3.6	21.4	21.4	0.8	17.8	0.0	13.1	0.8	19.0	1.2	0.0	0.8
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	835	870	41	1516		535	611	518	389	0	518
V/C Ratio(X)	0.77	0.76	0.76	0.49	0.71		0.52	0.05	0.86	0.02	0.00	0.05
Avail Cap(c_a), veh/h	310	1200	1250	136	2053		806	977	828	568	0	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.3	16.0	16.0	34.9	17.2	0.0	21.3	16.8	23.0	17.2	0.0	16.8
Incr Delay (d2), s/veh	9.8	1.8	1.8	8.7	0.7	0.0	0.8	0.0	5.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	8.2	8.5	0.4	6.8	0.0	3.8	0.3	7.3	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	17.8	17.8	43.6	17.9	0.0	22.1	16.8	28.5	17.2	0.0	16.9
LnGrp LOS	D	B	B	D	B		C	B	C	B	A	B
Approach Vol, veh/h		1394			1090	A		753			35	
Approach Delay, s/veh		19.4			18.4			25.7			16.9	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	38.3		28.0	9.3	35.1		28.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	48.5		37.5	12.5	41.5		37.5				
Max Q Clear Time (g_c+I1), s	2.8	23.4		3.2	5.6	19.8		21.0				
Green Ext Time (p_c), s	0.0	10.4		0.1	0.1	8.2		2.5				

Intersection Summary			
HCM 6th Ctrl Delay			20.5
HCM 6th LOS			C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	415	1274	63	762	301	231	67	72	575
v/c Ratio	0.69	0.79	0.40	0.63	0.66	0.27	0.14	0.46	0.76
Control Delay	47.6	27.4	57.2	30.2	52.2	35.9	0.6	59.8	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	27.4	57.2	30.2	52.2	35.9	0.6	59.8	28.6
Queue Length 50th (ft)	140	368	42	217	102	71	0	48	103
Queue Length 95th (ft)	211	516	94	316	165	114	0	104	176
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	789	1955	198	1589	532	1070	574	183	1012
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.65	0.32	0.48	0.57	0.22	0.12	0.39	0.57

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	394	827	383	60	646	78	286	219	64	68	220	326
Future Volume (veh/h)	394	827	383	60	646	78	286	219	64	68	220	326
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	415	871	0	63	680	82	301	231	67	72	232	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	575	1489		96	977	118	433	649	289	103	409	
Arrive On Green	0.17	0.42	0.00	0.05	0.30	0.30	0.12	0.18	0.18	0.06	0.11	0.00
Sat Flow, veh/h	3483	3676	0	1795	3213	387	3483	3582	1598	1795	3676	0
Grp Volume(v), veh/h	415	871	0	63	379	383	301	231	67	72	232	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1809	1742	1791	1598	1795	1791	0
Q Serve(g_s), s	7.0	11.6	0.0	2.1	11.5	11.5	5.1	3.5	2.2	2.4	3.8	0.0
Cycle Q Clear(g_c), s	7.0	11.6	0.0	2.1	11.5	11.5	5.1	3.5	2.2	2.4	3.8	0.0
Prop In Lane	1.00		0.00	1.00		0.21	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	575	1489		96	545	550	433	649	289	103	409	
V/C Ratio(X)	0.72	0.58		0.66	0.70	0.70	0.69	0.36	0.23	0.70	0.57	
Avail Cap(c_a), veh/h	1215	3109		306	1235	1248	819	1645	734	283	1366	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.4	13.9	0.0	28.6	18.9	18.9	25.9	22.1	21.6	28.5	25.8	0.0
Incr Delay (d2), s/veh	1.7	0.4	0.0	7.3	1.6	1.6	2.0	0.3	0.4	8.2	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.2	0.0	1.1	4.5	4.5	2.0	1.3	0.8	1.2	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	14.3	0.0	36.0	20.5	20.5	27.9	22.4	22.0	36.7	27.1	0.0
LnGrp LOS	C	B		D	C	C	C	C	C	D	C	
Approach Vol, veh/h		1286	A		825			599			304	A
Approach Delay, s/veh		18.1			21.7			25.1			29.4	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	30.1	12.2	11.5	14.7	23.2	8.0	15.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	53.5	14.5	23.5	21.5	42.5	9.7	28.3
Max Q Clear Time (g_c+I1), s	4.1	13.6	7.1	5.8	9.0	13.5	4.4	5.5
Green Ext Time (p_c), s	0.0	7.5	0.6	1.1	1.2	5.1	0.1	1.5

Intersection Summary

HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	58	493	1002	653	73
v/c Ratio	0.28	0.27	0.73	0.64	0.14
Control Delay	42.4	12.0	21.2	30.2	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	12.0	21.2	30.2	8.8
Queue Length 50th (ft)	23	51	145	122	0
Queue Length 95th (ft)	88	165	388	#354	40
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	279	2709	2084	1396	687
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.18	0.48	0.47	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	478	497	475	633	71
Future Volume (vph)	56	478	497	475	633	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3287		3467	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3287		3467	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	493	512	490	653	73
RTOR Reduction (vph)	0	0	138	0	0	52
Lane Group Flow (vph)	58	493	864	0	653	21
Confl. Peds. (#/hr)				4		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	6.3	38.5	27.7		21.6	21.6
Effective Green, g (s)	6.3	38.5	27.7		21.6	21.6
Actuated g/C Ratio	0.08	0.50	0.36		0.28	0.28
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	146	1789	1184		973	449
v/s Ratio Prot	c0.03	0.14	c0.26			
v/s Ratio Perm					c0.19	0.01
v/c Ratio	0.40	0.28	0.73		0.67	0.05
Uniform Delay, d1	33.5	11.1	21.4		24.5	20.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.8	0.1	2.3		1.8	0.0
Delay (s)	35.3	11.2	23.7		26.3	20.2
Level of Service	D	B	C		C	C
Approach Delay (s)		13.7	23.7		25.7	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	167	604	342	125	829	219	437	385	662
v/c Ratio	0.66	1.16	0.50	0.63	0.86	0.79	0.60	1.13	0.77
Control Delay	48.8	123.4	6.1	53.0	35.7	57.1	33.0	125.4	35.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	123.4	6.1	53.0	35.7	57.1	33.0	125.4	35.9
Queue Length 50th (ft)	89	~418	1	68	187	119	108	~262	172
Queue Length 95th (ft)	154	#628	65	#136	#314	#231	157	#440	235
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	299	520	680	216	961	299	856	340	941
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.16	0.50	0.58	0.86	0.73	0.51	1.13	0.70

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	580	328	120	451	345	210	355	64	370	498	137
Future Volume (veh/h)	160	580	328	120	451	345	210	355	64	370	498	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	167	604	342	125	470	359	219	370	67	385	519	143
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	564	470	158	522	397	260	527	94	369	654	179
Arrive On Green	0.12	0.30	0.30	0.09	0.27	0.27	0.15	0.18	0.18	0.21	0.24	0.24
Sat Flow, veh/h	1781	1870	1560	1781	1902	1448	1781	2994	536	1781	2752	755
Grp Volume(v), veh/h	167	604	342	125	439	390	219	218	219	385	334	328
Grp Sat Flow(s),veh/h/ln	1781	1870	1560	1781	1777	1572	1781	1777	1753	1781	1777	1730
Q Serve(g_s), s	7.3	24.0	15.6	5.5	19.0	19.0	9.5	9.2	9.4	16.5	14.1	14.2
Cycle Q Clear(g_c), s	7.3	24.0	15.6	5.5	19.0	19.0	9.5	9.2	9.4	16.5	14.1	14.2
Prop In Lane	1.00		1.00	1.00		0.92	1.00		0.31	1.00		0.44
Lane Grp Cap(c), veh/h	206	564	470	158	488	432	260	313	309	369	422	411
V/C Ratio(X)	0.81	1.07	0.73	0.79	0.90	0.90	0.84	0.70	0.71	1.04	0.79	0.80
Avail Cap(c_a), veh/h	325	564	470	235	488	432	325	469	463	369	513	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	27.8	24.9	35.5	27.8	27.9	33.1	30.8	30.9	31.5	28.5	28.5
Incr Delay (d2), s/veh	8.1	58.3	5.6	10.3	19.6	22.0	15.0	2.8	3.0	58.3	6.8	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	18.9	6.0	2.7	10.1	9.2	5.0	4.0	4.0	12.7	6.5	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	86.1	30.4	45.8	47.4	49.8	48.1	33.6	33.9	89.9	35.3	35.9
LnGrp LOS	D	F	C	D	D	D	D	C	C	F	D	D
Approach Vol, veh/h		1113			954			656			1047	
Approach Delay, s/veh		62.4			48.2			38.5			55.6	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	18.5	11.6	28.5	16.1	23.4	13.7	26.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	21.0	10.5	24.0	14.5	23.0	14.5	20.0
Max Q Clear Time (g_c+I1), s	18.5	11.4	7.5	26.0	11.5	16.2	9.3	21.0
Green Ext Time (p_c), s	0.0	1.7	0.1	0.0	0.2	2.2	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.8
HCM 6th LOS	D

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Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	111	4	11	4	1	38	20	399	10	48	510	133
Future Vol, veh/h	111	4	11	4	1	38	20	399	10	48	510	133
Conflicting Peds, #/hr	4	0	0	0	0	4	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	112	4	11	4	1	38	20	403	10	48	515	134

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1088	1069	520	1134	1198	412	654	0	0	413	0	0
Stage 1	616	616	-	448	448	-	-	-	-	-	-	-
Stage 2	472	453	-	686	750	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	194	222	558	181	186	642	938	-	-	1151	-	-
Stage 1	480	483	-	592	575	-	-	-	-	-	-	-
Stage 2	574	572	-	439	420	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	171	207	555	167	174	640	934	-	-	1151	-	-
Mov Cap-2 Maneuver	171	207	-	167	174	-	-	-	-	-	-	-
Stage 1	468	460	-	580	563	-	-	-	-	-	-	-
Stage 2	525	560	-	409	400	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	60.3	13.2	0.4	0.6
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	934	-	-	183	483	1151	-	-
HCM Lane V/C Ratio	0.022	-	-	0.695	0.09	0.042	-	-
HCM Control Delay (s)	8.9	-	-	60.3	13.2	8.3	-	-
HCM Lane LOS	A	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.3	0.3	0.1	-	-

Intersection	
Intersection Delay, s/veh	24.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	8	2	7	170	3	182	0	10	239	264	284	230
Future Vol, veh/h	8	2	7	170	3	182	0	10	239	264	284	230
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	2	1	1	1	1	1
Mvmt Flow	9	2	8	183	3	196	0	11	257	284	305	247
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.4	23	16.1	33.4
HCM LOS	B	C	C	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	0%	47%	48%	71%	0%
Vol Thru, %	96%	0%	12%	1%	29%	91%
Vol Right, %	0%	100%	41%	51%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	264	17	355	399	127
LT Vol	10	0	8	170	284	0
Through Vol	239	0	2	3	115	115
RT Vol	0	264	7	182	0	12
Lane Flow Rate	268	284	18	382	429	137
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.521	0.494	0.041	0.693	0.861	0.258
Departure Headway (Hd)	7.007	6.268	7.984	6.539	7.222	6.79
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	514	573	447	557	502	528
Service Time	4.757	4.017	6.057	4.539	4.967	4.535
HCM Lane V/C Ratio	0.521	0.496	0.04	0.686	0.855	0.259
HCM Control Delay	17.2	15	11.4	23	40.3	11.9
HCM Lane LOS	C	B	B	C	E	B
HCM 95th-tile Q	3	2.7	0.1	5.4	9.1	1

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	12
Future Vol, veh/h	12
Peak Hour Factor	0.93
Heavy Vehicles, %	1
Mvmt Flow	13
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

Intersection	
Int Delay, s/veh	12.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	323	219	133	190	180	227
Future Vol, veh/h	323	219	133	190	180	227
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	333	226	137	196	186	234

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	558	186	420	0	-	0
Stage 1	186	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.115	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	477	858	1144	-	-	-
Stage 1	848	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	420	858	1144	-	-	-
Mov Cap-2 Maneuver	420	-	-	-	-	-
Stage 1	746	-	-	-	-	-
Stage 2	671	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.7	3.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1144	-	420	858	-	-
HCM Lane V/C Ratio	0.12	-	0.793	0.263	-	-
HCM Control Delay (s)	8.6	-	39.3	10.7	-	-
HCM Lane LOS	A	-	E	B	-	-
HCM 95th %tile Q(veh)	0.4	-	7	1.1	-	-

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15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	109	0	179	14	0	0	0	0	283	34
Future Volume (Veh/h)	27	0	109	0	179	14	0	0	0	0	283	34
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	118	0	195	15	0	0	0	0	308	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	432	326	326	444	345	0	345			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	432	326	326	444	345	0	345			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	100	84	100	66	99	100			100		
cM capacity (veh/h)	391	593	717	439	580	1088	1220			1630		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	147	210	345
Volume Left	29	0	0
Volume Right	118	15	37
cSH	616	612	1700
Volume to Capacity	0.24	0.34	0.20
Queue Length 95th (ft)	23	38	0
Control Delay (s)	12.7	13.9	0.0
Lane LOS	B	B	
Approach Delay (s)	12.7	13.9	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		6.8		
Intersection Capacity Utilization		44.6%	ICU Level of Service	A
Analysis Period (min)		15		

16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	438	751	205	437	99	368	1175	623	324
v/c Ratio	0.18	0.77	0.70	0.35	0.42	0.59	0.71	0.88	0.80	0.33
Control Delay	52.4	61.0	45.6	39.5	3.9	73.7	62.3	28.4	56.9	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	61.0	45.6	39.5	3.9	73.7	62.3	28.4	56.9	36.9
Queue Length 50th (ft)	40	184	301	140	21	85	164	277	267	112
Queue Length 95th (ft)	86	264	417	236	79	154	230	378	357	162
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	339	671	1122	609	1090	225	784	1376	952	1291
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.65	0.67	0.34	0.40	0.44	0.47	0.85	0.65	0.25

Intersection Summary

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16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	323	102	728	199	424	96	357	1140	604	256	58
Future Volume (veh/h)	50	323	102	728	199	424	96	357	1140	604	256	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	52	333	105	751	205	437	99	368	1175	623	264	60
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	272	406	126	908	492	736	123	796	1358	711	1015	227
Arrive On Green	0.15	0.15	0.15	0.26	0.26	0.26	0.07	0.22	0.22	0.20	0.35	0.35
Sat Flow, veh/h	1795	2681	831	3483	1885	1572	1795	3582	2812	3483	2909	650
Grp Volume(v), veh/h	52	220	218	751	205	437	99	368	1175	623	161	163
Grp Sat Flow(s),veh/h/ln	1795	1791	1721	1742	1885	1572	1795	1791	1406	1742	1791	1768
Q Serve(g_s), s	3.2	15.1	15.6	25.8	11.4	26.1	6.9	11.3	28.2	22.0	8.1	8.4
Cycle Q Clear(g_c), s	3.2	15.1	15.6	25.8	11.4	26.1	6.9	11.3	28.2	22.0	8.1	8.4
Prop In Lane	1.00		0.48	1.00		1.00	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	272	271	261	908	492	736	123	796	1358	711	625	617
V/C Ratio(X)	0.19	0.81	0.84	0.83	0.42	0.59	0.80	0.46	0.87	0.88	0.26	0.26
Avail Cap(c_a), veh/h	345	344	331	1142	618	841	229	796	1358	969	668	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	52.1	52.3	44.2	38.9	25.2	58.2	42.8	24.3	48.9	29.6	29.6
Incr Delay (d2), s/veh	0.3	11.1	13.7	4.2	0.6	0.9	11.3	0.4	6.1	7.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	7.7	7.8	11.4	5.3	9.6	3.5	4.9	19.8	10.2	3.6	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	63.2	66.0	48.4	39.5	26.0	69.5	43.2	30.3	56.0	29.8	29.9
LnGrp LOS	D	E	E	D	D	C	E	D	C	E	C	C
Approach Vol, veh/h		490			1393			1642			947	
Approach Delay, s/veh		62.8			40.1			35.6			47.0	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	30.6	34.0		23.8	14.5	50.1		38.5
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 35	28.2		24.4	16.2	* 47		41.6
Max Q Clear Time (g_c+I1), s	24.0	30.2		17.6	8.9	10.4		28.1
Green Ext Time (p_c), s	1.9	0.0		1.6	0.1	2.1		4.9

Intersection Summary			
HCM 6th Ctrl Delay			42.4
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

17: S. River Road & Niblick Road

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	269	1046	640	120	921	435	362	213	549
v/c Ratio	0.63	0.82	0.72	0.61	0.76	0.77	0.49	0.76	0.76
Control Delay	54.1	39.4	13.2	62.3	36.9	54.9	37.6	63.8	46.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	39.4	13.2	62.3	36.9	54.9	37.6	63.8	46.4
Queue Length 50th (ft)	97	365	85	85	307	157	113	150	189
Queue Length 95th (ft)	148	487	253	153	414	226	163	#266	255
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	505	1362	911	243	1304	636	915	327	912
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.77	0.70	0.49	0.71	0.68	0.40	0.65	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	258	1004	614	115	731	154	418	265	83	204	398	129
Future Volume (veh/h)	258	1004	614	115	731	154	418	265	83	204	398	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	269	1046	640	120	761	160	435	276	86	212	415	134
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	354	1323	590	152	1037	218	529	575	176	250	535	171
Arrive On Green	0.10	0.37	0.37	0.08	0.35	0.35	0.15	0.21	0.21	0.14	0.20	0.20
Sat Flow, veh/h	3483	3582	1598	1795	2944	619	3483	2703	825	1795	2666	852
Grp Volume(v), veh/h	269	1046	640	120	463	458	435	181	181	212	277	272
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1773	1742	1791	1737	1795	1791	1727
Q Serve(g_s), s	7.0	24.2	20.8	6.1	21.0	21.0	11.2	8.2	8.5	10.7	13.6	13.9
Cycle Q Clear(g_c), s	7.0	24.2	20.8	6.1	21.0	21.0	11.2	8.2	8.5	10.7	13.6	13.9
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.47	1.00		0.49
Lane Grp Cap(c), veh/h	354	1323	590	152	631	624	529	381	370	250	359	346
V/C Ratio(X)	0.76	0.79	1.08	0.79	0.73	0.73	0.82	0.47	0.49	0.85	0.77	0.78
Avail Cap(c_a), veh/h	581	1561	696	280	761	754	731	530	514	377	530	511
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	26.1	10.7	41.7	26.3	26.3	38.2	32.0	32.1	39.0	35.1	35.2
Incr Delay (d2), s/veh	3.4	2.4	59.8	8.9	3.0	3.0	5.4	0.9	1.0	10.8	4.1	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	10.0	15.9	3.0	8.8	8.8	5.0	3.5	3.5	5.3	6.1	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.0	28.5	70.5	50.6	29.3	29.3	43.6	32.9	33.1	49.8	39.2	40.0
LnGrp LOS	D	C	F	D	C	C	D	C	C	D	D	D
Approach Vol, veh/h		1955			1041			797			761	
Approach Delay, s/veh		44.4			31.7			38.8			42.5	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	38.8	18.6	23.1	14.0	37.2	17.5	24.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	40.5	19.5	27.5	15.5	39.5	19.5	27.5
Max Q Clear Time (g_c+I1), s	8.1	26.2	13.2	15.9	9.0	23.0	12.7	10.5
Green Ext Time (p_c), s	0.1	8.2	0.9	2.4	0.5	5.2	0.3	1.8

Intersection Summary	
HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	2	4	546	845	88
Future Vol, veh/h	51	2	4	546	845	88
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	2	4	569	880	92

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1504	927	973	0	-	0
Stage 1	927	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	134	325	709	-	-	-
Stage 1	385	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	133	325	708	-	-	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	382	-	-	-	-	-
Stage 2	561	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	48.5	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	708	-	136	-	-
HCM Lane V/C Ratio	0.006	-	0.406	-	-
HCM Control Delay (s)	10.1	0	48.5	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0	-	1.7	-	-

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Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	13	15	501	758	53
Future Vol, veh/h	35	13	15	501	758	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	14	16	545	824	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1430	853	882	0	-	0
Stage 1	853	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	148	357	763	-	-	-
Stage 1	416	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	144	357	763	-	-	-
Mov Cap-2 Maneuver	336	-	-	-	-	-
Stage 1	404	-	-	-	-	-
Stage 2	560	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.5	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	763	-	341	-	-
HCM Lane V/C Ratio	0.021	-	0.153	-	-
HCM Control Delay (s)	9.8	0	17.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Intersection Delay, s/veh	113.6
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	430	89	25	678	90
Future Vol, veh/h	9	430	89	25	678	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	467	97	27	737	98
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	23.5	11.6	180.2
HCM LOS	C	B	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	2%	88%
Vol Thru, %	78%	0%	12%
Vol Right, %	22%	98%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	114	439	768
LT Vol	0	9	678
Through Vol	89	0	90
RT Vol	25	430	0
Lane Flow Rate	124	477	835
Geometry Grp	1	1	1
Degree of Util (X)	0.215	0.722	1.336
Departure Headway (Hd)	6.73	6.153	5.76
Convergence, Y/N	Yes	Yes	Yes
Cap	537	592	634
Service Time	4.73	4.153	3.766
HCM Lane V/C Ratio	0.231	0.806	1.317
HCM Control Delay	11.6	23.5	180.2
HCM Lane LOS	B	C	F
HCM 95th-tile Q	0.8	6	35.1

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	693	431	5	4	9
Future Vol, veh/h	5	693	431	5	4	9
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	753	468	5	4	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	487	0	-	0	1248	485
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	763	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1081	-	-	-	192	584
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	462	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1067	-	-	-	186	576
Mov Cap-2 Maneuver	-	-	-	-	186	-
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	456	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1067	-	-	-	350
HCM Lane V/C Ratio	0.005	-	-	-	0.04
HCM Control Delay (s)	8.4	-	-	-	15.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	661	2	2	407	23	1	0	1	23	0	28
Future Vol, veh/h	34	661	2	2	407	23	1	0	1	23	0	28
Conflicting Peds, #/hr	12	0	0	0	0	12	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	36	696	2	2	428	24	1	0	1	24	0	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	464	0	0	698	0	0	1228	1237	697	1226	1226	452
Stage 1	-	-	-	-	-	-	769	769	-	456	456	-
Stage 2	-	-	-	-	-	-	459	468	-	770	770	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1092	-	-	894	-	-	154	175	439	155	178	605
Stage 1	-	-	-	-	-	-	392	409	-	582	566	-
Stage 2	-	-	-	-	-	-	580	560	-	392	409	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1080	-	-	894	-	-	142	167	439	149	170	598
Mov Cap-2 Maneuver	-	-	-	-	-	-	142	167	-	149	170	-
Stage 1	-	-	-	-	-	-	379	396	-	556	559	-
Stage 2	-	-	-	-	-	-	550	553	-	378	396	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	21.9	23
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	215	1080	-	-	894	-	-	253
HCM Lane V/C Ratio	0.01	0.033	-	-	0.002	-	-	0.212
HCM Control Delay (s)	21.9	8.4	-	-	9	-	-	23
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.8

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23: Charolais Road & St. Andrews Circle

HCM 6th TWSC

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	683	425	4	4	7
Future Vol, veh/h	8	683	425	4	4	7
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	9	742	462	4	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	475	0	-	0	1233	473
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	760	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1092	-	-	-	196	593
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	464	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1083	-	-	-	191	588
Mov Cap-2 Maneuver	-	-	-	-	191	-
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	460	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1083	-	-	-	335
HCM Lane V/C Ratio	0.008	-	-	-	0.036
HCM Control Delay (s)	8.4	-	-	-	16.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

24: Charolais Road & Rambouillet Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	153	534	346	26	28	83
Future Vol, veh/h	153	534	346	26	28	83
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	166	580	376	28	30	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	406	0	-	0	1304	392
Stage 1	-	-	-	-	392	-
Stage 2	-	-	-	-	912	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1158	-	-	-	178	659
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	393	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1156	-	-	-	152	658
Mov Cap-2 Maneuver	-	-	-	-	152	-
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	392	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	20.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1156	-	-	-	358
HCM Lane V/C Ratio	0.144	-	-	-	0.337
HCM Control Delay (s)	8.6	-	-	-	20.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.5	-	-	-	1.5

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Intersection	
Intersection Delay, s/veh	4.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	380	188	44	112
Demand Flow Rate, veh/h	385	190	44	113
Vehicles Circulating, veh/h	10	104	335	228
Vehicles Exiting, veh/h	331	275	60	66
Ped Vol Crossing Leg, #/h	0	0	0	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.1	4.2	4.1	4.2
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	385	190	44	113
Cap Entry Lane, veh/h	1366	1241	981	1094
Entry HV Adj Factor	0.988	0.990	0.999	0.991
Flow Entry, veh/h	380	188	44	112
Cap Entry, veh/h	1349	1229	980	1083
V/C Ratio	0.282	0.153	0.045	0.103
Control Delay, s/veh	5.1	4.2	4.1	4.2
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	0

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	252	1227	1280	137	164	263
v/c Ratio	0.72	0.38	0.83	0.18	0.63	0.42
Control Delay	56.2	0.3	31.6	3.6	58.7	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.2	0.3	31.6	3.6	58.7	22.4
Queue Length 50th (ft)	166	0	408	0	111	104
Queue Length 95th (ft)	#359	0	612	35	225	227
Internal Link Dist (ft)		942	856		514	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	456	3223	2613	1195	456	889
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.38	0.49	0.11	0.36	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	232	1129	1178	126	151	242
Future Volume (vph)	232	1129	1178	126	151	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1612	3223	3223	1442	1612	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1612	3223	3223	1442	1612	1442
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	252	1227	1280	137	164	263
RTOR Reduction (vph)	0	0	0	71	0	27
Lane Group Flow (vph)	252	1227	1280	66	164	236
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	24.7	111.2	53.3	53.3	18.2	46.9
Effective Green, g (s)	24.7	111.2	53.3	53.3	18.2	46.9
Actuated g/C Ratio	0.22	1.00	0.48	0.48	0.16	0.42
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	358	3223	1544	691	263	608
v/s Ratio Prot	c0.16	0.38	c0.40		c0.10	0.16
v/s Ratio Perm				0.05		
v/c Ratio	0.70	0.38	0.83	0.10	0.62	0.39
Uniform Delay, d1	39.9	0.0	25.0	15.8	43.3	22.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	0.3	4.0	0.1	4.8	0.4
Delay (s)	46.0	0.3	29.0	15.9	48.1	22.6
Level of Service	D	A	C	B	D	C
Approach Delay (s)		8.1	27.8		32.4	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	111.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	227	850	314	39	959	186	307	332	93	190	151
v/c Ratio	0.57	0.63	0.40	0.11	0.82	0.29	0.64	0.43	0.36	0.65	0.40
Control Delay	55.7	32.6	4.8	48.3	40.0	5.0	54.3	39.1	58.1	57.3	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	32.6	4.8	48.3	40.0	5.0	54.3	39.1	58.1	57.3	10.6
Queue Length 50th (ft)	80	290	0	12	328	0	108	105	33	130	0
Queue Length 95th (ft)	149	433	63	35	488	50	195	183	73	246	60
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	527	2114	1055	550	2114	1011	585	1228	585	651	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.40	0.30	0.07	0.45	0.18	0.52	0.27	0.16	0.29	0.23

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	782	289	36	882	171	282	287	18	86	175	139
Future Volume (veh/h)	209	782	289	36	882	171	282	287	18	86	175	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	227	850	314	39	959	186	307	312	20	93	190	151
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	316	1132	505	293	1242	554	405	709	45	156	257	218
Arrive On Green	0.10	0.34	0.34	0.09	0.38	0.38	0.13	0.23	0.23	0.05	0.15	0.15
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	3147	201	3209	1737	1472
Grp Volume(v), veh/h	227	850	314	39	959	186	307	163	169	93	190	151
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1698	1605	1737	1472
Q Serve(g_s), s	5.6	18.7	8.7	0.9	20.9	7.4	7.6	7.0	7.0	2.3	8.6	8.0
Cycle Q Clear(g_c), s	5.6	18.7	8.7	0.9	20.9	7.4	7.6	7.0	7.0	2.3	8.6	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	316	1132	505	293	1242	554	405	372	382	156	257	218
V/C Ratio(X)	0.72	0.75	0.62	0.13	0.77	0.34	0.76	0.44	0.44	0.60	0.74	0.69
Avail Cap(c_a), veh/h	705	2818	1257	705	2818	1257	783	825	849	783	869	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	23.8	8.0	34.3	22.5	18.3	34.6	27.3	27.3	38.2	33.4	33.2
Incr Delay (d2), s/veh	3.1	1.0	1.3	0.1	1.1	0.4	2.9	0.8	0.8	3.6	4.2	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.4	4.3	0.3	7.1	2.4	3.0	2.7	2.8	1.0	3.7	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	24.8	9.3	34.3	23.5	18.6	37.6	28.1	28.1	41.8	37.6	37.1
LnGrp LOS	D	C	A	C	C	B	D	C	C	D	D	D
Approach Vol, veh/h		1391			1184			639			434	
Approach Delay, s/veh		23.6			23.1			32.7			38.3	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	35.4	14.3	17.4	12.1	38.1	8.0	23.8
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	2.9	20.7	9.6	10.6	7.6	22.9	4.3	9.0
Green Ext Time (p_c), s	0.0	7.4	0.8	1.5	0.5	7.9	0.2	1.9

Intersection Summary	
HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	839	46	284	1080	0	9	0	263	0	0	0
Future Vol, veh/h	1	839	46	284	1080	0	9	0	263	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	1	912	50	309	1174	0	10	0	286	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1174	0	0	962	0	0	2144	2731	481	2250	2756	587
Stage 1	-	-	-	-	-	-	939	939	-	1792	1792	-
Stage 2	-	-	-	-	-	-	1205	1792	-	458	964	-
Critical Hdwy	4.32	-	-	4.32	-	-	7.72	6.72	7.12	7.72	6.72	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.72	5.72	-	6.72	5.72	-
Follow-up Hdwy	2.31	-	-	2.31	-	-	3.61	4.11	3.41	3.61	4.11	3.41
Pot Cap-1 Maneuver	542	-	-	658	-	-	24	17	508	20	17	431
Stage 1	-	-	-	-	-	-	267	321	-	76	119	-
Stage 2	-	-	-	-	-	-	181	119	-	529	312	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	542	-	-	658	-	-	15	9	508	6	9	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	15	9	-	6	9	-
Stage 1	-	-	-	-	-	-	266	320	-	76	63	-
Stage 2	-	-	-	-	-	-	96	63	-	231	311	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.2	34.8	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	15	508	542	-	-	658	-	-	-	-
HCM Lane V/C Ratio	0.652	0.563	0.002	-	-	0.469	-	-	-	-
HCM Control Delay (s)	$ 443.4	20.8	11.7	-	-	15.2	-	-	0	0
HCM Lane LOS	F	C	B	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	1.6	3.4	0	-	-	2.5	-	-	-	-

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	365	737	1177	19	5	186
Future Vol, veh/h	365	737	1177	19	5	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	397	801	1279	21	5	202

Major/Minor	Major1			Major2		
Conflicting Flow All	1300	0	-	0	2474	640
Stage 1	-	-	-	-	1279	-
Stage 2	-	-	-	-	1195	-
Critical Hdwy	4.3	-	-	-	7	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.3	-	-	-	3.6	3.4
Pot Cap-1 Maneuver	488	-	-	-	22	399
Stage 1	-	-	-	-	210	-
Stage 2	-	-	-	-	234	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	488	-	-	-	~ 4	399
Mov Cap-2 Maneuver	-	-	-	-	36	-
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	234	-

Approach	EB	WB	SB
HCM Control Delay, s	12.3	0	25.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	488	-	-	-	36	399
HCM Lane V/C Ratio	0.813	-	-	-	0.151	0.507
HCM Control Delay (s)	37.2	-	-	-	122	22.9
HCM Lane LOS	E	-	-	-	F	C
HCM 95th %tile Q(veh)	7.8	-	-	-	0.5	2.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	723	19	2	1188	0	8	0	1	0	0	0
Future Vol, veh/h	0	723	19	2	1188	0	8	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	13	13	13	13	13	13	13	13	13	13	13	13
Mvmt Flow	0	786	21	2	1291	0	9	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1291	0	0	807	0	0	1436	2081	393	1688	2102	646
Stage 1	-	-	-	-	-	-	786	786	-	1295	1295	-
Stage 2	-	-	-	-	-	-	650	1295	-	393	807	-
Critical Hdwy	4.36	-	-	4.36	-	-	7.76	6.76	7.16	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Follow-up Hdwy	2.33	-	-	2.33	-	-	3.63	4.13	3.43	3.63	4.13	3.43
Pot Cap-1 Maneuver	477	-	-	746	-	-	85	46	576	54	45	389
Stage 1	-	-	-	-	-	-	328	376	-	156	211	-
Stage 2	-	-	-	-	-	-	399	211	-	574	367	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	477	-	-	746	-	-	85	46	576	54	45	389
Mov Cap-2 Maneuver	-	-	-	-	-	-	253	177	-	145	176	-
Stage 1	-	-	-	-	-	-	328	376	-	156	210	-
Stage 2	-	-	-	-	-	-	398	210	-	573	367	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.8	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	253	576	477	-	-	746	-	-	-
HCM Lane V/C Ratio	0.034	0.002	-	-	-	0.003	-	-	-
HCM Control Delay (s)	19.7	11.3	0	-	-	9.8	-	-	0
HCM Lane LOS	C	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	16.5
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	331	491	765	468
Demand Flow Rate, veh/h	341	505	788	482
Vehicles Circulating, veh/h	733	630	283	473
Vehicles Exiting, veh/h	222	441	791	662
Ped Vol Crossing Leg, #/h	0	0	3	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.3	19.4	17.9	12.7
Approach LOS	B	C	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	341	505	788	482
Cap Entry Lane, veh/h	653	726	1034	852
Entry HV Adj Factor	0.971	0.972	0.971	0.971
Flow Entry, veh/h	331	491	765	468
Cap Entry, veh/h	634	705	1003	827
V/C Ratio	0.522	0.696	0.762	0.566
Control Delay, s/veh	14.3	19.4	17.9	12.7
LOS	B	C	C	B
95th %tile Queue, veh	3	6	8	4

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	369	345	467	679	7	21	139	290	297	35
v/c Ratio	0.01	0.59	0.75	0.53	0.61	0.05	0.13	0.53	0.70	0.71	0.07
Control Delay	49.0	38.0	42.0	19.6	4.2	44.3	44.9	16.3	41.6	41.6	0.3
Queue Delay	0.0	0.0	0.1	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	38.0	42.1	20.1	4.5	44.3	44.9	16.3	41.6	41.6	0.3
Queue Length 50th (ft)	1	93	166	157	0	4	11	0	144	148	0
Queue Length 95th (ft)	6	175	332	355	67	19	39	59	308	314	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	107	982	702	1149	1232	388	409	451	585	595	621
Starvation Cap Reductn	0	0	29	302	150	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.38	0.51	0.55	0.63	0.02	0.05	0.31	0.50	0.50	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	310	29	317	430	625	6	19	128	453	87	32
Future Volume (veh/h)	1	310	29	317	430	625	6	19	128	453	87	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	337	32	345	467	679	7	21	139	560	0	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	840	79	393	889	754	197	206	174	704	0	309
Arrive On Green	0.00	0.26	0.26	0.22	0.48	0.48	0.11	0.11	0.11	0.20	0.00	0.20
Sat Flow, veh/h	1767	3251	307	1767	1856	1572	1767	1856	1568	3534	0	1553
Grp Volume(v), veh/h	1	182	187	345	467	679	7	21	139	560	0	35
Grp Sat Flow(s),veh/h/ln	1767	1763	1795	1767	1856	1572	1767	1856	1568	1767	0	1553
Q Serve(g_s), s	0.0	7.3	7.5	16.3	15.1	34.1	0.3	0.9	7.5	13.0	0.0	1.6
Cycle Q Clear(g_c), s	0.0	7.3	7.5	16.3	15.1	34.1	0.3	0.9	7.5	13.0	0.0	1.6
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	455	464	393	889	754	197	206	174	704	0	309
V/C Ratio(X)	0.41	0.40	0.40	0.88	0.53	0.90	0.04	0.10	0.80	0.79	0.00	0.11
Avail Cap(c_a), veh/h	102	470	479	666	1087	921	369	387	327	1168	0	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.0	26.4	26.5	32.4	15.6	20.6	34.2	34.4	37.4	32.8	0.0	28.3
Incr Delay (d2), s/veh	85.1	0.6	0.6	7.1	0.5	10.4	0.1	0.2	8.0	2.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.1	3.2	7.5	6.1	13.6	0.1	0.4	3.2	5.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	128.1	27.0	27.0	39.5	16.1	30.9	34.3	34.6	45.4	34.9	0.0	28.4
LnGrp LOS	F	C	C	D	B	C	C	C	D	C	A	C
Approach Vol, veh/h		370			1491			167			595	
Approach Delay, s/veh		27.3			28.3			43.6			34.5	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.7	26.8		21.7	4.6	45.8		14.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	32.5	23.0		28.5	5.0	50.5		18.0				
Max Q Clear Time (g_c+I1), s	18.3	9.5		15.0	2.0	36.1		9.5				
Green Ext Time (p_c), s	0.9	1.9		1.9	0.0	5.2		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			30.5									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	68	899	49	1252	377	234	12	249	5	8
v/c Ratio	0.36	0.48	0.28	0.71	0.42	0.68	0.03	0.43	0.01	0.01
Control Delay	46.6	14.2	46.1	19.9	6.7	42.0	27.2	6.5	27.0	0.0
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	14.4	46.1	19.9	6.7	42.0	27.2	6.5	27.0	0.0
Queue Length 50th (ft)	37	159	26	265	34	123	5	0	2	0
Queue Length 95th (ft)	88	267	69	432	112	216	20	57	12	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	253	2272	229	2263	1077	586	780	806	585	778
Starvation Cap Reductn	0	623	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.55	0.21	0.55	0.35	0.40	0.02	0.31	0.01	0.01

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	779	48	45	1152	347	215	11	229	5	0	7
Future Volume (veh/h)	63	779	48	45	1152	347	215	11	229	5	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	68	847	52	49	1252	0	234	12	249	5	0	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	99	1724	106	82	1768		420	408	346	357	0	346
Arrive On Green	0.06	0.51	0.51	0.05	0.50	0.00	0.22	0.22	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1767	3373	207	1767	3526	1572	1396	1856	1572	1110	0	1572
Grp Volume(v), veh/h	68	443	456	49	1252	0	234	12	249	5	0	8
Grp Sat Flow(s),veh/h/ln	1767	1763	1817	1767	1763	1572	1396	1856	1572	1110	0	1572
Q Serve(g_s), s	2.3	9.9	9.9	1.6	16.7	0.0	9.6	0.3	8.9	0.2	0.0	0.2
Cycle Q Clear(g_c), s	2.3	9.9	9.9	1.6	16.7	0.0	9.8	0.3	8.9	0.5	0.0	0.2
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	99	901	929	82	1768		420	408	346	357	0	346
V/C Ratio(X)	0.68	0.49	0.49	0.60	0.71		0.56	0.03	0.72	0.01	0.00	0.02
Avail Cap(c_a), veh/h	306	1491	1536	277	2923		820	939	796	675	0	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.1	9.7	9.7	28.4	11.7	0.0	22.4	18.6	21.9	18.8	0.0	18.6
Incr Delay (d2), s/veh	8.0	0.4	0.4	6.8	0.5	0.0	1.2	0.0	2.8	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.3	3.4	0.8	5.5	0.0	3.0	0.1	3.2	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	10.1	10.1	35.2	12.2	0.0	23.6	18.6	24.8	18.8	0.0	18.6
LnGrp LOS	D	B	B	D	B		C	B	C	B	A	B
Approach Vol, veh/h		967			1301	A		495			13	
Approach Delay, s/veh		11.9			13.1			24.1			18.7	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.3	35.5		17.8	7.9	34.9		17.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.5	51.3		30.7	10.5	50.3		30.7
Max Q Clear Time (g_c+I1), s	3.6	11.9		2.5	4.3	18.7		11.8
Green Ext Time (p_c), s	0.0	7.0		0.0	0.1	11.8		1.5

Intersection Summary			
HCM 6th Ctrl Delay			14.7
HCM 6th LOS			B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	214	888	61	952	437	193	49	137	598
v/c Ratio	0.57	0.64	0.41	0.79	0.74	0.24	0.11	0.59	0.86dr
Control Delay	52.4	25.9	57.5	35.9	50.0	34.6	1.0	55.5	34.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	25.9	57.5	35.9	50.0	34.6	1.0	55.5	34.9
Queue Length 50th (ft)	71	232	40	300	144	55	0	89	138
Queue Length 95th (ft)	124	336	91	413	225	98	4	165	222
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	438	1605	190	1553	719	1001	515	334	975
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.55	0.32	0.61	0.61	0.19	0.10	0.41	0.61

Intersection Summary

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	520	297	56	777	98	402	178	45	126	187	363
Future Volume (veh/h)	197	520	297	56	777	98	402	178	45	126	187	363
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	565	0	61	845	107	437	193	49	137	203	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	1445		91	1152	146	582	600	268	178	357	
Arrive On Green	0.09	0.41	0.00	0.05	0.36	0.36	0.17	0.17	0.17	0.10	0.10	0.00
Sat Flow, veh/h	3456	3647	0	1781	3168	401	3456	3554	1585	1781	3647	0
Grp Volume(v), veh/h	214	565	0	61	474	478	437	193	49	137	203	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1792	1728	1777	1585	1781	1777	0
Q Serve(g_s), s	3.9	7.4	0.0	2.2	15.2	15.2	7.9	3.1	1.7	4.9	3.6	0.0
Cycle Q Clear(g_c), s	3.9	7.4	0.0	2.2	15.2	15.2	7.9	3.1	1.7	4.9	3.6	0.0
Prop In Lane	1.00		0.00	1.00		0.22	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	324	1445		91	646	652	582	600	268	178	357	
V/C Ratio(X)	0.66	0.39		0.67	0.73	0.73	0.75	0.32	0.18	0.77	0.57	
Avail Cap(c_a), veh/h	656	2457		284	1174	1185	1076	1485	662	501	1377	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.8	13.8	0.0	30.7	18.2	18.2	26.0	24.0	23.5	28.9	28.2	0.0
Incr Delay (d2), s/veh	2.3	0.2	0.0	8.2	1.6	1.6	2.0	0.3	0.3	6.8	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.7	0.0	1.1	5.8	5.8	3.1	1.2	0.6	2.2	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	14.0	0.0	38.9	19.8	19.8	28.0	24.3	23.8	35.7	29.7	0.0
LnGrp LOS	C	B		D	B	B	C	C	C	D	C	
Approach Vol, veh/h		779	A		1013			679			340	A
Approach Delay, s/veh		18.7			20.9			26.7			32.1	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	31.3	15.6	11.1	10.7	28.4	11.1	15.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	45.5	20.5	25.5	12.5	43.5	18.5	27.5
Max Q Clear Time (g_c+I1), s	4.2	9.4	9.9	5.6	5.9	17.2	6.9	5.1
Green Ext Time (p_c), s	0.0	4.3	1.2	1.0	0.4	6.6	0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	71	452	1254	574	101
v/c Ratio	0.40	0.21	0.75	0.74	0.23
Control Delay	49.0	10.0	21.4	39.5	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	10.0	21.4	39.5	9.1
Queue Length 50th (ft)	35	43	218	141	0
Queue Length 95th (ft)	103	147	#616	#313	47
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	225	2399	1722	977	522
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.19	0.73	0.59	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	416	602	552	528	93
Future Volume (vph)	65	416	602	552	528	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	3229		3400	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	3229		3400	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	452	654	600	574	101
RTOR Reduction (vph)	0	0	113	0	0	79
Lane Group Flow (vph)	71	452	1141	0	574	22
Confl. Peds. (#/hr)				3		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	7.0	53.5	42.0		19.7	19.7
Effective Green, g (s)	7.0	53.5	42.0		19.7	19.7
Actuated g/C Ratio	0.08	0.59	0.46		0.22	0.22
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	135	2069	1496		739	340
v/s Ratio Prot	c0.04	0.13	c0.35			
v/s Ratio Perm					c0.17	0.01
v/c Ratio	0.53	0.22	0.76		0.78	0.06
Uniform Delay, d1	40.2	8.7	20.2		33.4	28.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.7	0.1	2.4		5.1	0.1
Delay (s)	43.9	8.8	22.5		38.5	28.2
Level of Service	D	A	C		D	C
Approach Delay (s)		13.5	22.5		37.0	
Approach LOS		B	C		D	

Intersection Summary

HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	136	379	168	74	1070	277	670	275	653
v/c Ratio	0.61	0.67	0.28	0.55	1.20	0.87	0.81	0.89	0.70
Control Delay	47.8	33.9	5.5	56.4	127.5	62.4	39.1	66.8	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	33.9	5.5	56.4	127.5	62.4	39.1	66.8	23.2
Queue Length 50th (ft)	72	191	0	41	~347	152	179	153	108
Queue Length 95th (ft)	131	294	45	#97	#484	#296	248	#305	172
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	272	589	607	139	891	333	917	313	996
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.64	0.28	0.53	1.20	0.83	0.73	0.88	0.66

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	349	155	68	556	429	255	567	50	253	316	285
Future Volume (veh/h)	125	349	155	68	556	429	255	567	50	253	316	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.91	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	136	379	168	74	604	466	277	616	54	275	343	310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	171	542	453	94	463	357	317	773	68	314	416	368
Arrive On Green	0.10	0.30	0.30	0.05	0.25	0.25	0.18	0.24	0.24	0.18	0.24	0.24
Sat Flow, veh/h	1739	1826	1526	1739	1835	1414	1739	3199	280	1739	1735	1536
Grp Volume(v), veh/h	136	379	168	74	571	499	277	333	337	275	343	310
Grp Sat Flow(s),veh/h/ln	1739	1826	1526	1739	1735	1514	1739	1735	1744	1739	1735	1536
Q Serve(g_s), s	6.1	14.6	6.9	3.3	20.0	20.0	12.3	14.3	14.4	12.2	14.8	15.2
Cycle Q Clear(g_c), s	6.1	14.6	6.9	3.3	20.0	20.0	12.3	14.3	14.4	12.2	14.8	15.2
Prop In Lane	1.00		1.00	1.00		0.93	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	171	542	453	94	438	382	317	419	421	314	416	368
V/C Ratio(X)	0.80	0.70	0.37	0.78	1.30	1.31	0.87	0.80	0.80	0.88	0.83	0.84
Avail Cap(c_a), veh/h	296	613	513	152	438	382	362	504	507	340	482	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	24.7	22.0	37.0	29.6	29.6	31.5	28.2	28.2	31.6	28.5	28.7
Incr Delay (d2), s/veh	8.1	3.0	0.5	13.2	152.2	155.2	18.7	7.3	7.4	20.8	10.0	12.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	6.3	2.4	1.7	26.2	23.2	6.5	6.4	6.5	6.7	7.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	27.8	22.5	50.2	181.8	184.8	50.2	35.5	35.7	52.4	38.5	41.4
LnGrp LOS	D	C	C	D	F	F	D	D	D	D	D	D
Approach Vol, veh/h		683			1144			947			928	
Approach Delay, s/veh		29.5			174.6			39.9			43.6	
Approach LOS		C			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.8	23.6	8.8	28.0	18.9	23.5	12.3	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	23.0	6.9	26.6	16.5	22.0	13.5	20.0
Max Q Clear Time (g_c+I1), s	14.2	16.4	5.3	16.6	14.3	17.2	8.1	22.0
Green Ext Time (p_c), s	0.1	2.2	0.0	2.0	0.2	1.7	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	80.5
HCM 6th LOS	F

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Intersection	
Int Delay, s/veh	24.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	99	6	40	8	15	98	34	553	3	33	422	85
Future Vol, veh/h	99	6	40	8	15	98	34	553	3	33	422	85
Conflicting Peds, #/hr	1	0	0	0	0	1	6	0	2	2	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	7	43	9	16	107	37	601	3	36	459	92

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1276	1217	465	1281	1308	606	557	0	0	606	0	0
Stage 1	537	537	-	679	679	-	-	-	-	-	-	-
Stage 2	739	680	-	602	629	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	144	181	597	142	159	497	1014	-	-	972	-	-
Stage 1	528	523	-	441	451	-	-	-	-	-	-	-
Stage 2	409	451	-	486	475	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 97	167	594	120	146	496	1008	-	-	970	-	-
Mov Cap-2 Maneuver	~ 97	167	-	120	146	-	-	-	-	-	-	-
Stage 1	506	501	-	424	433	-	-	-	-	-	-	-
Stage 2	297	433	-	428	455	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	216.3	23	0.5	0.5
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1008	-	-	129	330	970	-	-
HCM Lane V/C Ratio	0.037	-	-	1.222	0.399	0.037	-	-
HCM Control Delay (s)	8.7	-	-	216.3	23	8.9	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	9.7	1.9	0.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	73.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	9	7	289	5	327	0	9	243	148	261	199
Future Vol, veh/h	20	9	7	289	5	327	0	9	243	148	261	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	10	8	314	5	355	0	10	264	161	284	216
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	13.2	140.1	19.3	37
HCM LOS	B	F	C	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	0%	56%	47%	72%	0%
Vol Thru, %	96%	0%	25%	1%	28%	91%
Vol Right, %	0%	100%	19%	53%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	252	148	36	621	361	110
LT Vol	9	0	20	289	261	0
Through Vol	243	0	9	5	100	100
RT Vol	0	148	7	327	0	10
Lane Flow Rate	274	161	39	675	392	119
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.587	0.313	0.093	1.228	0.852	0.245
Departure Headway (Hd)	8.463	7.713	9.277	6.548	8.555	8.112
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	430	470	389	554	427	445
Service Time	6.163	5.413	7.277	4.587	6.255	5.812
HCM Lane V/C Ratio	0.637	0.343	0.1	1.218	0.918	0.267
HCM Control Delay	22.5	13.9	13.2	140.1	44.2	13.4
HCM Lane LOS	C	B	B	F	E	B
HCM 95th-tile Q	3.7	1.3	0.3	25.5	8.3	1

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13: Creston Road & Alamo Creek Terrace/Meadowlark Road

HCM 6th AWSC

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	10
Future Vol, veh/h	10
Peak Hour Factor	0.92
Heavy Vehicles, %	2
Mvmt Flow	11
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

14: Creston Road & Charolais Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	10.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	192	136	229	208	125	371
Future Vol, veh/h	192	136	229	208	125	371
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	209	148	249	226	136	403

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	747	136	539	0	-	0
Stage 1	136	-	-	-	-	-
Stage 2	611	-	-	-	-	-
Critical Hdwy	6.645	6.245	4.145	-	-	-
Critical Hdwy Stg 1	5.445	-	-	-	-	-
Critical Hdwy Stg 2	5.845	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	362	909	1021	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	274	909	1021	-	-	-
Mov Cap-2 Maneuver	274	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33.5	5.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1021	-	274	909	-	-
HCM Lane V/C Ratio	0.244	-	0.762	0.163	-	-
HCM Control Delay (s)	9.7	-	50.4	9.7	-	-
HCM Lane LOS	A	-	F	A	-	-
HCM 95th %tile Q(veh)	1	-	5.7	0.6	-	-

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15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	55	1	117	9	0	0	0	0	324	15
Future Volume (Veh/h)	27	0	55	1	117	9	0	0	0	0	324	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	60	1	127	10	0	0	0	0	352	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	428	360	360	420	368	0	368			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	428	360	360	420	368	0	368			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	100	91	100	77	99	100			100		
cM capacity (veh/h)	439	567	684	496	561	1085	1191			1623		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	89	138	368
Volume Left	29	1	0
Volume Right	60	10	16
cSH	579	604	1700
Volume to Capacity	0.15	0.23	0.22
Queue Length 95th (ft)	14	22	0
Control Delay (s)	12.3	13.0	0.0
Lane LOS	B	B	
Approach Delay (s)	12.3	13.0	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		4.9		
Intersection Capacity Utilization		36.2%	ICU Level of Service	A
Analysis Period (min)		15		

16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	336	1212	309	491	91	293	620	349	276
v/c Ratio	0.09	0.72	0.80	0.38	0.44	0.61	0.65	0.37	0.69	0.41
Control Delay	55.7	54.3	37.5	27.5	2.5	79.5	63.1	6.0	61.4	45.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	54.3	37.5	27.5	2.5	79.5	63.1	6.0	61.4	45.9
Queue Length 50th (ft)	16	121	451	173	6	78	131	49	151	106
Queue Length 95th (ft)	44	188	642	293	52	#158	192	79	219	155
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	285	594	1669	906	1170	170	648	1787	658	966
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.57	0.73	0.34	0.42	0.54	0.45	0.35	0.53	0.29

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	194	115	1115	284	452	84	270	570	321	205	49
Future Volume (veh/h)	18	194	115	1115	284	452	84	270	570	321	205	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	211	125	1212	309	491	91	293	620	349	223	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	223	273	155	1438	778	847	115	569	1607	427	600	140
Arrive On Green	0.13	0.13	0.13	0.42	0.42	0.42	0.06	0.16	0.16	0.12	0.21	0.21
Sat Flow, veh/h	1781	2184	1240	3456	1870	1564	1781	3554	2790	3456	2860	666
Grp Volume(v), veh/h	20	170	166	1212	309	491	91	293	620	349	137	139
Grp Sat Flow(s),veh/h/ln	1781	1777	1647	1728	1870	1564	1781	1777	1395	1728	1777	1749
Q Serve(g_s), s	1.2	10.8	11.5	36.9	13.5	24.7	5.9	8.8	14.2	11.5	7.7	8.0
Cycle Q Clear(g_c), s	1.2	10.8	11.5	36.9	13.5	24.7	5.9	8.8	14.2	11.5	7.7	8.0
Prop In Lane	1.00		0.75	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	223	222	206	1438	778	847	115	569	1607	427	373	367
V/C Ratio(X)	0.09	0.76	0.81	0.84	0.40	0.58	0.79	0.52	0.39	0.82	0.37	0.38
Avail Cap(c_a), veh/h	310	310	287	1819	984	1019	186	704	1714	717	536	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.3	49.5	49.8	30.7	23.9	18.1	54.0	45.0	13.5	50.0	39.6	39.7
Incr Delay (d2), s/veh	0.2	7.2	10.9	3.1	0.3	0.6	11.5	0.7	0.2	3.9	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.3	5.4	15.2	5.9	8.5	2.9	3.8	9.0	5.2	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.5	56.7	60.7	33.8	24.2	18.7	65.5	45.7	13.7	53.9	40.2	40.4
LnGrp LOS	D	E	E	C	C	B	E	D	B	D	D	D
Approach Vol, veh/h		356			2012			1004			625	
Approach Delay, s/veh		57.9			28.6			27.7			47.9	
Approach LOS		E			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.2	24.5		19.3	13.3	30.3		54.1
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 24	23.2		20.4	12.2	* 35		61.6
Max Q Clear Time (g_c+I1), s	13.5	16.2		13.5	7.9	10.0		38.9
Green Ext Time (p_c), s	0.9	2.6		1.2	0.1	1.6		9.8

Intersection Summary			
HCM 6th Ctrl Delay			34.0
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

17: S. River Road & Niblick Road

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	111	701	298	129	1417	699	407	317	454
v/c Ratio	0.56	0.57	0.40	0.68	1.03	0.93	0.66	0.86	0.75
Control Delay	63.4	32.8	5.0	66.7	66.3	62.8	47.4	66.1	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.4	32.8	5.0	66.7	66.3	62.8	47.4	66.1	45.0
Queue Length 50th (ft)	40	218	0	89	~570	254	143	217	138
Queue Length 95th (ft)	74	304	63	#171	#775	#400	196	#385	194
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	200	1230	745	214	1372	754	816	400	871
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.57	0.40	0.60	1.03	0.93	0.50	0.79	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	645	274	119	1013	291	643	321	53	292	273	144
Future Volume (veh/h)	102	645	274	119	1013	291	643	321	53	292	273	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	111	701	298	129	1101	316	699	349	58	317	297	157
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	1283	572	157	1094	311	751	585	96	348	386	199
Arrive On Green	0.05	0.36	0.36	0.09	0.40	0.40	0.22	0.19	0.19	0.20	0.17	0.17
Sat Flow, veh/h	3456	3554	1585	1781	2727	774	3456	3050	502	1781	2268	1169
Grp Volume(v), veh/h	111	701	298	129	713	704	699	202	205	317	231	223
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1724	1728	1777	1775	1781	1777	1660
Q Serve(g_s), s	3.5	17.3	8.7	7.9	44.3	44.3	21.9	11.4	11.7	19.2	13.7	14.2
Cycle Q Clear(g_c), s	3.5	17.3	8.7	7.9	44.3	44.3	21.9	11.4	11.7	19.2	13.7	14.2
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.28	1.00		0.70
Lane Grp Cap(c), veh/h	167	1283	572	157	713	692	751	341	341	348	302	282
V/C Ratio(X)	0.67	0.55	0.52	0.82	1.00	1.02	0.93	0.59	0.60	0.91	0.76	0.79
Avail Cap(c_a), veh/h	203	1283	572	218	713	692	754	418	418	407	436	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	28.1	7.9	49.5	33.0	33.0	42.4	40.7	40.8	43.5	43.7	43.9
Incr Delay (d2), s/veh	5.9	0.5	0.8	15.7	33.8	38.5	18.1	1.6	1.7	22.1	4.8	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	7.2	5.5	4.1	24.6	24.8	10.9	5.0	5.1	10.4	6.3	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	28.5	8.7	65.1	66.9	71.6	60.5	42.3	42.5	65.6	48.5	50.4
LnGrp LOS	E	C	A	E	F	F	E	D	D	E	D	D
Approach Vol, veh/h		1110			1546			1106			771	
Approach Delay, s/veh		26.1			68.9			53.9			56.1	
Approach LOS		C			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	44.4	28.5	23.3	9.8	48.8	26.1	25.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	37.3	24.1	27.1	6.5	44.3	25.2	26.0
Max Q Clear Time (g_c+I1), s	9.9	19.3	23.9	16.2	5.5	46.3	21.2	13.7
Green Ext Time (p_c), s	0.1	5.3	0.1	1.9	0.0	0.0	0.4	1.7

Intersection Summary	
HCM 6th Ctrl Delay	52.6
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	1	5	925	389	41
Future Vol, veh/h	86	1	5	925	389	41
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	93	1	5	1005	423	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1461	447	468	0	-	0
Stage 1	446	-	-	-	-	-
Stage 2	1015	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	141	609	1088	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	348	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	140	608	1088	-	-	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	348	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	71.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1088	-	141	-	-
HCM Lane V/C Ratio	0.005	-	0.671	-	-
HCM Control Delay (s)	8.3	0	71.3	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	3.7	-	-

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	8	14	794	359	19
Future Vol, veh/h	55	8	14	794	359	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	9	15	863	390	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1294	401	411	0	-	0
Stage 1	401	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	179	649	1148	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	175	649	1148	-	-	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	400	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1148	-	374	-	-
HCM Lane V/C Ratio	0.013	-	0.183	-	-
HCM Control Delay (s)	8.2	0	16.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Intersection	
Intersection Delay, s/veh	61.3
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	719	86	7	319	46
Future Vol, veh/h	21	719	86	7	319	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	782	93	8	347	50
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	86.9	11.5	22.2
HCM LOS	F	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	3%	87%
Vol Thru, %	92%	0%	13%
Vol Right, %	8%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	93	740	365
LT Vol	0	21	319
Through Vol	86	0	46
RT Vol	7	719	0
Lane Flow Rate	101	804	397
Geometry Grp	1	1	1
Degree of Util (X)	0.183	1.106	0.679
Departure Headway (Hd)	6.956	4.948	6.534
Convergence, Y/N	Yes	Yes	Yes
Cap	519	740	555
Service Time	4.956	2.948	4.534
HCM Lane V/C Ratio	0.195	1.086	0.715
HCM Control Delay	11.5	86.9	22.2
HCM Lane LOS	B	F	C
HCM 95th-tile Q	0.7	22.8	5.1

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	330	734	2	4	7
Future Vol, veh/h	4	330	734	2	4	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	359	798	2	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	806	0	-	0	1172	805
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	367	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	819	-	-	-	213	382
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	701	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	814	-	-	-	209	380
Mov Cap-2 Maneuver	-	-	-	-	209	-
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	697	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	814	-	-	-	293
HCM Lane V/C Ratio	0.005	-	-	-	0.041
HCM Control Delay (s)	9.4	-	-	-	17.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	317	1	1	689	29	3	0	1	35	0	44
Future Vol, veh/h	16	317	1	1	689	29	3	0	1	35	0	44
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	345	1	1	749	32	3	0	1	38	0	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	788	0	0	346	0	0	1171	1170	346	1154	1154	772
Stage 1	-	-	-	-	-	-	380	380	-	774	774	-
Stage 2	-	-	-	-	-	-	791	790	-	380	380	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	831	-	-	1213	-	-	170	193	697	174	197	400
Stage 1	-	-	-	-	-	-	642	614	-	391	408	-
Stage 2	-	-	-	-	-	-	383	402	-	642	614	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	825	-	-	1213	-	-	147	187	697	170	191	397
Mov Cap-2 Maneuver	-	-	-	-	-	-	147	187	-	170	191	-
Stage 1	-	-	-	-	-	-	629	601	-	380	405	-
Stage 2	-	-	-	-	-	-	337	399	-	628	601	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	25.2	26.9
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	183	825	-	-	1213	-	-	249
HCM Lane V/C Ratio	0.024	0.021	-	-	0.001	-	-	0.345
HCM Control Delay (s)	25.2	9.5	-	-	8	-	-	26.9
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	1.5

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23: Charolais Road & St. Andrews Circle

HCM 6th TWSC

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	345	710	2	6	5
Future Vol, veh/h	4	345	710	2	6	5
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	375	772	2	7	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	783	0	-	0	1165	782
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	383	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	835	-	-	-	215	394
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	828	-	-	-	210	391
Mov Cap-2 Maneuver	-	-	-	-	210	-
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	683	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	828	-	-	-	266
HCM Lane V/C Ratio	0.005	-	-	-	0.045
HCM Control Delay (s)	9.4	-	-	-	19.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

24: Charolais Road & Rambouillet Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	56	295	577	50	26	135
Future Vol, veh/h	56	295	577	50	26	135
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	61	321	627	54	28	147

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	689	0	-	0	1105	662
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	443	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	910	-	-	-	234	464
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	903	-	-	-	215	460
Mov Cap-2 Maneuver	-	-	-	-	215	-
Stage 1	-	-	-	-	476	-
Stage 2	-	-	-	-	644	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	21.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	903	-	-	-	389
HCM Lane V/C Ratio	0.067	-	-	-	0.45
HCM Control Delay (s)	9.3	-	-	-	21.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	2.3

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Intersection	
Intersection Delay, s/veh	5.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	227	329	76	180
Demand Flow Rate, veh/h	229	332	77	182
Vehicles Circulating, veh/h	4	117	200	398
Vehicles Exiting, veh/h	576	160	33	51
Ped Vol Crossing Leg, #/h	0	0	0	8
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	4.0	5.4	3.8	5.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	229	332	77	182
Cap Entry Lane, veh/h	1374	1225	1125	919
Entry HV Adj Factor	0.993	0.990	0.986	0.989
Flow Entry, veh/h	227	329	76	180
Cap Entry, veh/h	1365	1213	1110	908
V/C Ratio	0.167	0.271	0.068	0.198
Control Delay, s/veh	4.0	5.4	3.8	5.9
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	257	1291	1300	118	126	231
v/c Ratio	0.68	0.39	0.82	0.15	0.53	0.36
Control Delay	49.8	0.3	29.0	3.6	54.3	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	0.3	29.0	3.6	54.3	20.2
Queue Length 50th (ft)	154	0	374	0	78	81
Queue Length 95th (ft)	312	0	571	32	170	182
Internal Link Dist (ft)		1017	748		574	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	503	3312	2843	1289	503	977
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.39	0.46	0.09	0.25	0.24

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	254	1278	1287	117	125	229
Future Volume (vph)	254	1278	1287	117	125	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	3312	3312	1482	1656	1482
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	3312	3312	1482	1656	1482
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	257	1291	1300	118	126	231
RTOR Reduction (vph)	0	0	0	61	0	26
Lane Group Flow (vph)	257	1291	1300	57	126	205
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	23.8	103.1	49.5	49.5	14.8	42.6
Effective Green, g (s)	23.8	103.1	49.5	49.5	14.8	42.6
Actuated g/C Ratio	0.23	1.00	0.48	0.48	0.14	0.41
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	382	3312	1590	711	237	612
v/s Ratio Prot	c0.16	0.39	c0.39		c0.08	0.14
v/s Ratio Perm				0.04		
v/c Ratio	0.67	0.39	0.82	0.08	0.53	0.34
Uniform Delay, d1	36.1	0.0	22.9	14.5	40.9	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.6	0.3	3.6	0.1	2.6	0.3
Delay (s)	40.7	0.3	26.5	14.6	43.5	20.9
Level of Service	D	A	C	B	D	C
Approach Delay (s)		7.1	25.5		28.9	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	196	971	279	52	887	127	248	283	193	335	312
v/c Ratio	0.53	0.75	0.38	0.20	0.80	0.22	0.59	0.33	0.53	0.77	0.56
Control Delay	58.6	38.2	5.0	58.3	43.0	6.4	57.8	35.9	58.6	56.0	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	38.2	5.0	58.3	43.0	6.4	57.8	35.9	58.6	56.0	14.4
Queue Length 50th (ft)	72	340	0	19	313	0	91	84	71	233	39
Queue Length 95th (ft)	139	536	62	48	495	46	170	154	138	422	149
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	528	2120	1029	528	2120	982	587	1224	587	653	710
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.46	0.27	0.10	0.42	0.13	0.42	0.23	0.33	0.51	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	942	271	50	860	123	241	228	47	187	325	303
Future Volume (veh/h)	190	942	271	50	860	123	241	228	47	187	325	303
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	196	971	279	52	887	127	248	235	48	193	335	312
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	275	1245	554	105	1191	531	333	750	150	274	444	376
Arrive On Green	0.08	0.36	0.36	0.03	0.35	0.35	0.10	0.26	0.26	0.08	0.25	0.25
Sat Flow, veh/h	3319	3413	1520	3319	3413	1521	3319	2831	568	3319	1796	1522
Grp Volume(v), veh/h	196	971	279	52	887	127	248	140	143	193	335	312
Grp Sat Flow(s),veh/h/ln	1659	1706	1520	1659	1706	1521	1659	1706	1692	1659	1796	1522
Q Serve(g_s), s	5.4	23.6	8.7	1.4	21.3	5.5	6.8	6.1	6.3	5.3	16.1	18.1
Cycle Q Clear(g_c), s	5.4	23.6	8.7	1.4	21.3	5.5	6.8	6.1	6.3	5.3	16.1	18.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	275	1245	554	105	1191	531	333	452	448	274	444	376
V/C Ratio(X)	0.71	0.78	0.50	0.49	0.74	0.24	0.74	0.31	0.32	0.70	0.76	0.83
Avail Cap(c_a), veh/h	640	2561	1141	640	2561	1141	712	750	744	712	789	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	26.3	9.8	44.4	26.7	21.6	40.8	27.5	27.5	41.7	32.5	33.3
Incr Delay (d2), s/veh	3.4	1.1	0.7	1.3	0.9	0.2	3.3	0.4	0.4	3.3	2.6	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	8.6	4.2	0.6	7.9	1.9	2.8	2.4	2.5	2.2	7.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	27.4	10.5	45.8	27.7	21.8	44.1	27.9	27.9	45.0	35.2	38.0
LnGrp LOS	D	C	B	D	C	C	D	C	C	D	D	D
Approach Vol, veh/h		1446			1066			531			840	
Approach Delay, s/veh		26.5			27.9			35.5			38.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	41.3	13.4	28.3	11.7	39.8	11.7	30.0
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	3.4	25.6	8.8	20.1	7.4	23.3	7.3	8.3
Green Ext Time (p_c), s	0.0	8.5	0.6	2.9	0.4	6.8	0.5	1.6

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	18.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1074	102	324	1015	0	18	0	389	0	0	0
Future Vol, veh/h	0	1074	102	324	1015	0	18	0	389	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	1107	105	334	1046	0	19	0	401	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1047	0	0	1212	0	0	2351	2875	606	2269	2927	524
Stage 1	-	-	-	-	-	-	1160	1160	-	1715	1715	-
Stage 2	-	-	-	-	-	-	1191	1715	-	554	1212	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.64	7.04	7.64	6.64	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.64	-	6.64	5.64	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4.07	3.37	3.57	4.07	3.37
Pot Cap-1 Maneuver	631	-	-	544	-	-	~ 18	15	428	21	14	485
Stage 1	-	-	-	-	-	-	200	258	-	89	136	-
Stage 2	-	-	-	-	-	-	191	136	-	472	243	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	630	-	-	544	-	-	~ 9	6	428	1	5	485
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 9	6	-	1	5	-
Stage 1	-	-	-	-	-	-	200	258	-	89	52	-
Stage 2	-	-	-	-	-	-	74	52	-	30	243	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	5.2	115.2	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	9	428	630	-	-	544	-	-	-	-
HCM Lane V/C Ratio	2.062	0.937	-	-	-	0.614	-	-	-	-
HCM Control Delay (s)	$ 1298.3	60.5	0	-	-	21.6	-	-	0	0
HCM Lane LOS	F	F	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	3.3	10.7	0	-	-	4.1	-	-	-	-

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	284	1180	977	13	11	362
Future Vol, veh/h	284	1180	977	13	11	362
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	0	25
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	302	1255	1039	14	12	385

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	1053	0	-	0	2271	520	
Stage 1	-	-	-	-	1039	-	
Stage 2	-	-	-	-	1232	-	
Critical Hdwy	4.3	-	-	-	7	7.1	
Critical Hdwy Stg 1	-	-	-	-	6	-	
Critical Hdwy Stg 2	-	-	-	-	6	-	
Follow-up Hdwy	2.3	-	-	-	3.6	3.4	
Pot Cap-1 Maneuver	611	-	-	-	31	481	
Stage 1	-	-	-	-	285	-	
Stage 2	-	-	-	-	223	-	
Platoon blocked, %		-	-	-			
Mov Cap-1 Maneuver	611	-	-	-	16	481	
Mov Cap-2 Maneuver	-	-	-	-	113	-	
Stage 1	-	-	-	-	144	-	
Stage 2	-	-	-	-	223	-	

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	36.3
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	611	-	-	-	113	481
HCM Lane V/C Ratio	0.494	-	-	-	0.104	0.801
HCM Control Delay (s)	16.5	-	-	-	40.5	36.2
HCM Lane LOS	C	-	-	-	E	E
HCM 95th %tile Q(veh)	2.7	-	-	-	0.3	7.4

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Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1180	11	1	974	0	17	0	4	0	0	1
Future Vol, veh/h	0	1180	11	1	974	0	17	0	4	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	1216	11	1	1004	0	18	0	4	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1004	0	0	1227	0	0	1720	2222	608	1614	2233	502
Stage 1	-	-	-	-	-	-	1216	1216	-	1006	1006	-
Stage 2	-	-	-	-	-	-	504	1006	-	608	1227	-
Critical Hdwy	4.34	-	-	4.34	-	-	7.74	6.74	7.14	7.74	6.74	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Follow-up Hdwy	2.32	-	-	2.32	-	-	3.62	4.12	3.42	3.62	4.12	3.42
Pot Cap-1 Maneuver	628	-	-	512	-	-	52	38	415	63	37	489
Stage 1	-	-	-	-	-	-	177	233	-	240	296	-
Stage 2	-	-	-	-	-	-	493	296	-	426	230	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	628	-	-	512	-	-	52	38	415	62	37	489
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	175	-	204	173	-
Stage 1	-	-	-	-	-	-	177	233	-	240	295	-
Stage 2	-	-	-	-	-	-	491	295	-	422	230	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	27	12.4
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	161	415	628	-	-	512	-	-	489
HCM Lane V/C Ratio	0.109	0.01	-	-	-	0.002	-	-	0.002
HCM Control Delay (s)	30.1	13.8	0	-	-	12	-	-	12.4
HCM Lane LOS	D	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.4	0	0	-	-	0	-	-	0

Intersection	
Intersection Delay, s/veh	24.5
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	396	671	686	651
Demand Flow Rate, veh/h	401	677	693	657
Vehicles Circulating, veh/h	892	450	368	613
Vehicles Exiting, veh/h	378	611	925	514
Ped Vol Crossing Leg, #/h	1	1	1	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	25.3	20.9	17.2	35.4
Approach LOS	D	C	C	E

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	401	677	693	657
Cap Entry Lane, veh/h	556	872	948	738
Entry HV Adj Factor	0.989	0.991	0.990	0.991
Flow Entry, veh/h	396	671	686	651
Cap Entry, veh/h	549	864	938	732
V/C Ratio	0.722	0.776	0.731	0.890
Control Delay, s/veh	25.3	20.9	17.2	35.4
LOS	D	C	C	E
95th %tile Queue, veh	6	8	7	11

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	520	255	462	651	6	47	281	357	359	110
v/c Ratio	0.19	0.69	0.70	0.57	0.62	0.03	0.26	0.69	0.75	0.75	0.21
Control Delay	54.1	40.4	47.5	25.6	4.9	44.0	47.0	15.1	43.5	42.9	4.2
Queue Delay	0.0	0.0	0.0	1.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	40.4	47.6	26.7	5.4	44.0	47.0	15.1	43.5	42.9	4.2
Queue Length 50th (ft)	12	147	141	183	0	3	27	0	197	197	0
Queue Length 95th (ft)	44	255	268	398	81	17	69	80	#405	#390	28
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	108	997	544	987	1125	379	399	561	633	643	666
Starvation Cap Reductn	0	0	9	298	143	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.52	0.48	0.67	0.66	0.02	0.12	0.50	0.56	0.56	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	458	31	240	434	612	6	44	264	589	84	103
Future Volume (veh/h)	20	458	31	240	434	612	6	44	264	589	84	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	21	487	33	255	462	651	6	47	281	691	0	110
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	39	949	64	290	790	653	305	320	271	806	0	357
Arrive On Green	0.02	0.28	0.28	0.16	0.42	0.42	0.17	0.17	0.17	0.22	0.00	0.22
Sat Flow, veh/h	1795	3403	230	1795	1885	1559	1795	1885	1598	3591	0	1590
Grp Volume(v), veh/h	21	256	264	255	462	651	6	47	281	691	0	110
Grp Sat Flow(s),veh/h/ln	1795	1791	1842	1795	1885	1559	1795	1885	1598	1795	0	1590
Q Serve(g_s), s	1.3	13.1	13.2	15.1	20.6	45.4	0.3	2.3	18.5	20.1	0.0	6.3
Cycle Q Clear(g_c), s	1.3	13.1	13.2	15.1	20.6	45.4	0.3	2.3	18.5	20.1	0.0	6.3
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	39	500	514	290	790	653	305	320	271	806	0	357
V/C Ratio(X)	0.54	0.51	0.51	0.88	0.58	1.00	0.02	0.15	1.04	0.86	0.00	0.31
Avail Cap(c_a), veh/h	87	500	514	436	790	653	305	320	271	1070	0	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.8	33.1	33.1	44.7	24.4	31.6	37.7	38.5	45.3	40.6	0.0	35.2
Incr Delay (d2), s/veh	11.3	0.9	0.9	12.7	1.1	34.2	0.0	0.2	64.5	5.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.8	6.0	7.7	9.3	22.6	0.1	1.1	12.1	9.3	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	33.9	34.0	57.3	25.5	65.8	37.7	38.8	109.8	46.1	0.0	35.7
LnGrp LOS	E	C	C	E	C	E	D	D	F	D	A	D
Approach Vol, veh/h		541			1368			334			801	
Approach Delay, s/veh		35.1			50.6			98.5			44.7	
Approach LOS		D			D			F			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.1	34.9		29.0	6.9	50.2		23.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	26.5	24.5		32.5	5.3	45.7		18.5				
Max Q Clear Time (g_c+I1), s	17.1	15.2		22.1	3.3	47.4		20.5				
Green Ext Time (p_c), s	0.5	2.2		2.3	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay			51.5
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	91	1319	20	1080	265	276	30	447	8	27
v/c Ratio	0.42	0.70	0.15	0.69	0.34	0.66	0.05	0.77	0.02	0.04
Control Delay	45.4	18.5	47.4	23.7	8.2	34.7	22.6	28.0	22.4	0.1
Queue Delay	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	19.4	47.4	23.7	8.2	34.7	22.6	28.0	22.4	0.1
Queue Length 50th (ft)	47	217	10	242	27	130	12	152	3	0
Queue Length 95th (ft)	109	479	38	407	96	233	33	290	14	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	312	2307	137	2069	981	729	985	905	727	932
Starvation Cap Reductn	0	623	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.78	0.15	0.52	0.27	0.38	0.03	0.49	0.01	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1196	31	19	1004	246	257	28	416	7	0	25
Future Volume (veh/h)	85	1196	31	19	1004	246	257	28	416	7	0	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	91	1286	33	20	1080	0	276	30	447	8	0	27
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	119	1673	43	41	1526		533	610	517	387	0	517
Arrive On Green	0.07	0.47	0.47	0.02	0.43	0.00	0.32	0.32	0.32	0.32	0.00	0.32
Sat Flow, veh/h	1795	3565	91	1795	3582	1598	1394	1885	1598	925	0	1598
Grp Volume(v), veh/h	91	646	673	20	1080	0	276	30	447	8	0	27
Grp Sat Flow(s),veh/h/ln	1795	1791	1866	1795	1791	1598	1394	1885	1598	925	0	1598
Q Serve(g_s), s	3.7	21.9	22.0	0.8	18.2	0.0	12.4	0.8	19.3	0.4	0.0	0.9
Cycle Q Clear(g_c), s	3.7	21.9	22.0	0.8	18.2	0.0	13.3	0.8	19.3	1.2	0.0	0.9
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	841	876	41	1526		533	610	517	387	0	517
V/C Ratio(X)	0.77	0.77	0.77	0.49	0.71		0.52	0.05	0.86	0.02	0.00	0.05
Avail Cap(c_a), veh/h	306	1185	1235	135	2029		796	965	818	561	0	818
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.7	16.1	16.1	35.4	17.3	0.0	21.6	17.0	23.3	17.5	0.0	17.1
Incr Delay (d2), s/veh	9.8	2.0	1.9	8.7	0.8	0.0	0.8	0.0	5.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	8.4	8.8	0.4	7.0	0.0	3.9	0.3	7.5	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	18.1	18.1	44.1	18.0	0.0	22.4	17.1	29.1	17.5	0.0	17.1
LnGrp LOS	D	B	B	D	B		C	B	C	B	A	B
Approach Vol, veh/h		1410			1100	A		753			35	
Approach Delay, s/veh		19.7			18.5			26.2			17.2	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	38.9		28.2	9.3	35.7		28.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	48.5		37.5	12.5	41.5		37.5
Max Q Clear Time (g_c+I1), s	2.8	24.0		3.2	5.7	20.2		21.3
Green Ext Time (p_c), s	0.0	10.4		0.1	0.1	8.2		2.5

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	415	1289	63	768	306	232	67	72	577
v/c Ratio	0.69	0.80	0.41	0.63	0.67	0.27	0.14	0.46	0.77
Control Delay	47.9	27.7	57.4	30.3	52.7	36.1	0.6	60.1	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	27.7	57.4	30.3	52.7	36.1	0.6	60.1	28.9
Queue Length 50th (ft)	141	375	42	220	105	72	0	48	105
Queue Length 95th (ft)	211	526	94	318	169	114	0	104	177
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	784	1943	197	1580	528	1064	571	182	1008
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.66	0.32	0.49	0.58	0.22	0.12	0.40	0.57

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	394	834	390	60	652	78	291	220	64	68	222	326
Future Volume (veh/h)	394	834	390	60	652	78	291	220	64	68	222	326
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	415	878	0	63	686	82	306	232	67	72	234	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	574	1493		96	982	117	437	655	292	103	411	
Arrive On Green	0.16	0.42	0.00	0.05	0.31	0.31	0.13	0.18	0.18	0.06	0.11	0.00
Sat Flow, veh/h	3483	3676	0	1795	3217	384	3483	3582	1598	1795	3676	0
Grp Volume(v), veh/h	415	878	0	63	382	386	306	232	67	72	234	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1810	1742	1791	1598	1795	1791	0
Q Serve(g_s), s	7.0	11.8	0.0	2.1	11.7	11.7	5.2	3.5	2.2	2.4	3.8	0.0
Cycle Q Clear(g_c), s	7.0	11.8	0.0	2.1	11.7	11.7	5.2	3.5	2.2	2.4	3.8	0.0
Prop In Lane	1.00		0.00	1.00		0.21	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	574	1493		96	547	553	437	655	292	103	411	
V/C Ratio(X)	0.72	0.59		0.66	0.70	0.70	0.70	0.35	0.23	0.70	0.57	
Avail Cap(c_a), veh/h	1205	3084		303	1225	1238	813	1632	728	280	1355	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.6	14.0	0.0	28.9	19.1	19.1	26.0	22.2	21.6	28.8	26.1	0.0
Incr Delay (d2), s/veh	1.7	0.4	0.0	7.4	1.6	1.6	2.0	0.3	0.4	8.3	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	4.3	0.0	1.1	4.6	4.6	2.1	1.4	0.8	1.2	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	14.4	0.0	36.3	20.7	20.7	28.1	22.5	22.0	37.1	27.3	0.0
LnGrp LOS	C	B		D	C	C	C	C	C	D	C	
Approach Vol, veh/h		1293	A		831			605			306	A
Approach Delay, s/veh		18.2			21.9			25.3			29.6	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	30.4	12.3	11.6	14.7	23.5	8.1	15.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	53.5	14.5	23.5	21.5	42.5	9.7	28.3
Max Q Clear Time (g_c+I1), s	4.1	13.8	7.2	5.8	9.0	13.7	4.4	5.5
Green Ext Time (p_c), s	0.0	7.6	0.6	1.1	1.2	5.1	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	58	505	1021	668	73
v/c Ratio	0.29	0.28	0.74	0.64	0.14
Control Delay	43.1	12.3	21.8	30.4	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	12.3	21.8	30.4	8.9
Queue Length 50th (ft)	24	54	156	128	0
Queue Length 95th (ft)	88	169	401	#367	40
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	271	2665	2057	1357	670
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.19	0.50	0.49	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	490	506	484	648	71
Future Volume (vph)	56	490	506	484	648	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3287		3467	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3287		3467	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	505	522	499	668	73
RTOR Reduction (vph)	0	0	137	0	0	52
Lane Group Flow (vph)	58	505	884	0	668	21
Confl. Peds. (#/hr)				4		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	6.3	39.2	28.4		22.3	22.3
Effective Green, g (s)	6.3	39.2	28.4		22.3	22.3
Actuated g/C Ratio	0.08	0.50	0.36		0.28	0.28
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	143	1787	1190		986	454
v/s Ratio Prot	c0.03	0.14	c0.27			
v/s Ratio Perm					c0.19	0.01
v/c Ratio	0.41	0.28	0.74		0.68	0.05
Uniform Delay, d1	34.3	11.4	21.8		24.9	20.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.9	0.1	2.5		1.9	0.0
Delay (s)	36.1	11.5	24.4		26.7	20.4
Level of Service	D	B	C		C	C
Approach Delay (s)		14.0	24.4		26.1	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	167	608	357	127	836	228	455	391	688
v/c Ratio	0.67	1.18	0.52	0.64	0.87	0.81	0.61	1.16	0.80
Control Delay	49.2	129.5	6.3	53.8	36.5	59.6	33.3	134.1	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	129.5	6.3	53.8	36.5	59.6	33.3	134.1	37.3
Queue Length 50th (ft)	90	~430	2	70	191	126	114	~273	181
Queue Length 95th (ft)	154	#634	69	#140	#316	#244	164	#448	246
Internal Link Dist (ft)		1092			186		1440		2310
Turn Bay Length (ft)	150			170		230		245	
Base Capacity (vph)	297	517	687	215	960	297	851	338	936
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.18	0.52	0.59	0.87	0.77	0.53	1.16	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	584	343	122	454	348	219	371	66	375	523	137
Future Volume (veh/h)	160	584	343	122	454	348	219	371	66	375	523	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	167	608	357	127	473	362	228	386	69	391	545	143
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	558	465	160	518	395	268	550	97	365	662	173
Arrive On Green	0.12	0.30	0.30	0.09	0.27	0.27	0.15	0.18	0.18	0.20	0.24	0.24
Sat Flow, veh/h	1781	1870	1560	1781	1899	1449	1781	3001	531	1781	2784	728
Grp Volume(v), veh/h	167	608	357	127	442	393	228	227	228	391	347	341
Grp Sat Flow(s),veh/h/ln	1781	1870	1560	1781	1777	1572	1781	1777	1755	1781	1777	1735
Q Serve(g_s), s	7.4	24.0	16.8	5.6	19.4	19.5	10.0	9.6	9.8	16.5	14.9	15.0
Cycle Q Clear(g_c), s	7.4	24.0	16.8	5.6	19.4	19.5	10.0	9.6	9.8	16.5	14.9	15.0
Prop In Lane	1.00		1.00	1.00		0.92	1.00		0.30	1.00		0.42
Lane Grp Cap(c), veh/h	206	558	465	160	484	428	268	325	322	365	422	412
V/C Ratio(X)	0.81	1.09	0.77	0.79	0.91	0.92	0.85	0.70	0.71	1.07	0.82	0.83
Avail Cap(c_a), veh/h	321	558	465	232	484	428	321	464	458	365	508	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	28.2	25.7	35.9	28.4	28.4	33.3	30.8	30.9	32.0	29.1	29.1
Incr Delay (d2), s/veh	8.4	65.0	7.6	11.0	21.8	24.4	16.7	2.7	2.9	67.2	8.9	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	19.9	6.7	2.8	10.5	9.7	5.4	4.2	4.2	13.6	7.1	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	93.2	33.3	46.9	50.2	52.7	50.0	33.5	33.8	99.2	38.0	38.6
LnGrp LOS	D	F	C	D	D	D	D	C	C	F	D	D
Approach Vol, veh/h		1132			962			683			1079	
Approach Delay, s/veh		66.9			50.8			39.1			60.4	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	19.2	11.7	28.5	16.6	23.6	13.8	26.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	21.0	10.5	24.0	14.5	23.0	14.5	20.0
Max Q Clear Time (g_c+I1), s	18.5	11.8	7.6	26.0	12.0	17.0	9.4	21.5
Green Ext Time (p_c), s	0.0	1.8	0.1	0.0	0.2	2.1	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	56.1
HCM 6th LOS	E

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Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	111	4	13	4	1	38	21	428	10	48	558	133
Future Vol, veh/h	111	4	13	4	1	38	21	428	10	48	558	133
Conflicting Peds, #/hr	4	0	0	0	0	4	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	112	4	13	4	1	38	21	432	10	48	564	134

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1168	1149	569	1215	1278	441	703	0	0	442	0	0
Stage 1	665	665	-	479	479	-	-	-	-	-	-	-
Stage 2	503	484	-	736	799	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	171	199	524	159	167	618	899	-	-	1123	-	-
Stage 1	451	459	-	570	557	-	-	-	-	-	-	-
Stage 2	553	554	-	412	399	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	185	522	145	155	616	895	-	-	1123	-	-
Mov Cap-2 Maneuver	150	185	-	145	155	-	-	-	-	-	-	-
Stage 1	438	437	-	557	544	-	-	-	-	-	-	-
Stage 2	504	541	-	381	380	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	80.8	13.9	0.4	0.5
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	895	-	-	163	449	1123	-	-
HCM Lane V/C Ratio	0.024	-	-	0.793	0.097	0.043	-	-
HCM Control Delay (s)	9.1	-	-	80.8	13.9	8.3	-	-
HCM Lane LOS	A	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	5.2	0.3	0.1	-	-

Intersection	
Intersection Delay, s/veh	34.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	8	2	9	181	3	202	0	11	248	283	317	246
Future Vol, veh/h	8	2	9	181	3	202	0	11	248	283	317	246
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	2	1	1	1	1	1
Mvmt Flow	9	2	10	195	3	217	0	12	267	304	341	265
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	12	29.3	18.4	53
HCM LOS	B	D	C	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	0%	42%	47%	72%	0%
Vol Thru, %	96%	0%	11%	1%	28%	91%
Vol Right, %	0%	100%	47%	52%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	259	283	19	386	440	135
LT Vol	11	0	8	181	317	0
Through Vol	248	0	2	3	123	123
RT Vol	0	283	9	202	0	12
Lane Flow Rate	278	304	20	415	473	145
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.569	0.559	0.048	0.775	0.987	0.285
Departure Headway (Hd)	7.354	6.611	8.45	6.722	7.512	7.078
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	490	545	422	540	483	508
Service Time	5.105	4.361	6.536	4.759	5.26	4.825
HCM Lane V/C Ratio	0.567	0.558	0.047	0.769	0.979	0.285
HCM Control Delay	19.4	17.5	12	29.3	65.4	12.6
HCM Lane LOS	C	C	B	D	F	B
HCM 95th-tile Q	3.5	3.4	0.2	7	12.9	1.2

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Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	12
Future Vol, veh/h	12
Peak Hour Factor	0.93
Heavy Vehicles, %	1
Mvmt Flow	13
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

Intersection	
Int Delay, s/veh	18.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	342	247	148	200	198	238
Future Vol, veh/h	342	247	148	200	198	238
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	353	255	153	206	204	245

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	613	204	449	0	-	0
Stage 1	204	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.115	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	442	839	1116	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	381	839	1116	-	-	-
Mov Cap-2 Maneuver	381	-	-	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	642	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	41	3.7	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1116	-	381	839	-	-
HCM Lane V/C Ratio	0.137	-	0.925	0.304	-	-
HCM Control Delay (s)	8.7	-	62.6	11.2	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.5	-	9.9	1.3	-	-

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15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	109	0	183	14	0	0	0	0	283	34
Future Volume (Veh/h)	27	0	109	0	183	14	0	0	0	0	283	34
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	118	0	199	15	0	0	0	0	308	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	434	326	326	444	345	0	345			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	434	326	326	444	345	0	345			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	84	100	66	99	100			100		
cM capacity (veh/h)	386	593	717	439	580	1088	1220			1630		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	147	214	345
Volume Left	29	0	0
Volume Right	118	15	37
cSH	614	611	1700
Volume to Capacity	0.24	0.35	0.20
Queue Length 95th (ft)	23	39	0
Control Delay (s)	12.7	14.0	0.0
Lane LOS	B	B	
Approach Delay (s)	12.7	14.0	0.0
Approach LOS	B	B	

Intersection Summary				
Average Delay		6.9		
Intersection Capacity Utilization		44.8%	ICU Level of Service	A
Analysis Period (min)		15		

16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	443	764	208	440	99	368	1197	632	324
v/c Ratio	0.18	0.78	0.71	0.35	0.43	0.59	0.71	0.89	0.81	0.33
Control Delay	52.5	61.9	46.1	39.7	3.9	74.3	62.9	30.1	57.6	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	61.9	46.1	39.7	3.9	74.3	62.9	30.1	57.6	37.0
Queue Length 50th (ft)	40	187	311	144	22	85	166	300	273	112
Queue Length 95th (ft)	86	267	425	239	81	154	230	400	363	162
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	335	664	1110	602	1089	223	775	1364	941	1276
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.67	0.69	0.35	0.40	0.44	0.47	0.88	0.67	0.25

Intersection Summary

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16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	328	102	741	202	427	96	357	1161	613	256	58
Future Volume (veh/h)	50	328	102	741	202	427	96	357	1161	613	256	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	52	338	105	764	208	440	99	368	1197	632	264	60
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	273	410	125	911	493	741	123	788	1354	718	1015	227
Arrive On Green	0.15	0.15	0.15	0.26	0.26	0.26	0.07	0.22	0.22	0.21	0.35	0.35
Sat Flow, veh/h	1795	2692	822	3483	1885	1572	1795	3582	2812	3483	2909	650
Grp Volume(v), veh/h	52	223	220	764	208	440	99	368	1197	632	161	163
Grp Sat Flow(s),veh/h/ln	1795	1791	1723	1742	1885	1572	1795	1791	1406	1742	1791	1768
Q Serve(g_s), s	3.2	15.5	15.9	26.6	11.7	26.5	7.0	11.4	28.2	22.6	8.2	8.5
Cycle Q Clear(g_c), s	3.2	15.5	15.9	26.6	11.7	26.5	7.0	11.4	28.2	22.6	8.2	8.5
Prop In Lane	1.00		0.48	1.00		1.00	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	273	273	262	911	493	741	123	788	1354	718	625	617
V/C Ratio(X)	0.19	0.82	0.84	0.84	0.42	0.59	0.80	0.47	0.88	0.88	0.26	0.26
Avail Cap(c_a), veh/h	342	341	328	1130	612	840	227	788	1354	959	661	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.4	52.6	52.8	44.8	39.3	25.2	58.8	43.5	24.5	49.3	29.8	29.9
Incr Delay (d2), s/veh	0.3	11.9	14.5	4.7	0.6	0.9	11.4	0.4	7.3	7.5	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	7.9	8.0	11.8	5.4	9.7	3.5	5.0	20.5	10.5	3.6	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	64.5	67.3	49.5	39.8	26.1	70.2	43.9	31.8	56.8	30.1	30.1
LnGrp LOS	D	E	E	D	D	C	E	D	C	E	C	C
Approach Vol, veh/h		495			1412			1664			956	
Approach Delay, s/veh		64.0			40.8			36.8			47.8	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	31.1	34.0		24.1	14.6	50.5		38.9
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 35	28.2		24.4	16.2	* 47		41.6
Max Q Clear Time (g_c+I1), s	24.6	30.2		17.9	9.0	10.5		28.6
Green Ext Time (p_c), s	1.9	0.0		1.6	0.1	2.1		4.9

Intersection Summary			
HCM 6th Ctrl Delay			43.3
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

17: S. River Road & Niblick Road

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	269	1058	666	120	933	450	369	217	559
v/c Ratio	0.64	0.84	0.76	0.62	0.78	0.79	0.49	0.77	0.77
Control Delay	54.5	40.4	15.2	62.7	37.6	56.2	37.9	64.7	47.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	40.4	15.2	62.7	37.6	56.2	37.9	64.7	47.0
Queue Length 50th (ft)	98	374	112	85	314	164	116	153	194
Queue Length 95th (ft)	148	#501	294	153	421	#245	167	#274	261
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	500	1349	905	241	1292	630	907	324	904
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.78	0.74	0.50	0.72	0.71	0.41	0.67	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	258	1016	639	115	738	157	432	272	83	208	408	129
Future Volume (veh/h)	258	1016	639	115	738	157	432	272	83	208	408	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	269	1058	666	120	769	164	450	283	86	217	425	134
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	352	1322	590	151	1034	221	540	585	174	255	542	169
Arrive On Green	0.10	0.37	0.37	0.08	0.35	0.35	0.16	0.22	0.22	0.14	0.20	0.20
Sat Flow, veh/h	3483	3582	1598	1795	2936	626	3483	2720	810	1795	2683	838
Grp Volume(v), veh/h	269	1058	666	120	469	464	450	184	185	217	282	277
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1771	1742	1791	1739	1795	1791	1730
Q Serve(g_s), s	7.1	25.1	21.2	6.2	21.8	21.8	11.9	8.6	8.9	11.2	14.2	14.4
Cycle Q Clear(g_c), s	7.1	25.1	21.2	6.2	21.8	21.8	11.9	8.6	8.9	11.2	14.2	14.4
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.47	1.00		0.48
Lane Grp Cap(c), veh/h	352	1322	590	151	631	624	540	386	374	255	362	349
V/C Ratio(X)	0.76	0.80	1.13	0.79	0.74	0.74	0.83	0.48	0.49	0.85	0.78	0.79
Avail Cap(c_a), veh/h	568	1527	681	274	745	737	715	518	504	369	518	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	26.8	10.9	42.7	27.0	27.0	38.9	32.6	32.7	39.8	35.9	36.0
Incr Delay (d2), s/veh	3.5	2.7	77.4	9.0	3.4	3.4	6.4	0.9	1.0	12.3	4.8	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	10.5	19.0	3.1	9.3	9.3	5.4	3.7	3.7	5.6	6.4	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	29.6	88.4	51.7	30.4	30.4	45.3	33.5	33.7	52.1	40.7	41.6
LnGrp LOS	D	C	F	D	C	C	D	C	C	D	D	D
Approach Vol, veh/h		1993			1053			819			776	
Approach Delay, s/veh		51.3			32.8			40.1			44.2	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	39.6	19.2	23.7	14.1	38.0	18.0	24.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	40.5	19.5	27.5	15.5	39.5	19.5	27.5
Max Q Clear Time (g_c+I1), s	8.2	27.1	13.9	16.4	9.1	23.8	13.2	10.9
Green Ext Time (p_c), s	0.1	8.0	0.8	2.4	0.5	5.1	0.3	1.8

Intersection Summary	
HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	2	4	569	885	88
Future Vol, veh/h	51	2	4	569	885	88
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	2	4	593	922	92

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1570	969	1015	0	-	0
Stage 1	969	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	122	308	683	-	-	-
Stage 1	368	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	121	308	682	-	-	-
Mov Cap-2 Maneuver	121	-	-	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	55.5	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	682	-	124	-	-
HCM Lane V/C Ratio	0.006	-	0.445	-	-
HCM Control Delay (s)	10.3	0	55.5	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0	-	2	-	-

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Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	15	16	524	798	53
Future Vol, veh/h	35	15	16	524	798	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	16	17	570	867	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1500	896	925	0	-	0
Stage 1	896	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	134	338	735	-	-	-
Stage 1	397	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	129	338	735	-	-	-
Mov Cap-2 Maneuver	319	-	-	-	-	-
Stage 1	384	-	-	-	-	-
Stage 2	544	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.3	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	735	-	324	-	-
HCM Lane V/C Ratio	0.024	-	0.168	-	-
HCM Control Delay (s)	10	0	18.3	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection	
Intersection Delay, s/veh	138.5
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	454	89	25	720	90
Future Vol, veh/h	9	454	89	25	720	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	493	97	27	783	98
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	26.7	11.9	220.2
HCM LOS	D	B	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	2%	89%
Vol Thru, %	78%	0%	11%
Vol Right, %	22%	98%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	114	463	810
LT Vol	0	9	720
Through Vol	89	0	90
RT Vol	25	454	0
Lane Flow Rate	124	503	880
Geometry Grp	1	1	1
Degree of Util (X)	0.218	0.762	1.43
Departure Headway (Hd)	6.94	6.324	5.848
Convergence, Y/N	Yes	Yes	Yes
Cap	520	579	625
Service Time	4.94	4.324	3.853
HCM Lane V/C Ratio	0.238	0.869	1.408
HCM Control Delay	11.9	26.7	220.2
HCM Lane LOS	B	D	F
HCM 95th-tile Q	0.8	6.8	41.1

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21: Charolais Road & Holstein Drive

HCM 6th TWSC

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	735	455	5	4	9
Future Vol, veh/h	5	735	455	5	4	9
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	799	495	5	4	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	514	0	-	0	1321	512
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	809	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1057	-	-	-	174	564
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	440	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1043	-	-	-	169	556
Mov Cap-2 Maneuver	-	-	-	-	169	-
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	434	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1043	-	-	-	326
HCM Lane V/C Ratio	0.005	-	-	-	0.043
HCM Control Delay (s)	8.5	-	-	-	16.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

22: Otero Lane & Charolais Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	703	2	2	431	24	1	0	1	25	0	28
Future Vol, veh/h	34	703	2	2	431	24	1	0	1	25	0	28
Conflicting Peds, #/hr	12	0	0	0	0	12	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	36	740	2	2	454	25	1	0	1	26	0	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	491	0	0	742	0	0	1298	1308	741	1297	1297	479
Stage 1	-	-	-	-	-	-	813	813	-	483	483	-
Stage 2	-	-	-	-	-	-	485	495	-	814	814	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1067	-	-	861	-	-	138	159	415	138	161	585
Stage 1	-	-	-	-	-	-	371	390	-	563	551	-
Stage 2	-	-	-	-	-	-	561	544	-	370	390	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1055	-	-	861	-	-	127	152	415	132	153	578
Mov Cap-2 Maneuver	-	-	-	-	-	-	127	152	-	132	153	-
Stage 1	-	-	-	-	-	-	358	377	-	538	544	-
Stage 2	-	-	-	-	-	-	531	537	-	356	377	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	23.8	26.4
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	194	1055	-	-	861	-	-	223
HCM Lane V/C Ratio	0.011	0.034	-	-	0.002	-	-	0.25
HCM Control Delay (s)	23.8	8.5	-	-	9.2	-	-	26.4
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	1

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23: Charolais Road & St. Andrews Circle

HCM 6th TWSC

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	725	450	4	4	7
Future Vol, veh/h	8	725	450	4	4	7
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	9	788	489	4	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	502	0	-	0	1306	500
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	806	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1068	-	-	-	177	573
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	441	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1059	-	-	-	172	568
Mov Cap-2 Maneuver	-	-	-	-	172	-
Stage 1	-	-	-	-	601	-
Stage 2	-	-	-	-	437	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1059	-	-	-	309
HCM Lane V/C Ratio	0.008	-	-	-	0.039
HCM Control Delay (s)	8.4	-	-	-	17.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

24: Charolais Road & Rambouillet Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	153	576	371	29	32	83
Future Vol, veh/h	153	576	371	29	32	83
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	166	626	403	32	35	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	437	0	-	0	1379	421
Stage 1	-	-	-	-	421	-
Stage 2	-	-	-	-	958	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1128	-	-	-	160	635
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	374	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1126	-	-	-	136	634
Mov Cap-2 Maneuver	-	-	-	-	136	-
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	373	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	23.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1126	-	-	-	314
HCM Lane V/C Ratio	0.148	-	-	-	0.398
HCM Control Delay (s)	8.8	-	-	-	23.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.5	-	-	-	1.8

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Intersection	
Intersection Delay, s/veh	4.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	408	199	55	114
Demand Flow Rate, veh/h	413	201	55	115
Vehicles Circulating, veh/h	14	114	349	248
Vehicles Exiting, veh/h	349	290	78	67
Ped Vol Crossing Leg, #/h	0	0	0	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.4	4.4	4.2	4.3
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	413	201	55	115
Cap Entry Lane, veh/h	1360	1228	967	1071
Entry HV Adj Factor	0.988	0.990	0.999	0.991
Flow Entry, veh/h	408	199	55	114
Cap Entry, veh/h	1344	1217	966	1061
V/C Ratio	0.304	0.164	0.057	0.107
Control Delay, s/veh	5.4	4.4	4.2	4.3
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	0

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Near Term Plus 911-Unit Project (Mitigated)

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Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	839	46	284	1080	0	0	0	263	0	0	0
Future Vol, veh/h	1	839	46	284	1080	0	0	0	263	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	-	-	-	25
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	1	912	50	309	1174	0	0	0	286	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1174	0	0	962	0	0	-	-	481	2250	2756	587
Stage 1	-	-	-	-	-	-	-	-	-	1792	1792	-
Stage 2	-	-	-	-	-	-	-	-	-	458	964	-
Critical Hdwy	4.32	-	-	4.32	-	-	-	-	7.12	7.72	6.72	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.72	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.72	5.72	-
Follow-up Hdwy	2.31	-	-	2.31	-	-	-	-	3.41	3.61	4.11	3.41
Pot Cap-1 Maneuver	542	-	-	658	-	-	0	0	508	20	17	431
Stage 1	-	-	-	-	-	-	0	0	-	76	119	-
Stage 2	-	-	-	-	-	-	0	0	-	529	312	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	542	-	-	658	-	-	-	-	508	6	9	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	6	9	-
Stage 1	-	-	-	-	-	-	-	-	-	76	63	-
Stage 2	-	-	-	-	-	-	-	-	-	231	311	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.2	20.8	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	508	542	-	-	658	-	-	-	-
HCM Lane V/C Ratio	0.563	0.002	-	-	0.469	-	-	-	-
HCM Control Delay (s)	20.8	11.7	-	-	15.2	-	-	0	0
HCM Lane LOS	C	B	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	3.4	0	-	-	2.5	-	-	-	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	365	737	1177	19	0	186
Future Vol, veh/h	365	737	1177	19	0	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	580	-	-	165	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	397	801	1279	21	0	202

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1300	0	-	0	-	640
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.3	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.3	-	-	-	-	3.4
Pot Cap-1 Maneuver	488	-	-	-	0	399
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	488	-	-	-	-	399
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	12.3	0	22.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	488	-	-	-	399
HCM Lane V/C Ratio	0.813	-	-	-	0.507
HCM Control Delay (s)	37.2	-	-	-	22.9
HCM Lane LOS	E	-	-	-	C
HCM 95th %tile Q(veh)	7.8	-	-	-	2.8

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	369	345	467	679	7	21	139	290	297	35
v/c Ratio	0.01	0.34	0.82	0.44	0.47	0.07	0.20	0.27	0.69	0.70	0.07
Control Delay	42.0	30.5	41.4	8.4	1.5	46.8	50.3	4.4	42.9	43.0	0.3
Queue Delay	0.0	0.0	0.8	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	30.5	42.2	8.7	1.9	46.8	50.3	4.4	42.9	43.0	0.3
Queue Length 50th (ft)	1	105	213	61	4	4	13	4	169	173	0
Queue Length 95th (ft)	6	152	318	98	16	19	38	23	274	280	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	111	1151	489	1069	1452	97	103	572	453	461	533
Starvation Cap Reductn	0	0	27	178	320	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.32	0.75	0.52	0.60	0.07	0.20	0.24	0.64	0.64	0.07

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	310	29	317	430	625	6	19	128	453	87	32
Future Volume (veh/h)	1	310	29	317	430	625	6	19	128	453	87	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	337	32	345	467	679	7	21	139	560	0	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	359	474	45	768	700	892	88	92	761	671	0	294
Arrive On Green	0.20	0.15	0.15	0.14	0.12	0.12	0.05	0.05	0.05	0.19	0.00	0.19
Sat Flow, veh/h	1767	3247	306	1767	1856	1572	1767	1856	1563	3534	0	1552
Grp Volume(v), veh/h	1	182	187	345	467	679	7	21	139	560	0	35
Grp Sat Flow(s),veh/h/ln	1767	1763	1790	1767	1856	1572	1767	1856	1563	1767	0	1552
Q Serve(g_s), s	0.0	9.8	10.0	17.9	24.0	30.6	0.4	1.1	0.0	15.3	0.0	1.9
Cycle Q Clear(g_c), s	0.0	9.8	10.0	17.9	24.0	30.6	0.4	1.1	0.0	15.3	0.0	1.9
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	359	257	261	768	700	892	88	92	761	671	0	294
V/C Ratio(X)	0.00	0.71	0.72	0.45	0.67	0.76	0.08	0.23	0.18	0.83	0.00	0.12
Avail Cap(c_a), veh/h	359	423	430	768	863	1030	88	93	762	901	0	396
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.73	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.8	40.7	40.7	31.9	37.8	22.5	45.4	45.7	14.6	39.0	0.0	33.6
Incr Delay (d2), s/veh	0.0	15.1	15.5	0.3	1.0	2.1	0.4	1.2	0.1	5.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.3	5.5	8.5	12.1	18.8	0.2	0.5	1.7	6.9	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	55.7	56.2	32.2	38.8	24.6	45.7	46.9	14.7	44.2	0.0	33.8
LnGrp LOS	C	E	E	C	D	C	D	D	B	D	A	C
Approach Vol, veh/h		370			1491			167			595	
Approach Delay, s/veh		55.9			30.8			20.1			43.6	
Approach LOS		E			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	48.0	19.1		23.5	24.8	42.3		9.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	27.5	24.0		25.5	5.0	46.5		5.0				
Max Q Clear Time (g_c+I1), s	19.9	12.0		17.3	2.0	32.6		3.1				
Green Ext Time (p_c), s	0.7	1.7		1.5	0.0	5.1		0.1				

Intersection Summary

HCM 6th Ctrl Delay			36.6									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	68	899	49	1252	377	234	12	249	5	8
v/c Ratio	0.45	0.47	0.20	0.61	0.38	0.77	0.03	0.47	0.02	0.02
Control Delay	47.4	10.6	37.8	17.5	5.4	53.2	27.5	7.0	27.0	0.0
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	10.6	37.8	17.5	5.4	53.2	27.5	7.0	27.0	0.0
Queue Length 50th (ft)	37	203	25	276	31	141	6	2	3	0
Queue Length 95th (ft)	m66	207	62	407	98	210	19	58	11	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	170	2097	254	2036	1001	396	527	624	395	606
Starvation Cap Reductn	0	276	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	61	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.49	0.19	0.63	0.38	0.59	0.02	0.40	0.01	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	779	48	45	1152	347	215	11	229	5	0	7
Future Volume (veh/h)	63	779	48	45	1152	347	215	11	229	5	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	68	847	52	49	1252	0	234	12	249	5	0	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	87	1036	64	635	2176		343	368	312	286	0	312
Arrive On Green	0.07	0.41	0.41	0.36	0.62	0.00	0.20	0.20	0.20	0.20	0.00	0.20
Sat Flow, veh/h	1767	3372	207	1767	3526	1572	1396	1856	1572	1110	0	1572
Grp Volume(v), veh/h	68	443	456	49	1252	0	234	12	249	5	0	8
Grp Sat Flow(s),veh/h/ln	1767	1763	1816	1767	1763	1572	1396	1856	1572	1110	0	1572
Q Serve(g_s), s	3.8	22.3	22.3	1.8	21.1	0.0	16.2	0.5	15.1	0.4	0.0	0.4
Cycle Q Clear(g_c), s	3.8	22.3	22.3	1.8	21.1	0.0	16.6	0.5	15.1	0.9	0.0	0.4
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	87	542	558	635	2176		343	368	312	286	0	312
V/C Ratio(X)	0.78	0.82	0.82	0.08	0.58		0.68	0.03	0.80	0.02	0.00	0.03
Avail Cap(c_a), veh/h	168	895	922	635	2176		466	531	450	384	0	450
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.2	27.1	27.1	21.1	11.4	0.0	39.0	32.3	38.2	32.7	0.0	32.3
Incr Delay (d2), s/veh	12.4	11.6	11.3	0.1	1.1	0.0	2.4	0.0	6.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	10.1	10.4	0.8	7.8	0.0	5.6	0.2	6.2	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	38.6	38.4	21.2	12.5	0.0	41.4	32.4	44.5	32.7	0.0	32.3
LnGrp LOS	E	D	D	C	B		D	C	D	C	A	C
Approach Vol, veh/h		967			1301	A		495			13	
Approach Delay, s/veh		39.9			12.8			42.8			32.5	
Approach LOS		D			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	40.4	35.2		24.3	9.4	66.2		24.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax)	7s1	50.8		28.6	9.5	48.4		28.6				
Max Q Clear Time (g_c+I1)	3s3	24.3		2.9	5.8	23.1		18.6				
Green Ext Time (p_c), s	0.0	6.4		0.0	0.0	10.7		1.2				

Intersection Summary

HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	136	379	168	74	604	466	277	670	275	343	310
v/c Ratio	0.81	0.35	0.28	0.52	0.66	0.72	0.89	0.71	0.61	0.43	0.60
Control Delay	76.6	24.8	5.5	55.3	31.2	14.7	67.6	31.8	42.0	29.1	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.6	24.8	5.5	55.3	31.2	14.7	67.6	31.8	42.0	29.1	14.6
Queue Length 50th (ft)	76	89	0	40	156	53	155	168	74	81	40
Queue Length 95th (ft)	#199	133	45	#104	220	172	#339	243	124	126	124
Internal Link Dist (ft)		1092			186			1440		2310	
Turn Bay Length (ft)	250		250	150		150	230		245		100
Base Capacity (vph)	167	1231	651	146	1189	738	312	1202	515	1121	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.31	0.26	0.51	0.51	0.63	0.89	0.56	0.53	0.31	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	349	155	68	556	429	255	567	50	253	316	285
Future Volume (veh/h)	125	349	155	68	556	429	255	567	50	253	316	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.96	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	136	379	168	74	604	466	277	616	54	275	343	310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	150	1170	515	94	1059	459	279	990	87	352	874	387
Arrive On Green	0.09	0.34	0.34	0.05	0.31	0.31	0.16	0.31	0.31	0.10	0.25	0.25
Sat Flow, veh/h	1739	3469	1526	1739	3469	1505	1739	3214	281	3374	3469	1536
Grp Volume(v), veh/h	136	379	168	74	604	466	277	332	338	275	343	310
Grp Sat Flow(s),veh/h/ln	1739	1735	1526	1739	1735	1505	1739	1735	1760	1687	1735	1536
Q Serve(g_s), s	7.1	7.5	7.5	3.9	13.4	28.0	14.6	15.0	15.1	7.3	7.5	17.3
Cycle Q Clear(g_c), s	7.1	7.5	7.5	3.9	13.4	28.0	14.6	15.0	15.1	7.3	7.5	17.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	150	1170	515	94	1059	459	279	534	542	352	874	387
V/C Ratio(X)	0.91	0.32	0.33	0.78	0.57	1.01	0.99	0.62	0.62	0.78	0.39	0.80
Avail Cap(c_a), veh/h	150	1170	515	131	1059	459	279	541	549	460	999	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	22.6	22.6	42.8	26.8	31.9	38.5	27.2	27.2	40.0	28.5	32.1
Incr Delay (d2), s/veh	47.3	0.2	0.4	18.6	0.7	45.7	52.1	2.2	2.2	6.3	0.3	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	2.9	0.1	2.1	5.4	15.3	10.1	6.3	6.4	3.3	3.1	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.9	22.8	23.0	61.4	27.5	77.5	90.6	29.3	29.3	46.4	28.8	41.1
LnGrp LOS	F	C	C	E	C	F	F	C	C	D	C	D
Approach Vol, veh/h		683			1144			947			928	
Approach Delay, s/veh		36.0			50.1			47.3			38.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	32.7	9.5	35.4	19.2	27.6	12.4	32.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	28.6	6.9	29.0	14.7	26.4	7.9	28.0
Max Q Clear Time (g_c+I1), s	9.3	17.1	5.9	9.5	16.6	19.3	9.1	30.0
Green Ext Time (p_c), s	0.3	3.1	0.0	2.8	0.0	1.9	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

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Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	158	132	37	604	36	551
v/c Ratio	0.46	0.29	0.18	0.55	0.17	0.52
Control Delay	20.3	8.6	27.6	13.4	27.6	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	8.6	27.6	13.4	27.6	12.3
Queue Length 50th (ft)	28	5	9	90	9	77
Queue Length 95th (ft)	91	44	40	307	39	267
Internal Link Dist (ft)	560	1033		1337		2227
Turn Bay Length (ft)			30		70	
Base Capacity (vph)	893	1054	208	1247	208	1216
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.13	0.18	0.48	0.17	0.45

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	6	40	8	15	98	34	553	3	33	422	85
Future Volume (veh/h)	99	6	40	8	15	98	34	553	3	33	422	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	7	43	9	16	107	37	601	3	36	459	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	22	67	109	40	207	76	785	4	74	636	127
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.42	0.42	0.04	0.42	0.42
Sat Flow, veh/h	998	142	426	56	251	1315	1781	1859	9	1781	1511	303
Grp Volume(v), veh/h	158	0	0	132	0	0	37	0	604	36	0	551
Grp Sat Flow(s),veh/h/ln	1566	0	0	1622	0	0	1781	0	1869	1781	0	1813
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	0.8	0.0	10.6	0.8	0.0	9.7
Cycle Q Clear(g_c), s	3.2	0.0	0.0	2.8	0.0	0.0	0.8	0.0	10.6	0.8	0.0	9.7
Prop In Lane	0.68		0.27	0.07		0.81	1.00		0.00	1.00		0.17
Lane Grp Cap(c), veh/h	405	0	0	356	0	0	76	0	789	74	0	764
V/C Ratio(X)	0.39	0.00	0.00	0.37	0.00	0.00	0.49	0.00	0.77	0.49	0.00	0.72
Avail Cap(c_a), veh/h	1148	0	0	1229	0	0	233	0	1391	233	0	1350
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	0.0	14.8	0.0	0.0	17.9	0.0	9.4	17.9	0.0	9.2
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.6	0.0	0.0	4.8	0.0	1.6	4.9	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	1.0	0.0	0.0	0.4	0.0	3.1	0.4	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	0.0	0.0	15.4	0.0	0.0	22.7	0.0	11.0	22.8	0.0	10.5
LnGrp LOS	B	A	A	B	A	A	C	A	B	C	A	B
Approach Vol, veh/h		158			132			641			587	
Approach Delay, s/veh		15.5			15.4			11.7			11.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	21.2		10.5	6.6	21.1		10.5
Change Period (Y+Rc), s	5.0	5.0		4.5	5.0	5.0		4.5
Max Green Setting (Gmax), s	5.0	28.5		27.0	5.0	28.5		27.0
Max Q Clear Time (g_c+I1), s	2.8	12.6		5.2	2.8	11.7		4.8
Green Ext Time (p_c), s	0.0	3.5		0.9	0.0	3.3		0.7

Intersection Summary	
HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

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Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	319	355	10	264	161	284	227
v/c Ratio	0.31	0.72	0.48	0.08	0.39	0.24	1.64	0.12
Control Delay	37.5	35.4	4.1	38.0	21.9	4.9	339.7	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	35.4	4.1	38.0	21.9	4.9	339.7	12.5
Queue Length 50th (ft)	15	141	0	5	95	0	~205	27
Queue Length 95th (ft)	48	224	45	21	184	42	#389	71
Internal Link Dist (ft)	284	314			712			1337
Turn Bay Length (ft)			100	150			250	
Base Capacity (vph)	130	671	747	124	679	679	173	1830
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.48	0.48	0.08	0.39	0.24	1.64	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	9	7	289	5	327	9	243	148	261	199	10
Future Volume (veh/h)	20	9	7	289	5	327	9	243	148	261	199	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85	1.00		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	10	8	314	5	355	10	264	161	284	216	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	35	16	13	490	8	563	22	627	526	161	1376	70
Arrive On Green	0.04	0.04	0.04	0.28	0.28	0.28	0.01	0.34	0.34	0.09	0.40	0.40
Sat Flow, veh/h	931	423	339	1755	28	1503	1781	1870	1569	1781	3440	174
Grp Volume(v), veh/h	40	0	0	319	0	355	10	264	161	284	111	116
Grp Sat Flow(s),veh/h/ln	1693	0	0	1783	0	1503	1781	1870	1569	1781	1777	1837
Q Serve(g_s), s	1.8	0.0	0.0	12.2	0.0	15.1	0.4	8.5	5.9	7.0	3.1	3.1
Cycle Q Clear(g_c), s	1.8	0.0	0.0	12.2	0.0	15.1	0.4	8.5	5.9	7.0	3.1	3.1
Prop In Lane	0.55		0.20	0.98		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	63	0	0	498	0	563	22	627	526	161	711	735
V/C Ratio(X)	0.63	0.00	0.00	0.64	0.00	0.63	0.45	0.42	0.31	1.77	0.16	0.16
Avail Cap(c_a), veh/h	109	0	0	621	0	666	115	627	526	161	711	735
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	0.0	24.5	0.0	20.2	38.0	20.0	19.1	35.3	14.9	14.9
Incr Delay (d2), s/veh	10.1	0.0	0.0	1.5	0.0	1.4	13.5	2.1	1.5	369.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	5.2	0.0	5.3	0.3	3.7	2.1	19.4	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	0.0	0.0	26.0	0.0	21.6	51.5	22.0	20.6	404.3	15.4	15.4
LnGrp LOS	D	A	A	C	A	C	D	C	C	F	B	B
Approach Vol, veh/h		40			674			435			511	
Approach Delay, s/veh		46.9			23.7			22.2			231.5	
Approach LOS		D			C			C			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	32.0		7.4	7.0	37.0		26.2
Change Period (Y+Rc), s	5.0	6.0		4.5	6.0	* 6		4.5
Max Green Setting (Gmax), s	7.0	26.0		5.0	5.0	* 28		27.0
Max Q Clear Time (g_c+I1), s	9.1	10.5		3.8	2.4	5.1		17.1
Green Ext Time (p_c), s	0.0	1.7		0.0	0.0	1.2		2.6

Intersection Summary

HCM 6th Ctrl Delay	87.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

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Intersection	
Intersection Delay, s/veh	19.1
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	192	136	229	208	125	371
Future Vol, veh/h	192	136	229	208	125	371
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	209	148	249	226	136	403
Number of Lanes	1	1	1	2	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	15.8	15.5	22
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	229	104	104	192	136	125	371
LT Vol	229	0	0	192	0	0	0
Through Vol	0	104	104	0	0	125	0
RT Vol	0	0	0	0	136	0	371
Lane Flow Rate	249	113	113	209	148	136	403
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.544	0.231	0.175	0.475	0.287	0.274	0.733
Departure Headway (Hd)	7.873	7.362	5.572	8.198	6.979	7.261	6.545
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	458	488	643	440	514	495	552
Service Time	5.616	5.105	3.314	5.941	4.722	5.002	4.285
HCM Lane V/C Ratio	0.544	0.232	0.176	0.475	0.288	0.275	0.73
HCM Control Delay	19.7	12.3	9.5	18.2	12.5	12.7	25.2
HCM Lane LOS	C	B	A	C	B	B	D
HCM 95th-tile Q	3.2	0.9	0.6	2.5	1.2	1.1	6.2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	336	1212	309	491	91	293	620	349	276
v/c Ratio	0.09	0.63	0.95	0.45	0.48	0.81	0.58	0.39	0.83	0.39
Control Delay	34.8	30.4	45.2	24.9	3.0	91.4	41.0	3.8	57.6	29.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	30.4	45.2	24.9	3.0	91.4	41.0	3.8	57.6	29.7
Queue Length 50th (ft)	10	64	331	127	0	51	81	21	99	63
Queue Length 95th (ft)	32	112	#560	235	50	#153	130	46	#198	106
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	358	760	1273	691	1030	112	720	1596	419	918
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.44	0.95	0.45	0.48	0.81	0.41	0.39	0.83	0.30

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	194	115	1115	284	452	84	270	570	321	205	49
Future Volume (veh/h)	18	194	115	1115	284	452	84	270	570	321	205	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	211	125	1212	309	491	91	293	620	349	223	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	288	163	1229	665	742	108	615	1475	405	622	145
Arrive On Green	0.13	0.13	0.13	0.36	0.36	0.36	0.06	0.17	0.17	0.12	0.22	0.22
Sat Flow, veh/h	1781	2184	1240	3456	1870	1564	1781	3554	2790	3456	2860	666
Grp Volume(v), veh/h	20	170	166	1212	309	491	91	293	620	349	137	139
Grp Sat Flow(s),veh/h/ln	1781	1777	1647	1728	1870	1564	1781	1777	1395	1728	1777	1749
Q Serve(g_s), s	0.9	8.5	9.0	32.1	11.8	22.2	4.7	6.9	12.4	9.1	6.0	6.2
Cycle Q Clear(g_c), s	0.9	8.5	9.0	32.1	11.8	22.2	4.7	6.9	12.4	9.1	6.0	6.2
Prop In Lane	1.00		0.75	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	235	234	217	1229	665	742	108	615	1475	405	387	380
V/C Ratio(X)	0.09	0.73	0.77	0.99	0.46	0.66	0.84	0.48	0.42	0.86	0.35	0.37
Avail Cap(c_a), veh/h	346	345	320	1229	665	742	108	694	1537	405	447	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	38.4	38.7	29.5	22.9	18.7	42.9	34.4	13.2	40.0	30.6	30.7
Incr Delay (d2), s/veh	0.2	4.3	6.3	22.3	0.5	2.2	41.8	0.6	0.2	17.1	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.0	4.0	16.1	5.0	7.7	3.2	2.9	6.9	4.8	2.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.3	42.7	44.9	51.7	23.4	20.9	84.6	34.9	13.4	57.1	31.1	31.3
LnGrp LOS	D	D	D	D	C	C	F	C	B	E	C	C
Approach Vol, veh/h		356			2012			1004			625	
Approach Delay, s/veh		43.3			39.9			26.1			45.7	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.5	21.8		16.7	11.4	25.9		38.2
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 11	18.0		17.9	5.6	* 23		32.8
Max Q Clear Time (g_c+I1), s	11.1	14.4		11.0	6.7	8.2		34.1
Green Ext Time (p_c), s	0.0	1.5		1.2	0.0	1.3		0.0

Intersection Summary		
HCM 6th Ctrl Delay		37.6
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

17: S. River Road & Niblick Road

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	111	701	298	129	1101	316	699	407	317	454
v/c Ratio	0.64	0.67	0.32	0.68	0.89	0.43	0.83	0.57	0.83	0.71
Control Delay	66.1	36.3	3.5	63.7	41.8	6.6	45.1	38.0	57.9	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	36.3	3.5	63.7	41.8	6.6	45.1	38.0	57.9	39.0
Queue Length 50th (ft)	37	213	16	81	352	12	216	122	191	122
Queue Length 95th (ft)	#84	310	49	#177	#549	82	308	171	#359	178
Internal Link Dist (ft)		1510			1609			962		896
Turn Bay Length (ft)	140			80			150		110	
Base Capacity (vph)	173	1042	994	204	1252	732	971	990	429	874
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.67	0.30	0.63	0.88	0.43	0.72	0.41	0.74	0.52

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	645	274	119	1013	291	643	321	53	292	273	144
Future Volume (veh/h)	102	645	274	119	1013	291	643	321	53	292	273	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	111	701	298	129	1101	316	699	349	58	317	297	157
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	1107	864	160	1248	552	808	636	105	355	395	203
Arrive On Green	0.05	0.31	0.31	0.09	0.35	0.35	0.23	0.21	0.21	0.20	0.17	0.17
Sat Flow, veh/h	3456	3554	1585	1781	3554	1572	3456	3051	502	1781	2268	1169
Grp Volume(v), veh/h	111	701	298	129	1101	316	699	202	205	317	231	223
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1572	1728	1777	1776	1781	1777	1660
Q Serve(g_s), s	3.0	16.0	3.0	6.7	27.5	15.4	18.3	9.6	9.8	16.3	11.6	12.1
Cycle Q Clear(g_c), s	3.0	16.0	3.0	6.7	27.5	15.4	18.3	9.6	9.8	16.3	11.6	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.70
Lane Grp Cap(c), veh/h	173	1107	864	160	1248	552	808	370	370	355	309	289
V/C Ratio(X)	0.64	0.63	0.34	0.81	0.88	0.57	0.87	0.55	0.55	0.89	0.75	0.77
Avail Cap(c_a), veh/h	183	1107	864	215	1319	583	1026	528	527	453	452	422
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	27.8	4.0	42.1	28.8	24.8	34.7	33.3	33.4	36.8	37.0	37.2
Incr Delay (d2), s/veh	6.8	1.2	0.2	14.8	7.1	1.2	6.5	1.3	1.3	16.5	3.9	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.6	1.0	3.5	12.1	5.6	8.1	4.1	4.2	8.4	5.2	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	29.0	4.2	56.9	35.8	26.1	41.2	34.6	34.7	53.2	40.8	42.4
LnGrp LOS	D	C	A	E	D	C	D	C	C	D	D	D
Approach Vol, veh/h		1110			1546			1106			771	
Approach Delay, s/veh		24.5			35.6			38.8			46.4	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	33.9	26.5	20.9	9.2	37.6	23.3	24.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	28.6	28.0	24.0	5.0	35.0	24.0	28.0
Max Q Clear Time (g_c+I1), s	5.0	18.0	20.3	14.1	5.0	29.5	18.3	11.8
Green Ext Time (p_c), s	0.1	4.1	1.7	1.8	0.0	3.6	0.5	2.0

Intersection Summary	
HCM 6th Ctrl Delay	35.5
HCM 6th LOS	D

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	805	101	397
Demand Flow Rate, veh/h	821	103	405
Vehicles Circulating, veh/h	95	354	23
Vehicles Exiting, veh/h	362	74	893
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	11.6	4.8	5.4
Approach LOS	B	A	A

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	821	103	405
Cap Entry Lane, veh/h	1252	962	1348
Entry HV Adj Factor	0.981	0.982	0.980
Flow Entry, veh/h	805	101	397
Cap Entry, veh/h	1228	944	1321
V/C Ratio	0.656	0.107	0.300
Control Delay, s/veh	11.6	4.8	5.4
LOS	B	A	A
95th %tile Queue, veh	5	0	1

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Intersection	
Int Delay, s/veh	10.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1074	102	324	1015	0	0	0	389	0	0	0
Future Vol, veh/h	0	1074	102	324	1015	0	0	0	389	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	340	-	-	195	-	-	-	-	-	-	-	25
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	1107	105	334	1046	0	0	0	401	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1047	0	0	1212	0	0	-	-	606	2269	2927	524
Stage 1	-	-	-	-	-	-	-	-	-	1715	1715	-
Stage 2	-	-	-	-	-	-	-	-	-	554	1212	-
Critical Hdwy	4.24	-	-	4.24	-	-	-	-	7.04	7.64	6.64	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.64	5.64	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.64	5.64	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	-	-	3.37	3.57	4.07	3.37
Pot Cap-1 Maneuver	631	-	-	544	-	-	0	0	428	21	14	485
Stage 1	-	-	-	-	-	-	0	0	-	89	136	-
Stage 2	-	-	-	-	-	-	0	0	-	472	243	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	630	-	-	544	-	-	-	-	428	1	5	485
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	1	5	-
Stage 1	-	-	-	-	-	-	-	-	-	89	52	-
Stage 2	-	-	-	-	-	-	-	-	-	30	243	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	5.2	60.5	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	428	630	-	-	544	-	-	-	-
HCM Lane V/C Ratio	0.937	-	-	-	0.614	-	-	-	-
HCM Control Delay (s)	60.5	0	-	-	21.6	-	-	0	0
HCM Lane LOS	F	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	10.7	0	-	-	4.1	-	-	-	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	284	1180	977	13	0	362
Future Vol, veh/h	284	1180	977	13	0	362
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	580	-	-	165	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	302	1255	1039	14	0	385

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	1053	0	-	0	-	520	
Stage 1	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	
Critical Hdwy	4.3	-	-	-	-	7.1	
Critical Hdwy Stg 1	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	
Follow-up Hdwy	2.3	-	-	-	-	3.4	
Pot Cap-1 Maneuver	611	-	-	-	0	481	
Stage 1	-	-	-	-	0	-	
Stage 2	-	-	-	-	0	-	
Platoon blocked, %		-	-	-			
Mov Cap-1 Maneuver	611	-	-	-	-	481	
Mov Cap-2 Maneuver	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	36.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	611	-	-	-	481
HCM Lane V/C Ratio	0.494	-	-	-	0.801
HCM Control Delay (s)	16.5	-	-	-	36.2
HCM Lane LOS	C	-	-	-	E
HCM 95th %tile Q(veh)	2.7	-	-	-	7.4

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	520	255	462	651	6	47	281	357	359	110
v/c Ratio	0.20	0.46	0.77	0.48	0.48	0.06	0.42	0.62	0.75	0.75	0.19
Control Delay	44.8	27.9	50.4	19.1	2.0	41.5	52.6	17.5	40.7	40.1	1.3
Queue Delay	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	27.9	50.4	20.0	2.1	41.5	52.6	17.5	40.7	40.1	1.3
Queue Length 50th (ft)	12	142	136	180	7	3	26	39	178	180	0
Queue Length 95th (ft)	35	186	#233	305	44	16	#63	97	#325	#311	6
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	107	1178	372	965	1368	107	113	482	499	506	586
Starvation Cap Reductn	0	0	0	257	136	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.44	0.69	0.65	0.53	0.06	0.42	0.58	0.72	0.71	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	458	31	240	434	612	6	44	264	589	84	103
Future Volume (veh/h)	20	458	31	240	434	612	6	44	264	589	84	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	21	487	33	255	462	651	6	47	281	691	0	110
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	41	636	43	593	932	1135	100	105	616	817	0	362
Arrive On Green	0.02	0.19	0.19	0.33	0.49	0.49	0.06	0.06	0.06	0.23	0.00	0.23
Sat Flow, veh/h	1795	3402	230	1795	1885	1560	1795	1885	1598	3591	0	1591
Grp Volume(v), veh/h	21	256	264	255	462	651	6	47	281	691	0	110
Grp Sat Flow(s),veh/h/ln	1795	1791	1841	1795	1885	1560	1795	1885	1598	1795	0	1591
Q Serve(g_s), s	1.0	12.2	12.3	10.0	14.8	17.9	0.3	2.2	0.0	16.6	0.0	5.2
Cycle Q Clear(g_c), s	1.0	12.2	12.3	10.0	14.8	17.9	0.3	2.2	0.0	16.6	0.0	5.2
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	41	335	344	593	932	1135	100	105	616	817	0	362
V/C Ratio(X)	0.52	0.76	0.77	0.43	0.50	0.57	0.06	0.45	0.46	0.85	0.00	0.30
Avail Cap(c_a), veh/h	106	458	470	593	932	1135	100	105	616	1017	0	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.73	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.5	34.7	34.7	23.5	15.2	6.0	40.3	41.2	20.6	33.2	0.0	28.8
Incr Delay (d2), s/veh	9.7	15.2	15.1	0.4	0.3	0.5	0.2	3.0	0.5	5.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	6.7	6.9	4.2	6.1	11.1	0.1	1.1	4.3	7.6	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.2	50.0	49.9	23.9	15.5	6.5	40.5	44.2	21.1	38.8	0.0	29.3
LnGrp LOS	D	D	D	C	B	A	D	D	C	D	A	C
Approach Vol, veh/h		541			1368			334			801	
Approach Delay, s/veh		50.0			12.8			24.7			37.5	
Approach LOS		D			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	34.2	21.3		25.0	6.5	49.0		9.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	18.5	23.0		25.5	5.3	36.2		5.0
Max Q Clear Time (g_c+I1), s	12.0	14.3		18.6	3.0	19.9		4.2
Green Ext Time (p_c), s	0.4	2.1		1.9	0.0	5.4		0.1

Intersection Summary

HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	91	1319	20	1080	265	276	30	447	8	27
v/c Ratio	0.54	0.63	0.17	0.60	0.29	0.77	0.06	0.84	0.02	0.05
Control Delay	47.4	14.8	38.9	17.7	3.4	42.2	20.8	32.1	20.1	0.2
Queue Delay	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	16.6	38.9	17.7	3.4	42.2	20.8	32.1	20.1	0.2
Queue Length 50th (ft)	44	196	10	223	4	124	11	131	3	0
Queue Length 95th (ft)	#99	369	31	294	45	204	29	#250	12	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	176	2079	121	1810	915	423	572	601	422	657
Starvation Cap Reductn	0	557	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.87	0.17	0.60	0.29	0.65	0.05	0.74	0.02	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1196	31	19	1004	246	257	28	416	7	0	25
Future Volume (veh/h)	85	1196	31	19	1004	246	257	28	416	7	0	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	91	1286	33	20	1080	0	276	30	447	8	0	27
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	117	1508	39	194	1668		492	566	480	357	0	480
Arrive On Green	0.07	0.42	0.42	0.11	0.47	0.00	0.30	0.30	0.30	0.30	0.00	0.30
Sat Flow, veh/h	1795	3565	91	1795	3582	1598	1394	1885	1598	925	0	1598
Grp Volume(v), veh/h	91	646	673	20	1080	0	276	30	447	8	0	27
Grp Sat Flow(s),veh/h/ln	1795	1791	1866	1795	1791	1598	1394	1885	1598	925	0	1598
Q Serve(g_s), s	4.0	26.0	26.1	0.8	18.4	0.0	14.1	0.9	21.7	0.5	0.0	1.0
Cycle Q Clear(g_c), s	4.0	26.0	26.1	0.8	18.4	0.0	15.0	0.9	21.7	1.4	0.0	1.0
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	757	789	194	1668		492	566	480	357	0	480
V/C Ratio(X)	0.78	0.85	0.85	0.10	0.65		0.56	0.05	0.93	0.02	0.00	0.06
Avail Cap(c_a), veh/h	168	839	875	194	1668		500	577	489	363	0	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.8	20.8	20.8	32.2	16.3	0.0	25.3	19.9	27.2	20.4	0.0	19.9
Incr Delay (d2), s/veh	10.6	9.4	9.1	0.2	2.0	0.0	1.4	0.0	24.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	12.0	12.5	0.4	7.4	0.0	4.6	0.4	11.0	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	30.2	29.9	32.4	18.3	0.0	26.7	19.9	51.8	20.4	0.0	20.0
LnGrp LOS	D	C	C	C	B		C	B	D	C	A	B
Approach Vol, veh/h		1410			1100	A		753			35	
Approach Delay, s/veh		31.2			18.6			41.3			20.1	
Approach LOS		C			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.1	38.3		28.5	9.7	41.8		28.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	37.5		24.5	7.5	35.0		24.5				
Max Q Clear Time (g_c+I1), s	2.8	28.1		3.4	6.0	20.4		23.7				
Green Ext Time (p_c), s	0.0	5.8		0.1	0.0	6.7		0.3				

Intersection Summary

HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	167	608	357	127	473	363	228	455	391	545	143
v/c Ratio	1.14	0.68	0.55	0.64	0.48	0.52	0.71	0.42	0.91	0.61	0.27
Control Delay	155.6	34.0	6.8	56.1	28.1	5.6	51.0	24.6	55.6	21.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	155.6	34.0	6.8	56.1	28.1	5.6	51.0	24.6	55.6	21.1	3.9
Queue Length 50th (ft)	~111	163	6	68	111	0	124	101	~129	103	0
Queue Length 95th (ft)	#236	204	68	#175	156	61	#300	144	m#175	m210	m15
Internal Link Dist (ft)		1092			186			1440		2310	
Turn Bay Length (ft)	250		250	150		150	230		245		100
Base Capacity (vph)	147	1101	721	197	1101	732	322	1088	428	1061	594
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.55	0.50	0.64	0.43	0.50	0.71	0.42	0.91	0.51	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	584	343	122	454	348	219	371	66	375	523	137
Future Volume (veh/h)	160	584	343	122	454	348	219	371	66	375	523	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	167	608	357	127	473	362	228	386	69	391	545	143
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	969	425	149	971	424	406	1051	186	326	766	340
Arrive On Green	0.08	0.27	0.27	0.08	0.27	0.27	0.23	0.35	0.35	0.09	0.22	0.22
Sat Flow, veh/h	1781	3554	1559	1781	3554	1551	1781	3012	533	3456	3554	1576
Grp Volume(v), veh/h	167	608	357	127	473	362	228	226	229	391	545	143
Grp Sat Flow(s),veh/h/ln	1781	1777	1559	1781	1777	1551	1781	1777	1768	1728	1777	1576
Q Serve(g_s), s	7.5	13.5	19.4	6.3	10.0	19.9	10.2	8.5	8.7	8.5	12.8	5.4
Cycle Q Clear(g_c), s	7.5	13.5	19.4	6.3	10.0	19.9	10.2	8.5	8.7	8.5	12.8	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	148	969	425	149	971	424	406	620	617	326	766	340
V/C Ratio(X)	1.13	0.63	0.84	0.85	0.49	0.85	0.56	0.36	0.37	1.20	0.71	0.42
Avail Cap(c_a), veh/h	148	1106	485	149	1106	483	406	620	617	326	1066	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	41.3	28.7	30.9	40.7	27.4	31.0	30.8	21.9	21.9	40.8	32.7	17.9
Incr Delay (d2), s/veh	111.4	0.9	11.2	34.9	0.4	12.7	1.8	1.7	1.7	109.2	4.2	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	5.6	8.2	4.1	4.1	8.5	4.4	3.7	3.7	8.5	5.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	152.6	29.6	42.1	75.5	27.8	43.7	32.5	23.5	23.6	150.0	36.9	20.7
LnGrp LOS	F	C	D	E	C	D	C	C	C	F	D	C
Approach Vol, veh/h		1132			962			683			1079	
Approach Delay, s/veh		51.7			40.1			26.6			75.7	
Approach LOS		D			D			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	35.9	12.0	29.1	25.0	23.9	12.0	29.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	28.0	7.5	28.0	9.5	27.0	7.5	28.0
Max Q Clear Time (g_c+I1), s	10.5	10.7	8.3	21.4	12.2	14.8	9.5	21.9
Green Ext Time (p_c), s	0.0	2.4	0.0	2.8	0.0	3.2	0.0	2.3

Intersection Summary

HCM 6th Ctrl Delay	51.1
HCM 6th LOS	D

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Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	129	43	21	442	48	564	134
v/c Ratio	0.54	0.28	0.05	0.40	0.32	0.74	0.19
Control Delay	42.8	20.6	30.9	14.3	45.1	31.0	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	20.6	30.9	14.3	45.1	31.0	4.2
Queue Length 50th (ft)	66	3	10	152	26	270	0
Queue Length 95th (ft)	126	35	31	271	64	#495	35
Internal Link Dist (ft)	560	1033		1337		2227	
Turn Bay Length (ft)			30		70		60
Base Capacity (vph)	571	547	382	1112	169	760	708
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.08	0.05	0.40	0.28	0.74	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	4	13	4	1	38	21	428	10	48	558	133
Future Volume (veh/h)	111	4	13	4	1	38	21	428	10	48	558	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	112	4	13	4	1	38	21	432	10	48	564	134
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	164	6	19	8	2	71	384	1059	25	72	761	641
Arrive On Green	0.11	0.11	0.11	0.05	0.05	0.05	0.21	0.58	0.58	0.04	0.40	0.40
Sat Flow, veh/h	1537	55	178	148	37	1406	1795	1835	42	1795	1885	1588
Grp Volume(v), veh/h	129	0	0	43	0	0	21	0	442	48	564	134
Grp Sat Flow(s),veh/h/ln	1771	0	0	1591	0	0	1795	0	1877	1795	1885	1588
Q Serve(g_s), s	5.9	0.0	0.0	2.2	0.0	0.0	0.8	0.0	11.0	2.2	21.5	4.6
Cycle Q Clear(g_c), s	5.9	0.0	0.0	2.2	0.0	0.0	0.8	0.0	11.0	2.2	21.5	4.6
Prop In Lane	0.87		0.10	0.09		0.88	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	189	0	0	81	0	0	384	0	1083	72	761	641
V/C Ratio(X)	0.68	0.00	0.00	0.53	0.00	0.00	0.05	0.00	0.41	0.67	0.74	0.21
Avail Cap(c_a), veh/h	567	0	0	510	0	0	384	0	1083	170	761	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	0.0	39.0	0.0	0.0	26.4	0.0	9.9	39.9	21.4	16.4
Incr Delay (d2), s/veh	4.3	0.0	0.0	5.3	0.0	0.0	0.3	0.0	1.1	10.2	6.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	1.0	0.0	0.0	0.4	0.0	4.3	1.2	10.1	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	0.0	0.0	44.3	0.0	0.0	26.6	0.0	11.0	50.1	27.8	17.1
LnGrp LOS	D	A	A	D	A	A	C	A	B	D	C	B
Approach Vol, veh/h		129			43			463			746	
Approach Delay, s/veh		40.6			44.3			11.7			27.3	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	53.6		13.5	23.0	39.0		8.8				
Change Period (Y+Rc), s	5.0	5.0		4.5	5.0	5.0		4.5				
Max Green Setting (Gmax), s	3.0	44.0		27.0	18.0	34.0		27.0				
Max Q Clear Time (g_c+I1), s	4.2	13.0		7.9	2.8	23.5		4.2				
Green Ext Time (p_c), s	0.0	2.9		0.6	0.0	3.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay	23.9
HCM 6th LOS	C

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Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	198	217	12	267	304	341	278
v/c Ratio	0.10	0.45	0.40	0.02	0.28	0.32	0.60	0.15
Control Delay	20.6	20.0	5.6	8.5	9.0	2.5	15.9	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	20.0	5.6	8.5	9.0	2.5	15.9	7.5
Queue Length 50th (ft)	3	42	0	1	30	0	48	14
Queue Length 95th (ft)	23	119	45	11	118	39	#230	55
Internal Link Dist (ft)	284	314			712			1337
Turn Bay Length (ft)				150			250	
Base Capacity (vph)	200	1085	1031	707	1223	1146	728	2309
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.18	0.21	0.02	0.22	0.27	0.47	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	9	181	3	202	11	248	283	317	246	12
Future Volume (veh/h)	8	2	9	181	3	202	11	248	283	317	246	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	9	2	10	195	3	217	12	267	304	341	265	13
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	18	4	20	361	6	323	656	967	817	499	1781	87
Arrive On Green	0.03	0.03	0.03	0.20	0.20	0.20	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	726	161	807	1769	27	1586	1108	1885	1593	847	3471	169
Grp Volume(v), veh/h	21	0	0	198	0	217	12	267	304	341	136	142
Grp Sat Flow(s),veh/h/ln	1694	0	0	1797	0	1586	1108	1885	1593	847	1791	1850
Q Serve(g_s), s	0.7	0.0	0.0	5.3	0.0	6.8	0.3	4.4	6.2	20.8	2.2	2.2
Cycle Q Clear(g_c), s	0.7	0.0	0.0	5.3	0.0	6.8	2.5	4.4	6.2	25.1	2.2	2.2
Prop In Lane	0.43		0.48	0.98		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	42	0	0	366	0	323	656	967	817	499	919	949
V/C Ratio(X)	0.50	0.00	0.00	0.54	0.00	0.67	0.02	0.28	0.37	0.68	0.15	0.15
Avail Cap(c_a), veh/h	156	0	0	894	0	789	680	1008	851	517	957	989
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	0.0	19.3	0.0	19.9	7.6	7.5	7.9	14.6	7.0	7.0
Incr Delay (d2), s/veh	8.7	0.0	0.0	1.2	0.0	2.4	0.0	0.2	0.3	3.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	2.2	0.0	2.6	0.1	1.2	1.5	3.6	0.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.8	0.0	0.0	20.6	0.0	22.3	7.6	7.6	8.2	18.1	7.0	7.0
LnGrp LOS	C	A	A	C	A	C	A	A	A	B	A	A
Approach Vol, veh/h		21			415			583			619	
Approach Delay, s/veh		34.8			21.5			7.9			13.2	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	32.8	5.9	32.8	15.6
Change Period (Y+Rc), s	5.0	4.5	5.0	4.5
Max Green Setting (Gmax), s	29.0	5.0	29.0	27.0
Max Q Clear Time (g_c+I1), s	8.2	2.7	27.1	8.8
Green Ext Time (p_c), s	2.4	0.0	0.7	1.9

Intersection Summary

HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

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Intersection	
Intersection Delay, s/veh	19.7
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	342	247	148	200	198	238
Future Vol, veh/h	342	247	148	200	198	238
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	353	255	153	206	204	245
Number of Lanes	1	1	1	2	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	24	13.2	16
HCM LOS	C	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	148	100	100	342	247	198	238
LT Vol	148	0	0	342	0	0	0
Through Vol	0	100	100	0	0	198	0
RT Vol	0	0	0	0	247	0	238
Lane Flow Rate	153	103	103	353	255	204	245
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.354	0.225	0.174	0.756	0.46	0.435	0.474
Departure Headway (Hd)	8.358	7.845	6.081	7.715	6.502	7.675	6.954
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	430	458	590	469	555	469	518
Service Time	6.104	5.59	3.825	5.454	4.24	5.418	4.697
HCM Lane V/C Ratio	0.356	0.225	0.175	0.753	0.459	0.435	0.473
HCM Control Delay	15.6	12.9	10.1	30.7	14.7	16.2	15.8
HCM Lane LOS	C	B	B	D	B	C	C
HCM 95th-tile Q	1.6	0.9	0.6	6.4	2.4	2.2	2.5

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	443	764	208	440	99	368	1197	632	324
v/c Ratio	0.23	0.93	0.86	0.43	0.46	0.37	0.69	0.86	0.76	0.38
Control Delay	38.5	64.7	30.9	20.2	1.5	38.9	43.6	27.7	38.6	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	64.7	30.9	20.2	1.5	38.9	43.6	27.7	38.6	27.4
Queue Length 50th (ft)	27	123	174	60	0	51	105	303	169	73
Queue Length 95th (ft)	62	#224	#299	m95	0	100	153	#410	229	112
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	231	476	886	480	956	268	536	1395	856	871
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.93	0.86	0.43	0.46	0.37	0.69	0.86	0.74	0.37

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

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16: US 101 Ramps/Spring Street & 1st Street/Niblick Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	328	102	741	202	427	96	357	1161	613	256	58
Future Volume (veh/h)	50	328	102	741	202	427	96	357	1161	613	256	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	52	338	105	764	208	440	99	368	1197	632	264	60
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	219	329	100	862	466	733	336	671	1264	758	626	140
Arrive On Green	0.12	0.12	0.12	0.25	0.25	0.25	0.19	0.19	0.19	0.22	0.22	0.22
Sat Flow, veh/h	1795	2691	822	3483	1885	1572	1795	3582	2908	3519	2909	650
Grp Volume(v), veh/h	52	223	220	764	208	440	99	368	1197	632	161	163
Grp Sat Flow(s),veh/h/ln	1795	1791	1722	1742	1885	1572	1795	1791	1454	1760	1791	1768
Q Serve(g_s), s	2.4	11.0	11.0	19.0	8.4	18.8	4.3	8.4	16.9	15.5	7.0	7.2
Cycle Q Clear(g_c), s	2.4	11.0	11.0	19.0	8.4	18.8	4.3	8.4	16.9	15.5	7.0	7.2
Prop In Lane	1.00		0.48	1.00		1.00	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	219	219	210	862	466	733	336	671	1264	758	386	381
V/C Ratio(X)	0.24	1.02	1.05	0.89	0.45	0.60	0.29	0.55	0.95	0.83	0.42	0.43
Avail Cap(c_a), veh/h	219	219	210	890	482	746	336	671	1264	860	438	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	39.5	39.5	32.7	28.7	18.0	31.5	33.1	19.1	33.8	30.4	30.5
Incr Delay (d2), s/veh	0.5	65.7	74.5	10.5	0.7	1.3	2.2	3.2	15.4	6.4	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	8.8	9.0	8.8	3.7	9.7	2.0	3.7	15.5	7.1	3.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	105.2	114.0	43.2	29.3	19.4	33.7	36.3	34.6	40.2	31.2	31.3
LnGrp LOS	D	F	F	D	C	B	C	D	C	D	C	C
Approach Vol, veh/h		495			1412			1664			956	
Approach Delay, s/veh		101.9			33.7			34.9			37.2	
Approach LOS		F			C			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.7	15.6	24.1	27.7
Change Period (Y+Rc), s	5.8	4.6	4.7	5.4
Max Green Setting (Gmax), s	13.5	11.0	22.0	23.0
Max Q Clear Time (g_c+I1), s	18.9	13.0	17.5	21.0
Green Ext Time (p_c), s	0.0	0.0	1.9	1.2

Intersection Summary	
HCM 6th Ctrl Delay	42.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

17: S. River Road & Niblick Road

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	269	1058	666	120	769	164	450	369	217	559
v/c Ratio	0.80	0.92	0.83	0.93	0.72	0.27	0.70	0.37	0.96	0.71
Control Delay	52.9	40.2	19.3	107.0	33.2	4.4	42.8	23.5	92.0	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	40.2	19.3	107.0	33.2	4.4	42.8	23.5	92.0	34.1
Queue Length 50th (ft)	76	343	140	69	207	0	120	74	125	142
Queue Length 95th (ft)	m#109	m#452	m#258	#175	275	36	#235	112	#263	177
Internal Link Dist (ft)		1510			1609			962		896
Turn Bay Length (ft)	140			80			150		110	
Base Capacity (vph)	337	1155	801	129	1065	597	639	1070	226	1063
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.92	0.83	0.93	0.72	0.27	0.70	0.34	0.96	0.53

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	258	1016	639	115	738	157	432	272	83	208	408	129
Future Volume (veh/h)	258	1016	639	115	738	157	432	272	83	208	408	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	269	1058	666	120	769	164	450	283	86	217	425	134
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	290	1075	479	301	1376	613	445	560	167	227	549	171
Arrive On Green	0.08	0.30	0.30	0.17	0.38	0.38	0.13	0.21	0.21	0.13	0.20	0.20
Sat Flow, veh/h	3483	3582	1598	1795	3582	1595	3483	2720	810	1795	2683	838
Grp Volume(v), veh/h	269	1058	666	120	769	164	450	184	185	217	282	277
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1595	1742	1791	1739	1795	1791	1730
Q Serve(g_s), s	6.9	26.4	27.0	5.4	15.2	6.4	11.5	8.2	8.5	10.8	13.4	13.6
Cycle Q Clear(g_c), s	6.9	26.4	27.0	5.4	15.2	6.4	11.5	8.2	8.5	10.8	13.4	13.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		0.48
Lane Grp Cap(c), veh/h	290	1075	479	301	1376	613	445	368	358	227	366	354
V/C Ratio(X)	0.93	0.98	1.39	0.40	0.56	0.27	1.01	0.50	0.52	0.95	0.77	0.78
Avail Cap(c_a), veh/h	290	1075	479	301	1376	613	445	539	524	227	537	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	31.3	31.5	33.4	21.7	19.0	39.3	31.6	31.8	39.0	33.8	33.9
Incr Delay (d2), s/veh	34.1	24.0	187.8	0.9	1.6	1.1	45.5	1.1	1.2	46.8	4.1	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	14.2	34.7	2.3	6.2	2.4	7.5	3.5	3.5	7.5	5.9	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.1	55.3	219.3	34.3	23.4	20.1	84.7	32.7	32.9	85.8	37.8	38.6
LnGrp LOS	E	E	F	C	C	C	F	C	C	F	D	D
Approach Vol, veh/h		1993			1053			819			776	
Approach Delay, s/veh		112.8			24.1			61.3			51.5	
Approach LOS		F			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.6	31.5	16.0	22.9	12.0	39.1	15.9	23.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	27.0	11.5	27.0	7.5	26.0	11.4	27.1
Max Q Clear Time (g_c+I1), s	7.4	29.0	13.5	15.6	8.9	17.2	12.8	10.5
Green Ext Time (p_c), s	0.0	0.0	0.0	2.4	0.0	3.6	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	73.3
HCM 6th LOS	E

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	503	124	881
Demand Flow Rate, veh/h	508	125	890
Vehicles Circulating, veh/h	98	791	10
Vehicles Exiting, veh/h	818	109	596
Ped Vol Crossing Leg, #/h	0	0	1
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.9	8.4	10.8
Approach LOS	A	A	B

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	508	125	890
Cap Entry Lane, veh/h	1249	616	1366
Entry HV Adj Factor	0.990	0.992	0.990
Flow Entry, veh/h	503	124	881
Cap Entry, veh/h	1236	611	1352
V/C Ratio	0.407	0.203	0.652
Control Delay, s/veh	6.9	8.4	10.8
LOS	A	A	B
95th %tile Queue, veh	2	1	5

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Cumulative

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	435	1765	1715	215	204	342
v/c Ratio	0.81	0.55	0.94	0.24	0.78	0.65
Control Delay	73.4	0.7	43.0	5.7	82.6	44.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	0.7	43.0	5.7	82.6	44.7
Queue Length 50th (ft)	225	0	824	24	204	282
Queue Length 95th (ft)	298	0	#1119	72	307	397
Internal Link Dist (ft)		942	2695		514	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	641	3223	1984	950	331	639
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.55	0.86	0.23	0.62	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	400	1624	1578	198	188	315
Future Volume (vph)	400	1624	1578	198	188	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3127	3223	3223	1442	1612	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3127	3223	3223	1442	1612	1442
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	435	1765	1715	215	204	342
RTOR Reduction (vph)	0	0	0	71	0	10
Lane Group Flow (vph)	435	1765	1715	144	204	332
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	25.7	148.8	83.9	83.9	24.2	53.9
Effective Green, g (s)	25.7	148.8	83.9	83.9	24.2	53.9
Actuated g/C Ratio	0.17	1.00	0.56	0.56	0.16	0.36
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	540	3223	1817	813	262	522
v/s Ratio Prot	c0.14	0.55	c0.53		c0.13	0.23
v/s Ratio Perm				0.10		
v/c Ratio	0.81	0.55	0.94	0.18	0.78	0.64
Uniform Delay, d1	59.1	0.0	30.3	15.7	59.7	39.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.6	0.7	10.7	0.1	13.9	2.5
Delay (s)	67.7	0.7	41.0	15.9	73.7	41.9
Level of Service	E	A	D	B	E	D
Approach Delay (s)		13.9	38.2		53.8	
Approach LOS		B	D		D	

Intersection Summary

HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	148.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	435	1150	385	441	1176	326	450	644	253	248	304
v/c Ratio	1.14	0.90	0.48	1.12	0.91	0.43	1.06	0.87	0.71	0.70	0.65
Control Delay	144.9	53.9	4.8	140.5	55.1	6.1	119.8	69.1	78.6	66.9	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	144.9	53.9	4.8	140.5	55.1	6.1	119.8	69.1	78.6	66.9	24.1
Queue Length 50th (ft)	~277	574	0	~277	591	14	~271	329	130	233	84
Queue Length 95th (ft)	#434	708	69	#441	733	85	#431	435	193	348	200
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	383	1539	891	393	1539	848	426	888	426	474	554
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.75	0.43	1.12	0.76	0.38	1.06	0.73	0.59	0.52	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	1058	354	406	1082	300	414	504	88	233	228	280
Future Volume (veh/h)	400	1058	354	406	1082	300	414	504	88	233	228	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	435	1150	385	441	1176	326	450	548	96	253	248	304
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	362	1282	572	362	1351	602	402	718	125	298	388	329
Arrive On Green	0.11	0.39	0.39	0.11	0.41	0.41	0.13	0.26	0.26	0.09	0.22	0.22
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	2802	489	3209	1737	1472
Grp Volume(v), veh/h	435	1150	385	441	1176	326	450	322	322	253	248	304
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1641	1605	1737	1472
Q Serve(g_s), s	18.0	52.2	23.5	18.0	52.2	26.8	20.0	28.8	29.0	12.4	20.6	32.2
Cycle Q Clear(g_c), s	18.0	52.2	23.5	18.0	52.2	26.8	20.0	28.8	29.0	12.4	20.6	32.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	362	1282	572	362	1351	602	402	423	420	298	388	329
V/C Ratio(X)	1.20	0.90	0.67	1.22	0.87	0.54	1.12	0.76	0.77	0.85	0.64	0.92
Avail Cap(c_a), veh/h	362	1448	646	362	1448	646	402	424	422	402	446	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.8	45.8	18.6	70.8	43.3	35.8	69.8	54.8	54.9	71.3	56.1	60.6
Incr Delay (d2), s/veh	114.2	7.2	2.3	120.7	5.8	0.8	81.2	7.9	8.2	12.2	2.4	26.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	21.6	8.2	13.3	21.3	9.7	12.7	12.8	12.8	5.6	9.3	14.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	185.0	52.9	21.0	191.5	49.0	36.6	150.9	62.7	63.1	83.5	58.6	86.7
LnGrp LOS	F	D	C	F	D	D	F	E	E	F	E	F
Approach Vol, veh/h		1970			1943			1094			805	
Approach Delay, s/veh		75.9			79.3			99.1			77.0	
Approach LOS		E			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.3	69.3	24.0	41.0	22.0	72.6	18.8	46.2
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	20.0	54.2	22.0	34.2	20.0	54.2	14.4	31.0
Green Ext Time (p_c), s	0.0	7.8	0.0	1.4	0.0	7.8	0.4	2.7

Intersection Summary

HCM 6th Ctrl Delay	81.5
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1284	1688	30	0	100
Future Vol, veh/h	0	1284	1688	30	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	165	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	1396	1835	33	0	109

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	918
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.4
Pot Cap-1 Maneuver	0	-	-	-	0	259
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	259
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	28.6
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	259
HCM Lane V/C Ratio	-	-	-	0.42
HCM Control Delay (s)	-	-	-	28.6
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	2

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑↳			↲	↱		↔	
Traffic Vol, veh/h	0	1228	56	3	1692	0	26	0	10	0	0	0
Future Vol, veh/h	0	1228	56	3	1692	0	26	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	13	13	13	13	13	13	13	13	13	13	13	13
Mvmt Flow	0	1335	61	3	1839	0	28	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1839	0	0	1396	0	0	2261	3180	668	2513	3241	920
Stage 1	-	-	-	-	-	-	1335	1335	-	1845	1845	-
Stage 2	-	-	-	-	-	-	926	1845	-	668	1396	-
Critical Hdwy	4.36	-	-	4.36	-	-	7.76	6.76	7.16	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Follow-up Hdwy	2.33	-	-	2.33	-	-	3.63	4.13	3.43	3.63	4.13	3.43
Pot Cap-1 Maneuver	285	-	-	433	-	-	~ 19	8	376	12	8	253
Stage 1	-	-	-	-	-	-	147	201	-	68	110	-
Stage 2	-	-	-	-	-	-	268	110	-	389	187	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	285	-	-	433	-	-	~ 19	8	376	12	8	253
Mov Cap-2 Maneuver	-	-	-	-	-	-	121	89	-	63	87	-
Stage 1	-	-	-	-	-	-	147	201	-	68	109	-
Stage 2	-	-	-	-	-	-	266	109	-	378	187	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	35.6	0
HCM LOS			E	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	121	376	285	-	-	433	-	-	-
HCM Lane V/C Ratio	0.234	0.029	-	-	-	0.008	-	-	-
HCM Control Delay (s)	43.6	14.9	0	-	-	13.4	-	-	0
HCM Lane LOS	E	B	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	0.9	0.1	0	-	-	0	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Intersection Delay, s/veh	29.4
Intersection LOS	D

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	2	2	2
Adj Approach Flow, veh/h	626	732	1058	972
Demand Flow Rate, veh/h	645	754	1089	1001
Vehicles Circulating, veh/h	1076	993	589	649
Vehicles Exiting, veh/h	574	685	964	1098
Ped Vol Crossing Leg, #/h	0	0	3	0
Ped Cap Adj	1.000	1.000	0.998	1.000
Approach Delay, s/veh	10.9	21.1	37.5	38.6
Approach LOS	B	C	E	E

Lane	Left	Right	Bypass	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	R	L	TR	LT	R	LT	R
Assumed Moves	LT	TR	R	L	TR	LT	R	LT	R
RT Channelized			Free						
Lane Util	0.470	0.530		0.471	0.529	0.702	0.298	0.720	0.280
Follow-Up Headway, s	2.535	2.535		2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.544	4.544	168	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	224	253	1957	355	399	764	325	721	280
Cap Entry Lane, veh/h	533	533	0.971	541	611	785	861	743	818
Entry HV Adj Factor	0.971	0.969	163	0.972	0.971	0.971	0.972	0.971	0.971
Flow Entry, veh/h	218	245	1900	345	387	742	316	700	272
Cap Entry, veh/h	518	517	0.086	526	593	761	836	722	795
V/C Ratio	0.420	0.474	0.0	0.656	0.654	0.975	0.378	0.970	0.342
Control Delay, s/veh	14.0	15.5	A	22.2	20.1	49.8	8.8	50.3	8.6
LOS	B	C	0	C	C	E	A	F	A
95th %tile Queue, veh	2	3		5	5	16	2	15	2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	421	388	483	740	11	22	166	341	346	43
v/c Ratio	0.12	0.66	0.80	0.53	0.65	0.08	0.15	0.60	0.78	0.77	0.09
Control Delay	53.4	42.7	47.6	20.9	4.4	47.0	47.8	17.2	47.5	47.1	0.3
Queue Delay	0.0	0.0	0.8	1.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	42.7	48.4	22.3	5.0	47.0	47.8	17.2	47.5	47.1	0.3
Queue Length 50th (ft)	7	131	225	196	0	7	13	0	203	206	0
Queue Length 95th (ft)	28	201	#419	381	74	26	41	65	#397	#400	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	95	872	603	1026	1200	344	362	437	536	545	580
Starvation Cap Reductn	0	0	58	338	167	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.48	0.71	0.70	0.72	0.03	0.06	0.38	0.64	0.63	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	355	32	357	444	681	10	20	153	541	91	40
Future Volume (veh/h)	10	355	32	357	444	681	10	20	153	541	91	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	11	386	35	388	483	740	11	22	166	659	0	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	23	804	73	424	878	744	221	232	196	765	0	337
Arrive On Green	0.01	0.25	0.25	0.24	0.47	0.47	0.12	0.12	0.12	0.22	0.00	0.22
Sat Flow, veh/h	1767	3265	294	1767	1856	1572	1767	1856	1569	3534	0	1554
Grp Volume(v), veh/h	11	207	214	388	483	740	11	22	166	659	0	43
Grp Sat Flow(s),veh/h/ln	1767	1763	1797	1767	1856	1572	1767	1856	1569	1767	0	1554
Q Serve(g_s), s	0.6	10.5	10.6	22.4	19.4	49.0	0.6	1.1	10.8	18.8	0.0	2.3
Cycle Q Clear(g_c), s	0.6	10.5	10.6	22.4	19.4	49.0	0.6	1.1	10.8	18.8	0.0	2.3
Prop In Lane	1.00		0.16	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	434	443	424	878	744	221	232	196	765	0	337
V/C Ratio(X)	0.48	0.48	0.48	0.91	0.55	0.99	0.05	0.09	0.85	0.86	0.00	0.13
Avail Cap(c_a), veh/h	84	434	443	532	878	744	304	319	270	997	0	438
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.3	33.7	33.7	38.7	19.6	27.4	40.3	40.5	44.8	39.5	0.0	33.0
Incr Delay (d2), s/veh	14.4	0.8	0.8	17.8	0.7	31.5	0.1	0.2	16.3	6.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.6	4.8	11.6	8.3	23.9	0.3	0.5	5.0	8.6	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	34.5	34.5	56.5	20.3	58.9	40.4	40.7	61.1	45.7	0.0	33.2
LnGrp LOS	E	C	C	E	C	E	D	D	E	D	A	C
Approach Vol, veh/h		432			1611			199			702	
Approach Delay, s/veh		35.3			46.8			57.7			44.9	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.6	30.3		27.1	5.9	54.0		17.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	31.5	23.0		29.5	5.0	49.5		18.0
Max Q Clear Time (g_c+I1), s	24.4	12.6		20.8	2.6	51.0		12.8
Green Ext Time (p_c), s	0.8	1.9		1.9	0.0	0.0		0.3

Intersection Summary			
HCM 6th Ctrl Delay			45.4
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	1064	57	1365	422	235	22	272	11	11
v/c Ratio	0.43	0.56	0.35	0.72	0.44	0.72	0.05	0.50	0.03	0.02
Control Delay	52.0	15.7	50.3	19.6	6.3	47.4	29.6	11.1	29.6	0.1
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	16.2	50.3	19.6	6.3	47.4	29.6	11.1	29.6	0.1
Queue Length 50th (ft)	47	216	35	325	42	141	11	24	6	0
Queue Length 95th (ft)	98	308	78	451	114	228	31	95	20	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	211	2272	200	2275	1092	483	645	694	479	666
Starvation Cap Reductn	0	693	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.67	0.28	0.60	0.39	0.49	0.03	0.39	0.02	0.02

Intersection Summary

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	928	51	52	1256	388	216	20	250	10	0	10
Future Volume (veh/h)	70	928	51	52	1256	388	216	20	250	10	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	1009	55	57	1365	0	235	22	272	11	0	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	99	1815	99	86	1856		402	404	342	331	0	342
Arrive On Green	0.06	0.53	0.53	0.05	0.53	0.00	0.22	0.22	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1767	3398	185	1767	3526	1572	1392	1856	1572	1077	0	1572
Grp Volume(v), veh/h	76	523	541	57	1365	0	235	22	272	11	0	11
Grp Sat Flow(s),veh/h/ln	1767	1763	1821	1767	1763	1572	1392	1856	1572	1077	0	1572
Q Serve(g_s), s	2.9	13.3	13.3	2.1	20.2	0.0	10.8	0.6	11.1	0.6	0.0	0.4
Cycle Q Clear(g_c), s	2.9	13.3	13.3	2.1	20.2	0.0	11.2	0.6	11.1	1.2	0.0	0.4
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	99	941	973	86	1856		402	404	342	331	0	342
V/C Ratio(X)	0.77	0.56	0.56	0.66	0.74		0.58	0.05	0.79	0.03	0.00	0.03
Avail Cap(c_a), veh/h	248	1433	1480	235	2840		665	754	639	534	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.5	10.4	10.4	31.6	12.4	0.0	25.3	20.9	25.0	21.4	0.0	20.8
Incr Delay (d2), s/veh	11.5	0.5	0.5	8.5	0.6	0.0	1.4	0.1	4.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	4.5	4.7	1.1	6.9	0.0	3.5	0.3	4.2	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	11.0	10.9	40.1	13.0	0.0	26.6	21.0	29.2	21.5	0.0	20.9
LnGrp LOS	D	B	B	D	B		C	C	C	C	A	C
Approach Vol, veh/h		1140			1422	A		529			22	
Approach Delay, s/veh		13.1			14.0			27.7			21.2	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	40.6		19.2	8.3	40.1		19.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.0	55.0		27.5	9.5	54.5		27.5
Max Q Clear Time (g_c+I1), s	4.1	15.3		3.2	4.9	22.2		13.2
Green Ext Time (p_c), s	0.0	8.9		0.0	0.1	13.4		1.5

Intersection Summary			
HCM 6th Ctrl Delay			16.1
HCM 6th LOS			B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	342	949	65	1171	385	198	54	172	696
v/c Ratio	0.84	0.61	0.49	0.87	0.81	0.27	0.13	0.77	1.08dr
Control Delay	69.1	24.1	65.0	40.0	62.6	40.0	2.3	73.0	50.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.1	24.1	65.0	40.0	62.6	40.0	2.3	73.0	50.6
Queue Length 50th (ft)	136	266	49	417	151	68	0	130	213
Queue Length 95th (ft)	#217	338	96	511	#224	104	8	#235	#327
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	417	1595	155	1488	502	773	420	245	802
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.59	0.42	0.79	0.77	0.26	0.13	0.70	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	579	294	60	892	185	354	182	50	158	190	450
Future Volume (veh/h)	315	579	294	60	892	185	354	182	50	158	190	450
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	342	629	0	65	970	201	385	198	54	172	207	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	437	1765		84	1222	253	487	408	182	212	330	
Arrive On Green	0.13	0.50	0.00	0.05	0.42	0.42	0.14	0.11	0.11	0.12	0.09	0.00
Sat Flow, veh/h	3456	3647	0	1781	2924	605	3456	3554	1585	1781	3647	0
Grp Volume(v), veh/h	342	629	0	65	589	582	385	198	54	172	207	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1752	1728	1777	1585	1781	1777	0
Q Serve(g_s), s	7.8	8.8	0.0	2.9	23.4	23.5	8.7	4.2	2.5	7.6	4.5	0.0
Cycle Q Clear(g_c), s	7.8	8.8	0.0	2.9	23.4	23.5	8.7	4.2	2.5	7.6	4.5	0.0
Prop In Lane	1.00		0.00	1.00		0.35	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	437	1765		84	742	732	487	408	182	212	330	
V/C Ratio(X)	0.78	0.36		0.77	0.79	0.80	0.79	0.48	0.30	0.81	0.63	
Avail Cap(c_a), veh/h	584	2284		218	1059	1044	703	1070	477	343	1030	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.3	12.5	0.0	38.2	20.5	20.6	33.7	33.6	32.9	34.8	35.4	0.0
Incr Delay (d2), s/veh	5.0	0.1	0.0	13.6	2.7	2.8	3.9	0.9	0.9	7.4	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.3	0.0	1.6	9.4	9.3	3.7	1.8	1.0	3.5	1.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	12.6	0.0	51.8	23.3	23.4	37.5	34.5	33.8	42.2	37.4	0.0
LnGrp LOS	D	B		D	C	C	D	C	C	D	D	
Approach Vol, veh/h		971	A		1236			637			379	A
Approach Delay, s/veh		22.0			24.8			36.3			39.6	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	44.8	15.9	12.0	14.7	38.4	14.1	13.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.9	52.1	16.5	23.5	13.7	48.3	15.6	24.4
Max Q Clear Time (g_c+I1), s	4.9	10.8	10.7	6.5	9.8	25.5	9.6	6.2
Green Ext Time (p_c), s	0.0	5.0	0.7	1.0	0.5	8.4	0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	96	467	1327	609	143
v/c Ratio	0.68	0.22	0.81	0.74	0.29
Control Delay	68.8	10.2	23.6	40.2	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	10.2	23.6	40.2	8.2
Queue Length 50th (ft)	52	48	247	157	0
Queue Length 95th (ft)	#183	147	#632	#364	56
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	141	2269	1771	831	491
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.68	0.21	0.75	0.73	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	88	430	675	546	560	132
Future Volume (vph)	88	430	675	546	560	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	3247		3400	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	3247		3400	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	467	734	593	609	143
RTOR Reduction (vph)	0	0	108	0	0	110
Lane Group Flow (vph)	96	467	1219	0	609	33
Confl. Peds. (#/hr)				3		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	7.4	55.0	43.1		22.2	22.2
Effective Green, g (s)	7.4	55.0	43.1		22.2	22.2
Actuated g/C Ratio	0.08	0.58	0.45		0.23	0.23
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	136	2033	1476		796	367
v/s Ratio Prot	c0.05	0.13	c0.38			
v/s Ratio Perm					c0.18	0.02
v/c Ratio	0.71	0.23	0.83		0.77	0.09
Uniform Delay, d1	42.6	9.6	22.6		33.9	28.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	15.4	0.1	3.9		4.4	0.1
Delay (s)	58.0	9.7	26.5		38.3	28.5
Level of Service	E	A	C		D	C
Approach Delay (s)		17.9	26.5		36.4	
Approach LOS		B	C		D	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	94.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	142	422	128	92	835	620	191	528	291	280	311
v/c Ratio	0.66	0.31	0.19	0.51	0.71	0.84	0.68	0.72	0.68	0.44	0.61
Control Delay	60.9	24.0	4.5	57.3	33.2	23.7	55.3	43.1	53.3	41.4	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	24.0	4.5	57.3	33.2	23.7	55.3	43.1	53.3	41.4	11.9
Queue Length 50th (ft)	92	105	0	60	254	162	123	174	97	89	11
Queue Length 95th (ft)	#193	167	36	123	360	#386	216	247	#169	146	99
Internal Link Dist (ft)		1092			186			1440		2310	
Turn Bay Length (ft)	150		150	170		170	230		245		100
Base Capacity (vph)	256	1535	752	240	1501	841	397	1077	483	794	572
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.27	0.17	0.38	0.56	0.74	0.48	0.49	0.60	0.35	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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11: Creston Road & Niblick Road/Sherwood Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	388	118	85	768	570	176	446	40	268	258	286
Future Volume (veh/h)	131	388	118	85	768	570	176	446	40	268	258	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.95	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	142	422	128	92	835	620	191	485	43	291	280	311
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	171	1482	652	116	1373	599	224	746	66	357	727	321
Arrive On Green	0.10	0.43	0.43	0.07	0.40	0.40	0.13	0.23	0.23	0.11	0.21	0.21
Sat Flow, veh/h	1739	3469	1527	1739	3469	1515	1739	3208	283	3374	3469	1534
Grp Volume(v), veh/h	142	422	128	92	835	620	191	261	267	291	280	311
Grp Sat Flow(s),veh/h/ln	1739	1735	1527	1739	1735	1515	1739	1735	1756	1687	1735	1534
Q Serve(g_s), s	8.6	8.5	5.6	5.6	20.6	42.5	11.5	14.6	14.8	9.1	7.5	21.6
Cycle Q Clear(g_c), s	8.6	8.5	5.6	5.6	20.6	42.5	11.5	14.6	14.8	9.1	7.5	21.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	171	1482	652	116	1373	599	224	403	408	357	727	321
V/C Ratio(X)	0.83	0.28	0.20	0.79	0.61	1.03	0.85	0.65	0.65	0.82	0.39	0.97
Avail Cap(c_a), veh/h	235	1482	652	220	1373	599	364	499	505	443	727	321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	20.1	19.2	49.4	25.8	32.4	45.8	37.2	37.3	47.0	36.5	42.1
Incr Delay (d2), s/veh	16.1	0.1	0.1	11.3	0.8	45.9	10.3	2.1	2.1	9.2	0.3	41.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	3.3	1.9	2.7	8.2	22.2	5.5	6.3	6.5	4.2	3.1	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	20.2	19.4	60.6	26.6	78.4	56.1	39.3	39.4	56.2	36.8	83.5
LnGrp LOS	E	C	B	E	C	F	E	D	D	E	D	F
Approach Vol, veh/h		692			1547			719			882	
Approach Delay, s/veh		28.9			49.4			43.8			59.7	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	29.5	11.7	50.4	18.3	27.0	15.1	47.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.1	30.9	13.6	43.4	22.5	22.5	14.5	42.5
Max Q Clear Time (g_c+I1), s	11.1	16.8	7.6	10.5	13.5	23.6	10.6	44.5
Green Ext Time (p_c), s	0.3	2.6	0.1	3.2	0.3	0.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.0
HCM 6th LOS	D

12: Creston Road & Stoney Creek Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	19.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	141	10	40	10	20	104	30	346	10	35	325	101
Future Vol, veh/h	141	10	40	10	20	104	30	346	10	35	325	101
Conflicting Peds, #/hr	1	0	0	0	0	1	6	0	2	2	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	153	11	43	11	22	113	33	376	11	38	353	110

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	951	890	359	961	995	385	469	0	0	389	0	0
Stage 1	435	435	-	450	450	-	-	-	-	-	-	-
Stage 2	516	455	-	511	545	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	240	282	685	236	245	663	1093	-	-	1170	-	-
Stage 1	600	580	-	589	572	-	-	-	-	-	-	-
Stage 2	542	569	-	545	519	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	175	262	681	203	228	661	1087	-	-	1168	-	-
Mov Cap-2 Maneuver	175	262	-	203	228	-	-	-	-	-	-	-
Stage 1	578	557	-	570	554	-	-	-	-	-	-	-
Stage 2	418	551	-	484	499	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	104	16.6	0.7	0.6
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1087	-	-	212	455	1168	-	-
HCM Lane V/C Ratio	0.03	-	-	0.979	0.32	0.033	-	-
HCM Control Delay (s)	8.4	-	-	104	16.6	8.2	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	8.6	1.4	0.1	-	-

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Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	10	10	223	10	181	0	10	189	121	206	169
Future Vol, veh/h	20	10	10	223	10	181	0	10	189	121	206	169
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	11	11	242	11	197	0	11	205	132	224	184
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.1	26	13.3	18.9
HCM LOS	B	D	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	5%	0%	50%	54%	71%	0%
Vol Thru, %	95%	0%	25%	2%	29%	89%
Vol Right, %	0%	100%	25%	44%	0%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	199	121	40	414	291	95
LT Vol	10	0	20	223	206	0
Through Vol	189	0	10	10	85	85
RT Vol	0	121	10	181	0	10
Lane Flow Rate	216	132	43	450	316	103
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.422	0.23	0.089	0.762	0.63	0.192
Departure Headway (Hd)	7.028	6.284	7.338	6.098	7.185	6.746
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	513	571	487	599	502	531
Service Time	4.779	4.034	5.404	4.098	4.934	4.495
HCM Lane V/C Ratio	0.421	0.231	0.088	0.751	0.629	0.194
HCM Control Delay	14.8	10.9	11.1	26	21.5	11.1
HCM Lane LOS	B	B	B	D	C	B
HCM 95th-tile Q	2.1	0.9	0.3	6.9	4.3	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	10
Future Vol, veh/h	10
Peak Hour Factor	0.92
Heavy Vehicles, %	2
Mvmt Flow	11
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

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Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	166	90	130	142	90	338
Future Vol, veh/h	166	90	130	142	90	338
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	180	98	141	154	98	367

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	457	98	465	0	-	0
Stage 1	98	-	-	-	-	-
Stage 2	359	-	-	-	-	-
Critical Hdwy	6.645	6.245	4.145	-	-	-
Critical Hdwy Stg 1	5.445	-	-	-	-	-
Critical Hdwy Stg 2	5.845	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	545	954	1088	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	474	954	1088	-	-	-
Mov Cap-2 Maneuver	474	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	4.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1088	-	474	954	-	-
HCM Lane V/C Ratio	0.13	-	0.381	0.103	-	-
HCM Control Delay (s)	8.8	-	17.2	9.2	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	1.8	0.3	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	3	187	10	0	0	0	0	386	20
Future Volume (Veh/h)	0	0	0	3	187	10	0	0	0	0	386	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	3	203	11	0	0	0	0	420	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	532	431	431	431	442	0	442			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	532	431	431	431	442	0	442			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	60	99	100			100		
cM capacity (veh/h)	313	517	624	535	510	1085	1118			1623		

Direction, Lane #	WB 1	SB 1
Volume Total	217	442
Volume Left	3	0
Volume Right	11	22
cSH	531	1700
Volume to Capacity	0.41	0.26
Queue Length 95th (ft)	49	0
Control Delay (s)	16.4	0.0
Lane LOS	C	
Approach Delay (s)	16.4	0.0
Approach LOS	C	

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	25	365	1135	423	563	126	315	573	413	329
v/c Ratio	0.11	0.77	0.78	0.53	0.51	0.66	0.68	0.36	0.75	0.51
Control Delay	57.7	60.9	38.3	32.7	4.7	76.6	65.6	7.0	64.3	47.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.7	60.9	38.3	32.7	4.7	76.6	65.6	7.0	64.3	47.4
Queue Length 50th (ft)	21	147	452	283	46	114	150	58	191	128
Queue Length 95th (ft)	53	214	584	419	122	189	207	84	259	185
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	262	546	1642	891	1142	254	600	1752	664	768
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.67	0.69	0.47	0.49	0.50	0.53	0.33	0.62	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	216	120	1044	389	518	116	290	527	380	210	93
Future Volume (veh/h)	23	216	120	1044	389	518	116	290	527	380	210	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	235	130	1135	423	563	126	315	573	413	228	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	234	293	157	1393	754	856	154	539	1548	491	480	206
Arrive On Green	0.13	0.13	0.13	0.40	0.40	0.40	0.09	0.15	0.15	0.14	0.20	0.20
Sat Flow, veh/h	1781	2238	1194	3456	1870	1564	1781	3554	2790	3456	2420	1037
Grp Volume(v), veh/h	25	185	180	1135	423	563	126	315	573	413	165	164
Grp Sat Flow(s),veh/h/ln	1781	1777	1655	1728	1870	1564	1781	1777	1395	1728	1777	1681
Q Serve(g_s), s	1.5	12.0	12.7	34.8	20.8	30.5	8.3	9.8	13.7	13.9	9.8	10.3
Cycle Q Clear(g_c), s	1.5	12.0	12.7	34.8	20.8	30.5	8.3	9.8	13.7	13.9	9.8	10.3
Prop In Lane	1.00		0.72	1.00		1.00	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	234	233	217	1393	754	856	154	539	1548	491	352	333
V/C Ratio(X)	0.11	0.79	0.83	0.81	0.56	0.66	0.82	0.58	0.37	0.84	0.47	0.49
Avail Cap(c_a), veh/h	290	289	269	1813	981	1046	281	661	1644	733	427	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	50.3	50.5	31.6	27.5	19.3	53.6	47.1	14.9	49.9	42.3	42.5
Incr Delay (d2), s/veh	0.2	11.5	16.1	2.3	0.7	1.1	10.2	1.0	0.1	5.7	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.1	6.3	14.3	9.1	10.6	4.1	4.3	8.5	6.4	4.4	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	61.7	66.7	33.9	28.1	20.4	63.7	48.1	15.0	55.5	43.3	43.6
LnGrp LOS	D	E	E	C	C	C	E	D	B	E	D	D
Approach Vol, veh/h		390			2121			1014			742	
Approach Delay, s/veh		63.0			29.2			31.4			50.2	
Approach LOS		E			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.7	23.9		20.2	16.1	29.5		53.5				
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4				
Max Green Setting (Gmax), s	* 25	22.2		19.4	18.8	* 29		62.6				
Max Q Clear Time (g_c+I1), s	15.9	15.7		14.7	10.3	12.3		36.8				
Green Ext Time (p_c), s	1.1	2.4		1.0	0.2	1.7		11.3				

Intersection Summary												
HCM 6th Ctrl Delay			36.4									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	120	802	253	136	1458	599	350	304	493
v/c Ratio	0.79	0.61	0.34	0.73	0.98	0.91	0.58	0.89	0.76
Control Delay	87.5	32.3	4.7	71.8	50.4	64.8	44.7	73.3	43.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.5	32.3	4.7	71.8	50.4	64.8	44.7	73.3	43.8
Queue Length 50th (ft)	44	247	0	95	522	219	117	214	147
Queue Length 95th (ft)	#103	346	56	#195	#771	#354	166	#400	206
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	152	1309	745	203	1491	656	815	351	864
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.61	0.34	0.67	0.98	0.91	0.43	0.87	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	738	233	125	1073	269	551	268	54	280	254	200
Future Volume (veh/h)	110	738	233	125	1073	269	551	268	54	280	254	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	802	253	136	1166	292	599	291	59	304	276	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	1349	602	164	1205	298	651	541	108	332	349	265
Arrive On Green	0.04	0.38	0.38	0.09	0.43	0.43	0.19	0.18	0.18	0.19	0.18	0.18
Sat Flow, veh/h	3456	3554	1585	1781	2818	698	3456	2947	589	1781	1921	1463
Grp Volume(v), veh/h	120	802	253	136	730	728	599	174	176	304	255	238
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1739	1728	1777	1759	1781	1777	1607
Q Serve(g_s), s	3.9	20.5	7.6	8.5	45.3	46.7	19.3	10.0	10.3	19.0	15.5	16.2
Cycle Q Clear(g_c), s	3.9	20.5	7.6	8.5	45.3	46.7	19.3	10.0	10.3	19.0	15.5	16.2
Prop In Lane	1.00		1.00	1.00		0.40	1.00		0.33	1.00		0.91
Lane Grp Cap(c), veh/h	152	1349	602	164	760	743	651	326	323	332	322	292
V/C Ratio(X)	0.79	0.59	0.42	0.83	0.96	0.98	0.92	0.53	0.55	0.92	0.79	0.82
Avail Cap(c_a), veh/h	152	1349	602	203	760	743	655	410	406	350	423	382
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.7	28.2	8.4	50.6	31.6	32.0	45.2	41.9	42.0	45.3	44.4	44.6
Incr Delay (d2), s/veh	23.5	0.7	0.5	20.5	23.6	27.7	18.3	1.4	1.4	27.3	7.3	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	8.5	4.5	4.7	23.2	24.1	9.7	4.4	4.5	10.7	7.3	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.2	28.9	8.9	71.1	55.2	59.6	63.5	43.3	43.5	72.6	51.7	54.7
LnGrp LOS	E	C	A	E	E	E	E	D	D	E	D	D
Approach Vol, veh/h		1175			1594			949			797	
Approach Delay, s/veh		29.5			58.6			56.1			60.6	
Approach LOS		C			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.9	47.6	25.9	25.1	9.5	53.0	25.6	25.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.9	40.6	21.5	27.0	5.0	48.5	22.3	26.2
Max Q Clear Time (g_c+I1), s	10.5	22.5	21.3	18.2	5.9	48.7	21.0	12.3
Green Ext Time (p_c), s	0.1	5.9	0.1	1.9	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	50.8
HCM 6th LOS	D

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Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	94	10	10	807	334	48
Future Vol, veh/h	94	10	10	807	334	48
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	102	11	11	877	363	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1288	390	415	0	-	0
Stage 1	389	-	-	-	-	-
Stage 2	899	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	180	656	1139	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	396	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	177	655	1139	-	-	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	396	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	48.5	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1139	-	190	-	-
HCM Lane V/C Ratio	0.01	-	0.595	-	-
HCM Control Delay (s)	8.2	0	48.5	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	3.3	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	10	10	677	314	20
Future Vol, veh/h	60	10	10	677	314	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	11	11	736	341	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1110	352	363	0	-	0
Stage 1	352	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	232	692	1196	-	-	-
Stage 1	712	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	228	692	1196	-	-	-
Mov Cap-2 Maneuver	408	-	-	-	-	-
Stage 1	701	-	-	-	-	-
Stage 2	463	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1196	-	433	-	-
HCM Lane V/C Ratio	0.009	-	0.176	-	-
HCM Control Delay (s)	8	0	15.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

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Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	665	126	352
Demand Flow Rate, veh/h	679	128	359
Vehicles Circulating, veh/h	117	293	28
Vehicles Exiting, veh/h	304	94	768
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	9.4	4.7	5.1
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	679	128	359
Cap Entry Lane, veh/h	1225	1023	1341
Entry HV Adj Factor	0.979	0.982	0.980
Flow Entry, veh/h	665	126	352
Cap Entry, veh/h	1199	1005	1314
V/C Ratio	0.554	0.125	0.268
Control Delay, s/veh	9.4	4.7	5.1
LOS	A	A	A
95th %tile Queue, veh	4	0	1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	274	592	10	10	10
Future Vol, veh/h	10	274	592	10	10	10
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	298	643	11	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	660	0	-	0	975	655
Stage 1	-	-	-	-	655	-
Stage 2	-	-	-	-	320	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	928	-	-	-	279	466
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	736	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	923	-	-	-	272	463
Mov Cap-2 Maneuver	-	-	-	-	272	-
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	732	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	923	-	-	-	343
HCM Lane V/C Ratio	0.012	-	-	-	0.063
HCM Control Delay (s)	8.9	-	-	-	16.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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Intersection												
Int Delay, s/veh	2.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	254	10	10	542	28	10	0	10	43	0	50
Future Vol, veh/h	20	254	10	10	542	28	10	0	10	43	0	50
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	276	11	11	589	30	11	0	11	47	0	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	626	0	0	287	0	0	979	974	282	964	964	611
Stage 1	-	-	-	-	-	-	326	326	-	633	633	-
Stage 2	-	-	-	-	-	-	653	648	-	331	331	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	956	-	-	1275	-	-	229	252	757	235	255	494
Stage 1	-	-	-	-	-	-	687	648	-	468	473	-
Stage 2	-	-	-	-	-	-	456	466	-	682	645	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	950	-	-	1275	-	-	199	242	757	224	245	491
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	242	-	224	245	-
Stage 1	-	-	-	-	-	-	671	633	-	454	465	-
Stage 2	-	-	-	-	-	-	402	459	-	657	630	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	17.3	21.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	315	950	-	-	1275	-	-	317
HCM Lane V/C Ratio	0.069	0.023	-	-	0.009	-	-	0.319
HCM Control Delay (s)	17.3	8.9	-	-	7.8	-	-	21.6
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	1.3

Intersection						
Int Delay, s/veh	0.5					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	293	570	10	10	10
Future Vol, veh/h	10	293	570	10	10	10
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	318	620	11	11	11

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	640	0	-	0	975	635
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	340	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	944	-	-	-	279	478
Stage 1	-	-	-	-	528	-
Stage 2	-	-	-	-	721	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	936	-	-	-	271	474
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	715	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	936	-	-	-	345
HCM Lane V/C Ratio	0.012	-	-	-	0.063
HCM Control Delay (s)	8.9	-	-	-	16.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	233	430	58	24	150
Future Vol, veh/h	70	233	430	58	24	150
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	76	253	467	63	26	163

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	538	0	-	0	912	507
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	405	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1035	-	-	-	305	568
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1027	-	-	-	278	564
Mov Cap-2 Maneuver	-	-	-	-	278	-
Stage 1	-	-	-	-	558	-
Stage 2	-	-	-	-	671	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1027	-	-	-	494
HCM Lane V/C Ratio	0.074	-	-	-	0.383
HCM Control Delay (s)	8.8	-	-	-	16.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.8

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	137	0	0	254	10	0	0	0	0	0	170
Future Vol, veh/h	50	137	0	0	254	10	0	0	0	0	0	170
Conflicting Peds, #/hr	8	0	0	0	0	8	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	54	149	0	0	276	11	0	0	0	0	0	185

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	295	0	0	149	0	0	631	552	149	547	547	290
Stage 1	-	-	-	-	-	-	257	257	-	290	290	-
Stage 2	-	-	-	-	-	-	374	295	-	257	257	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1272	-	-	1439	-	-	395	443	900	449	446	752
Stage 1	-	-	-	-	-	-	750	697	-	720	674	-
Stage 2	-	-	-	-	-	-	649	671	-	750	697	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1262	-	-	1439	-	-	286	419	900	430	421	746
Mov Cap-2 Maneuver	-	-	-	-	-	-	286	419	-	430	421	-
Stage 1	-	-	-	-	-	-	715	664	-	681	669	-
Stage 2	-	-	-	-	-	-	488	666	-	715	664	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0	0	11.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1262	-	-	1439	-	-	746
HCM Lane V/C Ratio	-	0.043	-	-	-	-	-	0.248
HCM Control Delay (s)	0	8	0	-	0	-	-	11.4
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	1

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	334	1626	1622	159	153	302
v/c Ratio	0.64	0.49	0.89	0.18	0.60	0.57
Control Delay	56.3	0.5	31.5	4.5	62.4	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.3	0.5	31.5	4.5	62.4	36.4
Queue Length 50th (ft)	125	0	547	11	111	175
Queue Length 95th (ft)	224	0	854	50	228	336
Internal Link Dist (ft)		1017	748		574	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	850	3312	2545	1168	438	844
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.49	0.64	0.14	0.35	0.36

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	331	1610	1606	157	151	299
Future Volume (vph)	331	1610	1606	157	151	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3213	3312	3312	1482	1656	1482
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3213	3312	3312	1482	1656	1482
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	334	1626	1622	159	153	302
RTOR Reduction (vph)	0	0	0	57	0	12
Lane Group Flow (vph)	334	1626	1622	102	153	290
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	19.8	119.6	66.3	66.3	18.5	42.3
Effective Green, g (s)	19.8	119.6	66.3	66.3	18.5	42.3
Actuated g/C Ratio	0.17	1.00	0.55	0.55	0.15	0.35
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	531	3312	1836	821	256	524
v/s Ratio Prot	c0.10	0.49	c0.49		0.09	c0.20
v/s Ratio Perm				0.07		
v/c Ratio	0.63	0.49	0.88	0.12	0.60	0.55
Uniform Delay, d1	46.5	0.0	23.3	12.8	47.1	31.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.5	5.6	0.1	3.9	1.3
Delay (s)	48.8	0.5	28.9	12.9	51.0	32.3
Level of Service	D	A	C	B	D	C
Approach Delay (s)		8.8	27.4		38.6	
Approach LOS		A	C		D	

Intersection Summary

HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	119.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	392	1056	368	399	1134	216	363	489	265	345	320
v/c Ratio	0.97	0.87	0.48	0.89	0.90	0.31	0.83	0.60	0.71	0.86	0.63
Control Delay	100.7	52.3	5.0	85.9	54.1	4.8	80.6	51.8	76.4	76.9	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.7	52.3	5.0	85.9	54.1	4.8	80.6	51.8	76.4	76.9	23.6
Queue Length 50th (ft)	201	503	0	201	546	0	181	213	130	325	91
Queue Length 95th (ft)	#372	618	67	#373	679	54	#311	311	201	#512	217
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	406	1630	909	447	1630	830	451	934	451	502	580
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.65	0.40	0.89	0.70	0.26	0.80	0.52	0.59	0.69	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	1024	357	387	1100	210	352	364	111	257	335	310
Future Volume (veh/h)	380	1024	357	387	1100	210	352	364	111	257	335	310
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	392	1056	368	399	1134	216	363	375	114	265	345	320
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	405	1229	548	405	1306	582	409	673	202	316	417	354
Arrive On Green	0.12	0.36	0.36	0.12	0.38	0.38	0.12	0.26	0.26	0.10	0.23	0.23
Sat Flow, veh/h	3319	3413	1521	3319	3413	1521	3319	2585	776	3319	1796	1522
Grp Volume(v), veh/h	392	1056	368	399	1134	216	363	246	243	265	345	320
Grp Sat Flow(s),veh/h/ln	1659	1706	1521	1659	1706	1521	1659	1706	1655	1659	1796	1522
Q Serve(g_s), s	17.3	42.3	20.7	17.7	45.3	15.1	15.9	18.4	18.8	11.6	26.9	30.1
Cycle Q Clear(g_c), s	17.3	42.3	20.7	17.7	45.3	15.1	15.9	18.4	18.8	11.6	26.9	30.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	405	1229	548	405	1306	582	409	444	431	316	417	354
V/C Ratio(X)	0.97	0.86	0.67	0.98	0.87	0.37	0.89	0.55	0.56	0.84	0.83	0.90
Avail Cap(c_a), veh/h	405	1621	722	405	1621	722	450	475	460	450	500	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.4	43.7	18.8	64.6	42.1	32.8	63.6	47.1	47.3	65.6	53.8	55.0
Incr Delay (d2), s/veh	36.1	3.8	1.5	40.4	4.5	0.4	17.9	1.2	1.4	9.3	9.4	20.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	17.6	7.4	9.5	18.9	5.6	7.6	7.9	7.8	5.3	13.1	13.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.5	47.5	20.4	105.0	46.6	33.1	81.5	48.3	48.7	74.9	63.2	75.3
LnGrp LOS	F	D	C	F	D	C	F	D	D	E	E	E
Approach Vol, veh/h		1816			1749			852			930	
Approach Delay, s/veh		53.5			58.2			62.6			70.7	
Approach LOS		D			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.3	60.4	22.2	39.6	22.0	63.7	18.0	43.7
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	19.7	44.3	17.9	32.1	19.3	47.3	13.6	20.8
Green Ext Time (p_c), s	0.0	8.8	0.3	2.1	0.0	8.4	0.5	2.7

Intersection Summary	
HCM 6th Ctrl Delay	59.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1551	1597	20	0	100
Future Vol, veh/h	0	1551	1597	20	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	165	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	1650	1699	21	0	106

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	850
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.4
Pot Cap-1 Maneuver	0	-	-	-	0	288
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	288
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	288
HCM Lane V/C Ratio	-	-	-	0.369
HCM Control Delay (s)	-	-	-	24.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.6

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑↳			↲	↱		↔	
Traffic Vol, veh/h	0	1518	33	3	1557	0	50	0	6	0	0	10
Future Vol, veh/h	0	1518	33	3	1557	0	50	0	6	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	1565	34	3	1605	0	52	0	6	0	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1605	0	0	1599	0	0	2374	3176	783	2394	3210	803
Stage 1	-	-	-	-	-	-	1565	1565	-	1611	1611	-
Stage 2	-	-	-	-	-	-	809	1611	-	783	1599	-
Critical Hdwy	4.34	-	-	4.34	-	-	7.74	6.74	7.14	7.74	6.74	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Follow-up Hdwy	2.32	-	-	2.32	-	-	3.62	4.12	3.42	3.62	4.12	3.42
Pot Cap-1 Maneuver	360	-	-	362	-	-	~ 16	9	316	15	8	306
Stage 1	-	-	-	-	-	-	105	155	-	98	147	-
Stage 2	-	-	-	-	-	-	320	147	-	332	149	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	360	-	-	362	-	-	~ 15	9	316	15	8	306
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	98	-	89	95	-
Stage 1	-	-	-	-	-	-	105	155	-	98	146	-
Stage 2	-	-	-	-	-	-	307	146	-	326	149	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	75.3	17.2
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	94	316	360	-	-	362	-	-	306
HCM Lane V/C Ratio	0.548	0.02	-	-	-	0.009	-	-	0.034
HCM Control Delay (s)	82.3	16.6	0	-	-	15	-	-	17.2
HCM Lane LOS	F	C	A	-	-	C	-	-	C
HCM 95th %tile Q(veh)	2.5	0.1	0	-	-	0	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Intersection Delay, s/veh	31.7
Intersection LOS	D

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	2	2	2
Adj Approach Flow, veh/h	860	834	883	1070
Demand Flow Rate, veh/h	869	842	892	1080
Vehicles Circulating, veh/h	1096	839	815	714
Vehicles Exiting, veh/h	698	868	987	967
Ped Vol Crossing Leg, #/h	1	1	1	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	19.4	18.7	22.4	59.4
Approach LOS	C	C	C	F

Lane	Left	Right	Bypass	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	R	L	TR	LT	R	LT	R
Assumed Moves	LT	TR	R	L	TR	LT	R	LT	R
RT Channelized			Free						
Lane Util	0.470	0.530		0.406	0.594	0.575	0.425	0.698	0.302
Follow-Up Headway, s	2.535	2.535		2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.544	4.544	163	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	332	374	1919	342	500	513	379	754	326
Cap Entry Lane, veh/h	524	524	0.990	624	696	638	710	700	774
Entry HV Adj Factor	0.990	0.991	161	0.991	0.990	0.989	0.989	0.990	0.991
Flow Entry, veh/h	329	371	1900	339	495	508	375	747	323
Cap Entry, veh/h	518	519	0.085	618	689	631	703	693	767
V/C Ratio	0.634	0.714	0.0	0.548	0.719	0.804	0.534	1.077	0.421
Control Delay, s/veh	21.4	26.0	A	15.4	21.0	29.0	13.5	80.7	10.2
LOS	C	D	0	C	C	D	B	F	B
95th %tile Queue, veh	4	6		3	6	8	3	20	2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	525	309	494	743	7	54	319	376	376	117
v/c Ratio	0.22	0.72	0.78	0.59	0.67	0.04	0.30	0.72	0.78	0.77	0.22
Control Delay	58.0	44.3	52.4	27.0	5.4	45.4	49.8	15.4	46.4	45.4	4.9
Queue Delay	0.0	0.0	0.1	3.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	44.3	52.5	30.0	6.1	45.4	49.8	15.4	46.4	45.4	4.9
Queue Length 50th (ft)	14	170	192	222	0	4	35	0	234	233	0
Queue Length 95th (ft)	44	263	#358	445	90	19	76	85	#436	#430	34
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	94	902	504	927	1144	344	362	565	605	615	643
Starvation Cap Reductn	0	0	8	321	148	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.58	0.62	0.82	0.75	0.02	0.15	0.56	0.62	0.61	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	462	32	290	464	698	7	51	300	609	98	110
Future Volume (veh/h)	20	462	32	290	464	698	7	51	300	609	98	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	21	491	34	309	494	743	7	54	319	722	0	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	39	834	58	343	782	647	297	312	264	839	0	372
Arrive On Green	0.02	0.25	0.25	0.19	0.41	0.41	0.17	0.17	0.17	0.23	0.00	0.23
Sat Flow, veh/h	1795	3397	235	1795	1885	1559	1795	1885	1598	3591	0	1591
Grp Volume(v), veh/h	21	258	267	309	494	743	7	54	319	722	0	117
Grp Sat Flow(s),veh/h/ln	1795	1791	1841	1795	1885	1559	1795	1885	1598	1795	0	1591
Q Serve(g_s), s	1.3	13.9	14.0	18.4	22.7	45.4	0.4	2.7	18.1	21.1	0.0	6.7
Cycle Q Clear(g_c), s	1.3	13.9	14.0	18.4	22.7	45.4	0.4	2.7	18.1	21.1	0.0	6.7
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	39	440	452	343	782	647	297	312	264	839	0	372
V/C Ratio(X)	0.54	0.59	0.59	0.90	0.63	1.15	0.02	0.17	1.21	0.86	0.00	0.31
Avail Cap(c_a), veh/h	82	440	452	435	782	647	297	312	264	1099	0	487
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.0	36.4	36.4	43.3	25.4	32.0	38.3	39.2	45.7	40.2	0.0	34.7
Incr Delay (d2), s/veh	11.3	2.0	2.0	18.5	1.7	84.0	0.0	0.3	123.2	5.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.4	6.6	9.9	10.3	31.6	0.2	1.3	16.1	9.8	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	38.4	38.5	61.7	27.0	116.0	38.3	39.5	168.9	45.8	0.0	35.2
LnGrp LOS	E	D	D	E	C	F	D	D	F	D	A	D
Approach Vol, veh/h		546			1546			380			839	
Approach Delay, s/veh		39.4			76.7			148.1			44.3	
Approach LOS		D			E			F			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.4	31.4		30.1	6.9	49.9		22.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	26.5	23.9		33.5	5.0	45.4		18.1
Max Q Clear Time (g_c+I1), s	20.4	16.0		23.1	3.3	47.4		20.1
Green Ext Time (p_c), s	0.5	2.0		2.5	0.0	0.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay			70.6
HCM 6th LOS			E

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	94	1382	30	1249	366	280	32	508	9	32
v/c Ratio	0.53	0.75	0.27	0.76	0.43	0.63	0.05	0.85	0.02	0.05
Control Delay	56.2	22.1	54.2	25.7	8.8	35.7	23.9	37.3	23.5	0.2
Queue Delay	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.2	23.3	54.2	25.7	8.8	35.7	23.9	37.3	23.5	0.2
Queue Length 50th (ft)	60	381	20	355	51	155	14	237	4	0
Queue Length 95th (ft)	#122	491	51	457	126	246	35	#415	15	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	205	2182	110	2013	983	595	808	761	595	761
Starvation Cap Reductn	0	533	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.84	0.27	0.62	0.37	0.47	0.04	0.67	0.02	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1245	40	28	1162	340	260	30	472	8	0	30
Future Volume (veh/h)	87	1245	40	28	1162	340	260	30	472	8	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	94	1339	43	30	1249	0	280	32	508	9	0	32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	121	1655	53	53	1540		547	656	556	376	0	556
Arrive On Green	0.07	0.47	0.47	0.03	0.43	0.00	0.35	0.35	0.35	0.35	0.00	0.35
Sat Flow, veh/h	1795	3539	114	1795	3582	1598	1388	1885	1598	872	0	1598
Grp Volume(v), veh/h	94	677	705	30	1249	0	280	32	508	9	0	32
Grp Sat Flow(s),veh/h/ln	1795	1791	1861	1795	1791	1598	1388	1885	1598	872	0	1598
Q Serve(g_s), s	4.5	28.3	28.4	1.4	26.7	0.0	14.7	1.0	26.5	0.6	0.0	1.2
Cycle Q Clear(g_c), s	4.5	28.3	28.4	1.4	26.7	0.0	15.8	1.0	26.5	1.6	0.0	1.2
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	837	870	53	1540		547	656	556	376	0	556
V/C Ratio(X)	0.78	0.81	0.81	0.56	0.81		0.51	0.05	0.91	0.02	0.00	0.06
Avail Cap(c_a), veh/h	195	1044	1085	105	1907		628	766	649	427	0	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.1	19.9	19.9	41.8	21.8	0.0	24.2	18.9	27.2	19.4	0.0	18.9
Incr Delay (d2), s/veh	10.2	3.9	3.8	9.1	2.2	0.0	0.7	0.0	15.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	11.8	12.3	0.8	11.0	0.0	4.7	0.4	11.9	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	23.8	23.7	50.9	24.0	0.0	24.9	18.9	43.1	19.4	0.0	19.0
LnGrp LOS	D	C	C	D	C		C	B	D	B	A	B
Approach Vol, veh/h		1476			1279	A		820			41	
Approach Delay, s/veh		25.5			24.7			36.0			19.1	
Approach LOS		C			C			D			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	45.3		34.9	10.4	42.0		34.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.1	50.9		35.5	9.5	46.5		35.5
Max Q Clear Time (g_c+I1), s	3.4	30.4		3.6	6.5	28.7		28.5
Green Ext Time (p_c), s	0.0	10.2		0.2	0.0	8.9		1.9

Intersection Summary			
HCM 6th Ctrl Delay			27.5
HCM 6th LOS			C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	508	1307	105	955	286	251	74	142	821
v/c Ratio	0.83	0.87	0.72	0.81	0.73	0.33	0.17	0.72	0.93dr
Control Delay	58.4	34.5	80.2	39.8	61.3	40.2	0.8	70.6	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	34.5	80.2	39.8	61.3	40.2	0.8	70.6	42.7
Queue Length 50th (ft)	197	438	81	340	112	87	0	107	221
Queue Length 95th (ft)	#273	539	#171	423	#161	127	1	#194	#337
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	670	1674	152	1311	421	809	467	223	960
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.78	0.69	0.73	0.68	0.31	0.16	0.64	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	483	849	392	100	758	149	272	238	70	135	280	500
Future Volume (veh/h)	483	849	392	100	758	149	272	238	70	135	280	500
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	508	894	0	105	798	157	286	251	74	142	295	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	636	1626		135	1031	203	387	489	218	180	450	
Arrive On Green	0.18	0.45	0.00	0.08	0.35	0.35	0.11	0.14	0.14	0.10	0.13	0.00
Sat Flow, veh/h	3483	3676	0	1795	2976	585	3483	3582	1598	1795	3676	0
Grp Volume(v), veh/h	508	894	0	105	480	475	286	251	74	142	295	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1770	1742	1791	1598	1795	1791	0
Q Serve(g_s), s	10.7	14.0	0.0	4.4	18.4	18.4	6.1	5.0	3.2	5.9	6.0	0.0
Cycle Q Clear(g_c), s	10.7	14.0	0.0	4.4	18.4	18.4	6.1	5.0	3.2	5.9	6.0	0.0
Prop In Lane	1.00		0.00	1.00		0.33	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	636	1626		135	621	613	387	489	218	180	450	
V/C Ratio(X)	0.80	0.55		0.78	0.77	0.77	0.74	0.51	0.34	0.79	0.66	
Avail Cap(c_a), veh/h	973	2491		222	966	955	611	1169	521	324	1187	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.1	15.3	0.0	34.9	22.4	22.4	33.1	30.8	30.1	33.8	32.0	0.0
Incr Delay (d2), s/veh	2.7	0.3	0.0	9.2	2.1	2.1	2.8	0.8	0.9	7.5	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	5.3	0.0	2.2	7.5	7.4	2.6	2.1	1.2	2.8	2.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.8	15.6	0.0	44.1	24.5	24.6	35.9	31.7	31.0	41.3	33.7	0.0
LnGrp LOS	C	B		D	C	C	D	C	C	D	C	
Approach Vol, veh/h		1402	A		1060			611			437	A
Approach Delay, s/veh		21.8			26.5			33.6			36.2	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	39.4	13.1	14.2	18.6	31.2	12.2	15.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	53.5	13.5	25.5	21.5	41.5	13.9	25.1
Max Q Clear Time (g_c+I1), s	6.4	16.0	8.1	8.0	12.7	20.4	7.9	7.0
Green Ext Time (p_c), s	0.1	7.7	0.5	1.5	1.3	6.2	0.2	1.5

Intersection Summary	
HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	92	533	1187	595	91
v/c Ratio	0.53	0.26	0.78	0.69	0.19
Control Delay	53.2	10.8	21.8	34.8	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	10.8	21.8	34.8	8.9
Queue Length 50th (ft)	42	53	184	126	0
Queue Length 95th (ft)	#168	174	#483	#323	45
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	175	2597	1969	1083	562
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.21	0.60	0.55	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	517	581	570	577	88
Future Volume (vph)	89	517	581	570	577	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3282		3467	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3282		3467	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	92	533	599	588	595	91
RTOR Reduction (vph)	0	0	138	0	0	69
Lane Group Flow (vph)	92	533	1049	0	595	22
Confl. Peds. (#/hr)				4		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	8.0	47.0	34.5		20.3	20.3
Effective Green, g (s)	8.0	47.0	34.5		20.3	20.3
Actuated g/C Ratio	0.09	0.56	0.41		0.24	0.24
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	169	1990	1341		833	384
v/s Ratio Prot	c0.05	0.15	c0.32			
v/s Ratio Perm					c0.17	0.01
v/c Ratio	0.54	0.27	0.78		0.71	0.06
Uniform Delay, d1	36.5	9.7	21.7		29.4	24.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.6	0.1	3.1		2.9	0.1
Delay (s)	40.0	9.8	24.7		32.3	24.7
Level of Service	D	A	C		C	C
Approach Delay (s)		14.3	24.7		31.3	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	84.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	208	822	266	148	563	474	176	395	405	443	146
v/c Ratio	0.68	0.76	0.44	0.60	0.58	0.62	0.62	0.62	0.67	0.63	0.36
Control Delay	52.3	36.5	12.5	53.3	34.4	7.1	50.6	40.1	45.0	41.4	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	36.5	12.5	53.3	34.4	7.1	50.6	40.1	45.0	41.4	13.2
Queue Length 50th (ft)	122	236	37	87	156	0	103	114	122	134	13
Queue Length 95th (ft)	236	384	125	179	262	89	199	185	205	217	72
Internal Link Dist (ft)		1092			186			1440		2310	
Turn Bay Length (ft)	150		150	170		170	230		245		100
Base Capacity (vph)	415	1369	714	337	1215	840	434	1021	823	1022	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.60	0.37	0.44	0.46	0.56	0.41	0.39	0.49	0.43	0.27

Intersection Summary

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11: Creston Road & Niblick Road/Sherwood Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	789	255	142	540	455	169	309	70	389	425	140
Future Volume (veh/h)	200	789	255	142	540	455	169	309	70	389	425	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	208	822	266	148	562	474	176	322	73	405	443	146
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	1332	585	185	1203	526	217	473	106	513	680	301
Arrive On Green	0.14	0.37	0.37	0.10	0.34	0.34	0.12	0.16	0.16	0.15	0.19	0.19
Sat Flow, veh/h	1781	3554	1561	1781	3554	1554	1781	2874	642	3456	3554	1575
Grp Volume(v), veh/h	208	822	266	148	562	474	176	197	198	405	443	146
Grp Sat Flow(s),veh/h/ln	1781	1777	1561	1781	1777	1554	1781	1777	1739	1728	1777	1575
Q Serve(g_s), s	9.8	16.3	11.1	7.0	10.7	25.1	8.3	9.0	9.3	9.8	10.0	7.1
Cycle Q Clear(g_c), s	9.8	16.3	11.1	7.0	10.7	25.1	8.3	9.0	9.3	9.8	10.0	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	250	1332	585	185	1203	526	217	292	286	513	680	301
V/C Ratio(X)	0.83	0.62	0.45	0.80	0.47	0.90	0.81	0.67	0.69	0.79	0.65	0.48
Avail Cap(c_a), veh/h	443	1460	641	361	1295	566	464	555	543	880	1090	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	22.0	20.4	37.9	22.5	27.2	37.0	33.9	34.0	35.5	32.3	31.1
Incr Delay (d2), s/veh	7.1	0.7	0.6	7.8	0.3	16.8	7.1	2.7	3.0	2.8	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	6.4	3.8	3.3	4.2	11.0	3.9	4.0	4.0	4.2	4.2	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	22.6	20.9	45.6	22.7	44.0	44.1	36.6	37.0	38.2	33.4	32.4
LnGrp LOS	D	C	C	D	C	D	D	D	D	D	C	C
Approach Vol, veh/h		1296			1184			571			994	
Approach Delay, s/veh		25.6			34.1			39.1			35.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.3	18.7	13.5	36.9	15.0	21.0	16.6	33.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.0	27.0	17.5	35.5	22.5	26.5	21.5	31.5
Max Q Clear Time (g_c+I1), s	11.8	11.3	9.0	18.3	10.3	12.0	11.8	27.1
Green Ext Time (p_c), s	1.1	2.0	0.2	6.0	0.4	2.9	0.4	2.2

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

12: Creston Road & Stoney Creek Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	135	10	10	10	10	42	20	298	10	53	379	166
Future Vol, veh/h	135	10	10	10	10	42	20	298	10	53	379	166
Conflicting Peds, #/hr	4	0	0	0	0	4	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	136	10	10	10	10	42	20	301	10	54	383	168

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	872	847	388	931	1010	310	556	0	0	311	0	0
Stage 1	496	496	-	346	346	-	-	-	-	-	-	-
Stage 2	376	351	-	585	664	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	272	300	662	248	241	732	1020	-	-	1255	-	-
Stage 1	558	547	-	672	637	-	-	-	-	-	-	-
Stage 2	647	634	-	499	460	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	234	280	659	226	225	729	1015	-	-	1255	-	-
Mov Cap-2 Maneuver	234	280	-	226	225	-	-	-	-	-	-	-
Stage 1	545	521	-	659	624	-	-	-	-	-	-	-
Stage 2	585	621	-	461	438	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	41.8	15	0.5	0.7
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1015	-	-	247	424	1255	-	-
HCM Lane V/C Ratio	0.02	-	-	0.634	0.148	0.043	-	-
HCM Control Delay (s)	8.6	-	-	41.8	15	8	-	-
HCM Lane LOS	A	-	-	E	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.9	0.5	0.1	-	-

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Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	10	10	10	127	10	93	0	10	225	199	174	196
Future Vol, veh/h	10	10	10	127	10	93	0	10	225	199	174	196
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	2	1	1	1	1	1
Mvmt Flow	11	11	11	137	11	100	0	11	242	214	187	211
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	10	13.1	11.9	14
HCM LOS	A	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	0%	33%	55%	64%	0%
Vol Thru, %	96%	0%	33%	4%	36%	83%
Vol Right, %	0%	100%	33%	40%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	235	199	30	230	272	118
LT Vol	10	0	10	127	174	0
Through Vol	225	0	10	10	98	98
RT Vol	0	199	10	93	0	20
Lane Flow Rate	253	214	32	247	292	127
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.423	0.314	0.058	0.408	0.515	0.208
Departure Headway (Hd)	6.022	5.29	6.522	5.938	6.335	5.89
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	596	678	546	606	567	608
Service Time	3.77	3.038	4.599	3.989	4.083	3.637
HCM Lane V/C Ratio	0.424	0.316	0.059	0.408	0.515	0.209
HCM Control Delay	13.1	10.5	10	13.1	15.7	10.2
HCM Lane LOS	B	B	A	B	C	B
HCM 95th-tile Q	2.1	1.3	0.2	2	2.9	0.8

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	20
Future Vol, veh/h	20
Peak Hour Factor	0.93
Heavy Vehicles, %	1
Mvmt Flow	22
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

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Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	259	150	80	175	136	197
Future Vol, veh/h	259	150	80	175	136	197
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	267	155	82	180	140	203

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	394	140	343	0	-	0
Stage 1	140	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.115	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	599	910	1221	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	559	910	1221	-	-	-
Mov Cap-2 Maneuver	559	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	768	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.5	2.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1221	-	559	910	-	-
HCM Lane V/C Ratio	0.068	-	0.478	0.17	-	-
HCM Control Delay (s)	8.2	-	17.2	9.8	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	2.6	0.6	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	304	20	0	0	0	0	400	53
Future Volume (Veh/h)	0	0	0	0	304	20	0	0	0	0	400	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	330	22	0	0	0	0	435	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	629	464	464	464	493	0	493			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	629	464	464	464	493	0	493			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	31	98	100			100		
cM capacity (veh/h)	172	497	600	510	478	1088	1076			1630		

Direction, Lane #	WB 1	SB 1
Volume Total	352	493
Volume Left	0	0
Volume Right	22	58
cSH	499	1700
Volume to Capacity	0.70	0.29
Queue Length 95th (ft)	138	0
Control Delay (s)	27.6	0.0
Lane LOS	D	
Approach Delay (s)	27.6	0.0
Approach LOS	D	

Intersection Summary			
Average Delay	11.5		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	464	710	266	524	141	424	1103	758	461
v/c Ratio	0.27	0.84	0.69	0.47	0.52	0.69	0.80	0.84	0.87	0.46
Control Delay	58.0	69.9	48.3	44.8	8.3	79.6	71.5	26.9	63.3	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	69.9	48.3	44.8	8.3	79.6	71.5	26.9	63.3	40.8
Queue Length 50th (ft)	65	222	317	213	104	135	212	276	365	177
Queue Length 95th (ft)	118	#304	390	304	190	207	275	345	447	241
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	301	599	1114	604	1048	265	597	1376	957	1058
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.77	0.64	0.44	0.50	0.53	0.71	0.80	0.79	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	338	113	689	258	508	137	411	1070	735	325	122
Future Volume (veh/h)	73	338	113	689	258	508	137	411	1070	735	325	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	75	348	116	710	266	524	141	424	1103	758	335	126
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	276	405	133	996	539	833	167	609	1282	836	791	292
Arrive On Green	0.15	0.15	0.15	0.29	0.29	0.29	0.09	0.17	0.17	0.24	0.31	0.31
Sat Flow, veh/h	1795	2640	865	3483	1885	1573	1795	3582	2812	3483	2560	946
Grp Volume(v), veh/h	75	234	230	710	266	524	141	424	1103	758	233	228
Grp Sat Flow(s),veh/h/ln	1795	1791	1714	1742	1885	1573	1795	1791	1406	1742	1791	1715
Q Serve(g_s), s	5.0	17.4	17.9	24.9	16.0	32.3	10.5	15.2	23.2	28.8	14.1	14.5
Cycle Q Clear(g_c), s	5.0	17.4	17.9	24.9	16.0	32.3	10.5	15.2	23.2	28.8	14.1	14.5
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	276	275	263	996	539	833	167	609	1282	836	554	530
V/C Ratio(X)	0.27	0.85	0.87	0.71	0.49	0.63	0.85	0.70	0.86	0.91	0.42	0.43
Avail Cap(c_a), veh/h	308	307	294	1139	616	898	271	609	1282	978	554	530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	56.2	56.4	43.7	40.5	23.0	60.9	53.3	26.5	50.3	37.4	37.5
Incr Delay (d2), s/veh	0.5	18.4	22.3	1.8	0.7	1.3	12.4	3.5	6.1	10.8	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	9.3	9.4	10.8	7.4	11.8	5.3	7.0	20.0	13.8	6.3	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	74.6	78.7	45.5	41.2	24.2	73.3	56.7	32.6	61.1	37.9	38.1
LnGrp LOS	D	E	E	D	D	C	E	E	C	E	D	D
Approach Vol, veh/h		539			1500			1668			1219	
Approach Delay, s/veh		73.2			37.3			42.2			52.4	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	37.4	29.0		25.5	18.5	48.0		44.4				
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4				
Max Green Setting (Gmax), s	* 38	23.2		23.4	20.6	* 41		44.6				
Max Q Clear Time (g_c+I1), s	30.8	25.2		19.9	12.5	16.5		34.3				
Green Ext Time (p_c), s	1.9	0.0		1.1	0.2	2.9		4.7				

Intersection Summary

HCM 6th Ctrl Delay			46.6									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	281	1115	582	140	994	383	351	205	523
v/c Ratio	0.72	0.82	0.65	0.72	0.76	0.74	0.51	0.76	0.76
Control Delay	59.8	37.5	9.9	70.8	34.0	54.6	37.8	64.3	46.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	37.5	9.9	70.8	34.0	54.6	37.8	64.3	46.6
Queue Length 50th (ft)	103	376	55	100	317	138	108	143	180
Queue Length 95th (ft)	#170	506	188	#208	432	201	156	#261	242
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	412	1473	933	209	1440	601	892	313	893
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.76	0.62	0.67	0.69	0.64	0.39	0.65	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	1070	559	134	802	153	368	245	92	197	372	130
Future Volume (veh/h)	270	1070	559	134	802	153	368	245	92	197	372	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	281	1115	582	140	835	159	383	255	96	205	388	135
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	358	1393	621	172	1147	218	472	493	181	242	500	172
Arrive On Green	0.10	0.39	0.39	0.10	0.38	0.38	0.14	0.19	0.19	0.13	0.19	0.19
Sat Flow, veh/h	3483	3582	1598	1795	3001	571	3483	2566	941	1795	2612	897
Grp Volume(v), veh/h	281	1115	582	140	498	496	383	176	175	205	264	259
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1781	1742	1791	1716	1795	1791	1719
Q Serve(g_s), s	7.5	26.4	20.9	7.3	22.8	22.8	10.2	8.4	8.8	10.7	13.4	13.7
Cycle Q Clear(g_c), s	7.5	26.4	20.9	7.3	22.8	22.8	10.2	8.4	8.8	10.7	13.4	13.7
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.55	1.00		0.52
Lane Grp Cap(c), veh/h	358	1393	621	172	684	681	472	344	330	242	343	329
V/C Ratio(X)	0.79	0.80	0.94	0.81	0.73	0.73	0.81	0.51	0.53	0.85	0.77	0.79
Avail Cap(c_a), veh/h	462	1648	735	235	820	816	674	502	481	351	506	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	25.9	11.0	42.4	25.3	25.3	40.2	34.6	34.7	40.4	36.7	36.8
Incr Delay (d2), s/veh	6.7	2.5	17.8	14.3	2.7	2.7	5.0	1.2	1.3	12.2	4.3	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	10.9	9.3	3.8	9.5	9.5	4.6	3.6	3.7	5.4	6.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	28.4	28.7	56.7	27.9	28.0	45.2	35.8	36.1	52.7	40.9	41.9
LnGrp LOS	D	C	C	E	C	C	D	D	D	D	D	D
Approach Vol, veh/h		1978			1134			734			728	
Approach Delay, s/veh		31.4			31.5			40.8			44.6	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	41.7	17.5	22.8	14.3	41.1	17.4	22.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	44.0	18.5	27.0	12.7	43.8	18.7	26.8
Max Q Clear Time (g_c+I1), s	9.3	28.4	12.2	15.7	9.5	24.8	12.7	10.8
Green Ext Time (p_c), s	0.1	8.8	0.7	2.3	0.3	6.0	0.3	1.7

Intersection Summary	
HCM 6th Ctrl Delay	35.0
HCM 6th LOS	D

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Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	10	10	468	734	105
Future Vol, veh/h	57	10	10	468	734	105
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	10	10	488	765	109

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1329	821	875	0	-	0
Stage 1	821	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	171	374	771	-	-	-
Stage 1	432	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	168	374	770	-	-	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	424	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	36.3	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	770	-	183	-	-
HCM Lane V/C Ratio	0.014	-	0.381	-	-
HCM Control Delay (s)	9.7	0	36.3	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	1.7	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	10	20	428	644	54
Future Vol, veh/h	40	10	20	428	644	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	43	11	22	465	700	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1239	730	759	0	-	0
Stage 1	730	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	193	421	848	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	186	421	848	-	-	-
Mov Cap-2 Maneuver	382	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.8	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	848	-	389	-	-
HCM Lane V/C Ratio	0.026	-	0.14	-	-
HCM Control Delay (s)	9.4	0	15.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

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Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	400	142	707
Demand Flow Rate, veh/h	404	143	714
Vehicles Circulating, veh/h	110	597	11
Vehicles Exiting, veh/h	630	128	503
Ped Vol Crossing Leg, #/h	0	0	1
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.0	6.9	8.2
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	404	143	714
Cap Entry Lane, veh/h	1233	751	1364
Entry HV Adj Factor	0.990	0.992	0.990
Flow Entry, veh/h	400	142	707
Cap Entry, veh/h	1221	745	1351
V/C Ratio	0.328	0.191	0.523
Control Delay, s/veh	6.0	6.9	8.2
LOS	A	A	A
95th %tile Queue, veh	1	1	3

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	564	358	10	10	10
Future Vol, veh/h	10	564	358	10	10	10
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	613	389	11	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	414	0	-	0	1044	409
Stage 1	-	-	-	-	409	-
Stage 2	-	-	-	-	635	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1150	-	-	-	255	645
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	530	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1135	-	-	-	246	636
Mov Cap-2 Maneuver	-	-	-	-	246	-
Stage 1	-	-	-	-	658	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1135	-	-	-	355
HCM Lane V/C Ratio	0.01	-	-	-	0.061
HCM Control Delay (s)	8.2	-	-	-	15.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	524	10	10	328	25	10	0	10	27	0	30
Future Vol, veh/h	40	524	10	10	328	25	10	0	10	27	0	30
Conflicting Peds, #/hr	12	0	0	0	0	12	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	42	552	11	11	345	26	11	0	11	28	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	383	0	0	563	0	0	1038	1047	558	1039	1039	370
Stage 1	-	-	-	-	-	-	642	642	-	392	392	-
Stage 2	-	-	-	-	-	-	396	405	-	647	647	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1170	-	-	1003	-	-	208	227	527	208	230	673
Stage 1	-	-	-	-	-	-	461	467	-	631	605	-
Stage 2	-	-	-	-	-	-	627	597	-	458	465	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1157	-	-	1003	-	-	191	214	527	194	217	665
Mov Cap-2 Maneuver	-	-	-	-	-	-	191	214	-	194	217	-
Stage 1	-	-	-	-	-	-	444	450	-	601	592	-
Stage 2	-	-	-	-	-	-	591	584	-	433	448	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	18.9	19.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	280	1157	-	-	1003	-	-	309
HCM Lane V/C Ratio	0.075	0.036	-	-	0.01	-	-	0.194
HCM Control Delay (s)	18.9	8.2	-	-	8.6	-	-	19.4
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.7

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	552	352	10	10	10
Future Vol, veh/h	10	552	352	10	10	10
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	600	383	11	11	11

Major/Minor	Major1			Major2		
Conflicting Flow All	403	0	-	0	1020	398
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	622	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1161	-	-	-	263	654
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1151	-	-	-	256	648
Mov Cap-2 Maneuver	-	-	-	-	256	-
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	532	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1151	-	-	-	367
HCM Lane V/C Ratio	0.009	-	-	-	0.059
HCM Control Delay (s)	8.2	-	-	-	15.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	175	387	272	25	17	90
Future Vol, veh/h	175	387	272	25	17	90
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	190	421	296	27	18	98

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	325	0	-	0	1113	312
Stage 1	-	-	-	-	312	-
Stage 2	-	-	-	-	801	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1240	-	-	-	232	731
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	444	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1238	-	-	-	196	730
Mov Cap-2 Maneuver	-	-	-	-	196	-
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	443	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	14.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1238	-	-	-	509
HCM Lane V/C Ratio	0.154	-	-	-	0.228
HCM Control Delay (s)	8.4	-	-	-	14.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.9

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	248	0	0	155	0	0	0	0	10	0	110
Future Vol, veh/h	70	248	0	0	155	0	0	0	0	10	0	110
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	72	256	0	0	160	0	0	0	0	10	0	113

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	161	0	0	256	0	0	617	561	256	561	561	161
Stage 1	-	-	-	-	-	-	400	400	-	161	161	-
Stage 2	-	-	-	-	-	-	217	161	-	400	400	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1424	-	-	1315	-	-	404	438	785	440	438	887
Stage 1	-	-	-	-	-	-	628	603	-	843	767	-
Stage 2	-	-	-	-	-	-	788	767	-	628	603	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1423	-	-	1315	-	-	337	412	785	420	412	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	412	-	420	412	-
Stage 1	-	-	-	-	-	-	591	567	-	792	766	-
Stage 2	-	-	-	-	-	-	687	766	-	591	567	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0	0	10.2
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1423	-	-	1315	-	-	811
HCM Lane V/C Ratio	-	0.051	-	-	-	-	-	0.153
HCM Control Delay (s)	0	7.7	0	-	0	-	-	10.2
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	0.5

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	435	1772	1728	220	207	342
v/c Ratio	0.81	0.55	0.95	0.25	0.79	0.65
Control Delay	74.5	0.7	43.5	5.7	84.1	45.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.5	0.7	43.5	5.7	84.1	45.4
Queue Length 50th (ft)	225	0	844	25	208	283
Queue Length 95th (ft)	298	0	#1133	74	312	398
Internal Link Dist (ft)		942	2695		514	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	632	3223	1956	940	326	630
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.55	0.88	0.23	0.63	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	400	1630	1590	202	190	315
Future Volume (vph)	400	1630	1590	202	190	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3127	3223	3223	1442	1612	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3127	3223	3223	1442	1612	1442
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	435	1772	1728	220	207	342
RTOR Reduction (vph)	0	0	0	72	0	9
Lane Group Flow (vph)	435	1772	1728	148	207	333
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	25.9	150.5	85.2	85.2	24.4	54.3
Effective Green, g (s)	25.9	150.5	85.2	85.2	24.4	54.3
Actuated g/C Ratio	0.17	1.00	0.57	0.57	0.16	0.36
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	538	3223	1824	816	261	520
v/s Ratio Prot	c0.14	0.55	c0.54		c0.13	0.23
v/s Ratio Perm				0.10		
v/c Ratio	0.81	0.55	0.95	0.18	0.79	0.64
Uniform Delay, d1	59.9	0.0	30.6	15.8	60.6	40.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.7	0.7	11.1	0.1	15.5	2.7
Delay (s)	68.6	0.7	41.6	15.9	76.2	42.7
Level of Service	E	A	D	B	E	D
Approach Delay (s)		14.1	38.7		55.3	
Approach LOS		B	D		E	

Intersection Summary

HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	150.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	435	1157	387	443	1176	326	467	661	255	252	304
v/c Ratio	1.14	0.91	0.48	1.14	0.92	0.43	1.11	0.88	0.72	0.69	0.64
Control Delay	149.1	54.8	4.8	147.9	55.6	6.2	134.3	70.2	79.6	66.6	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	149.1	54.8	4.8	147.9	55.6	6.2	134.3	70.2	79.6	66.6	23.8
Queue Length 50th (ft)	~285	590	0	~289	602	15	~298	344	134	239	85
Queue Length 95th (ft)	#434	716	68	#445	733	87	#453	448	194	355	200
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	380	1524	887	387	1524	842	422	878	422	469	551
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.76	0.44	1.14	0.77	0.39	1.11	0.75	0.60	0.54	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	1064	356	408	1082	300	430	516	92	235	232	280
Future Volume (veh/h)	400	1064	356	408	1082	300	430	516	92	235	232	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	435	1157	387	443	1176	326	467	561	100	255	252	304
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	361	1287	574	361	1355	604	401	713	127	299	388	329
Arrive On Green	0.11	0.39	0.39	0.11	0.41	0.41	0.12	0.26	0.26	0.09	0.22	0.22
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	2794	496	3209	1737	1472
Grp Volume(v), veh/h	435	1157	387	443	1176	326	467	331	330	255	252	304
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1640	1605	1737	1472
Q Serve(g_s), s	18.0	52.7	23.7	18.0	52.2	26.8	20.0	29.9	30.1	12.5	21.1	32.4
Cycle Q Clear(g_c), s	18.0	52.7	23.7	18.0	52.2	26.8	20.0	29.9	30.1	12.5	21.1	32.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	361	1287	574	361	1355	604	401	421	418	299	388	329
V/C Ratio(X)	1.21	0.90	0.67	1.23	0.87	0.54	1.16	0.79	0.79	0.85	0.65	0.92
Avail Cap(c_a), veh/h	361	1443	644	361	1443	644	401	423	420	401	445	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.1	45.9	18.7	71.1	43.2	35.7	70.1	55.6	55.6	71.5	56.5	60.8
Incr Delay (d2), s/veh	115.9	7.4	2.4	124.7	5.7	0.8	98.2	9.4	9.8	12.5	2.7	26.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	21.9	8.3	13.5	21.3	9.7	13.6	13.4	13.5	5.6	9.5	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.0	53.3	21.1	195.7	48.9	36.5	168.3	64.9	65.4	84.0	59.2	87.1
LnGrp LOS	F	D	C	F	D	D	F	E	E	F	E	F
Approach Vol, veh/h		1979			1945			1128			811	
Approach Delay, s/veh		76.4			80.2			107.8			77.5	
Approach LOS		E			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.3	69.7	24.0	41.1	22.0	73.0	18.9	46.1
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	20.0	54.7	22.0	34.4	20.0	54.2	14.5	32.1
Green Ext Time (p_c), s	0.0	7.7	0.0	1.4	0.0	7.7	0.4	2.6

Intersection Summary	
HCM 6th Ctrl Delay	83.9
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1288	1690	30	0	100
Future Vol, veh/h	0	1288	1690	30	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	165	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	1400	1837	33	0	109

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	919
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.4
Pot Cap-1 Maneuver	0	-	-	-	0	259
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	259
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	28.6
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	259
HCM Lane V/C Ratio	-	-	-	0.42
HCM Control Delay (s)	-	-	-	28.6
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	2

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑↳			↲	↱		↔	
Traffic Vol, veh/h	0	1232	56	3	1694	0	26	0	10	0	0	0
Future Vol, veh/h	0	1232	56	3	1694	0	26	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	13	13	13	13	13	13	13	13	13	13	13	13
Mvmt Flow	0	1339	61	3	1841	0	28	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1841	0	0	1400	0	0	2266	3186	670	2517	3247	921
Stage 1	-	-	-	-	-	-	1339	1339	-	1847	1847	-
Stage 2	-	-	-	-	-	-	927	1847	-	670	1400	-
Critical Hdwy	4.36	-	-	4.36	-	-	7.76	6.76	7.16	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Follow-up Hdwy	2.33	-	-	2.33	-	-	3.63	4.13	3.43	3.63	4.13	3.43
Pot Cap-1 Maneuver	284	-	-	431	-	-	~ 19	8	375	12	7	252
Stage 1	-	-	-	-	-	-	146	200	-	68	109	-
Stage 2	-	-	-	-	-	-	268	109	-	388	186	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	284	-	-	431	-	-	~ 19	8	375	12	7	252
Mov Cap-2 Maneuver	-	-	-	-	-	-	121	88	-	63	86	-
Stage 1	-	-	-	-	-	-	146	200	-	68	108	-
Stage 2	-	-	-	-	-	-	266	108	-	377	186	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	35.6	0
HCM LOS			E	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	121	375	284	-	-	431	-	-	-
HCM Lane V/C Ratio	0.234	0.029	-	-	-	0.008	-	-	-
HCM Control Delay (s)	43.6	14.9	0	-	-	13.4	-	-	0
HCM Lane LOS	E	B	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	0.9	0.1	0	-	-	0	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Intersection Delay, s/veh	34.4
Intersection LOS	D

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	2	2	2
Adj Approach Flow, veh/h	626	736	1109	986
Demand Flow Rate, veh/h	645	758	1142	1015
Vehicles Circulating, veh/h	1094	1036	589	653
Vehicles Exiting, veh/h	574	695	982	1141
Ped Vol Crossing Leg, #/h	0	0	3	0
Ped Cap Adj	1.000	1.000	0.998	1.000
Approach Delay, s/veh	11.2	23.3	47.6	42.7
Approach LOS	B	C	E	E

Lane	Left	Right	Bypass	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	R	L	TR	LT	R	LT	R
Assumed Moves	LT	TR	R	L	TR	LT	R	LT	R
RT Channelized			Free						
Lane Util	0.470	0.530		0.474	0.526	0.707	0.293	0.724	0.276
Follow-Up Headway, s	2.535	2.535		2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.544	4.544	168	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	224	253	1957	359	399	807	335	735	280
Cap Entry Lane, veh/h	525	525	0.971	520	589	785	861	740	815
Entry HV Adj Factor	0.971	0.969	163	0.972	0.971	0.971	0.970	0.971	0.971
Flow Entry, veh/h	218	245	1900	349	387	784	325	714	272
Cap Entry, veh/h	509	509	0.086	506	572	761	834	719	792
V/C Ratio	0.427	0.482	0.0	0.690	0.678	1.029	0.390	0.993	0.344
Control Delay, s/veh	14.4	15.9	A	24.9	21.9	63.6	9.0	55.7	8.6
LOS	B	C	0	C	C	F	A	F	A
95th %tile Queue, veh	2	3		5	5	19	2	16	2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	430	388	500	761	11	22	166	348	351	43
v/c Ratio	0.12	0.68	0.81	0.55	0.66	0.08	0.15	0.60	0.78	0.78	0.09
Control Delay	53.6	43.2	48.2	21.5	4.5	47.1	48.0	17.3	48.0	47.4	0.3
Queue Delay	0.0	0.0	0.9	1.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	43.2	49.1	23.1	5.2	47.1	48.0	17.3	48.0	47.4	0.3
Queue Length 50th (ft)	7	135	228	208	0	7	14	0	209	211	0
Queue Length 95th (ft)	28	206	#419	398	75	26	41	65	#411	#412	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	94	862	596	1017	1206	340	358	434	530	538	575
Starvation Cap Reductn	0	0	60	335	163	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.50	0.72	0.73	0.73	0.03	0.06	0.38	0.66	0.65	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	363	32	357	460	700	10	20	153	552	91	40
Future Volume (veh/h)	10	363	32	357	460	700	10	20	153	552	91	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	11	395	35	388	500	761	11	22	166	671	0	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	23	799	70	424	874	741	221	232	196	776	0	341
Arrive On Green	0.01	0.24	0.24	0.24	0.47	0.47	0.12	0.12	0.12	0.22	0.00	0.22
Sat Flow, veh/h	1767	3272	288	1767	1856	1572	1767	1856	1569	3534	0	1555
Grp Volume(v), veh/h	11	212	218	388	500	761	11	22	166	671	0	43
Grp Sat Flow(s),veh/h/ln	1767	1763	1798	1767	1856	1572	1767	1856	1569	1767	0	1555
Q Serve(g_s), s	0.6	10.8	11.0	22.5	20.5	49.5	0.6	1.1	10.9	19.2	0.0	2.3
Cycle Q Clear(g_c), s	0.6	10.8	11.0	22.5	20.5	49.5	0.6	1.1	10.9	19.2	0.0	2.3
Prop In Lane	1.00		0.16	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	431	439	424	874	741	221	232	196	776	0	341
V/C Ratio(X)	0.48	0.49	0.50	0.91	0.57	1.03	0.05	0.09	0.85	0.86	0.00	0.13
Avail Cap(c_a), veh/h	84	431	439	530	874	741	303	318	269	992	0	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.5	34.1	34.1	38.9	20.1	27.8	40.5	40.7	45.0	39.5	0.0	32.9
Incr Delay (d2), s/veh	14.4	0.9	0.9	18.0	0.9	40.2	0.1	0.2	16.5	6.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.8	4.9	11.7	8.8	25.8	0.3	0.5	5.1	8.8	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	35.0	35.0	56.9	21.0	67.9	40.6	40.9	61.5	46.1	0.0	33.1
LnGrp LOS	E	C	D	E	C	F	D	D	E	D	A	C
Approach Vol, veh/h		441			1649			199			714	
Approach Delay, s/veh		35.8			51.1			58.1			45.3	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.7	30.2		27.6	5.9	54.0		17.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	31.5	23.0		29.5	5.0	49.5		18.0
Max Q Clear Time (g_c+I1), s	24.5	13.0		21.2	2.6	51.5		12.9
Green Ext Time (p_c), s	0.7	1.9		1.9	0.0	0.0		0.3

Intersection Summary			
HCM 6th Ctrl Delay			47.9
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	1084	57	1403	430	235	22	272	11	11
v/c Ratio	0.44	0.57	0.35	0.74	0.45	0.72	0.05	0.51	0.03	0.02
Control Delay	52.4	15.8	50.6	20.0	6.6	47.8	29.7	11.5	29.6	0.1
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	16.4	50.6	20.0	6.6	47.8	29.7	11.5	29.6	0.1
Queue Length 50th (ft)	47	222	35	340	45	141	11	26	6	0
Queue Length 95th (ft)	98	316	78	472	121	228	31	98	20	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	207	2258	196	2261	1086	474	633	683	470	655
Starvation Cap Reductn	0	687	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.69	0.29	0.62	0.40	0.50	0.03	0.40	0.02	0.02

Intersection Summary

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	947	51	52	1291	396	216	20	250	10	0	10
Future Volume (veh/h)	70	947	51	52	1291	396	216	20	250	10	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	1029	55	57	1403	0	235	22	272	11	0	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	98	1842	98	85	1882		397	402	340	327	0	340
Arrive On Green	0.06	0.54	0.54	0.05	0.53	0.00	0.22	0.22	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1767	3403	182	1767	3526	1572	1392	1856	1572	1077	0	1572
Grp Volume(v), veh/h	76	533	551	57	1403	0	235	22	272	11	0	11
Grp Sat Flow(s),veh/h/ln	1767	1763	1822	1767	1763	1572	1392	1856	1572	1077	0	1572
Q Serve(g_s), s	3.0	13.8	13.8	2.2	21.4	0.0	11.1	0.7	11.4	0.6	0.0	0.4
Cycle Q Clear(g_c), s	3.0	13.8	13.8	2.2	21.4	0.0	11.5	0.7	11.4	1.2	0.0	0.4
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	954	986	85	1882		397	402	340	327	0	340
V/C Ratio(X)	0.78	0.56	0.56	0.67	0.75		0.59	0.05	0.80	0.03	0.00	0.03
Avail Cap(c_a), veh/h	242	1395	1442	229	2765		647	734	622	519	0	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.4	10.5	10.5	32.5	12.5	0.0	26.0	21.6	25.8	22.1	0.0	21.5
Incr Delay (d2), s/veh	12.3	0.5	0.5	8.9	0.6	0.0	1.4	0.1	4.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	4.7	4.9	1.1	7.3	0.0	3.6	0.3	4.4	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	11.0	11.0	41.4	13.2	0.0	27.4	21.6	30.1	22.1	0.0	21.5
LnGrp LOS	D	B	B	D	B		C	C	C	C	A	C
Approach Vol, veh/h		1160			1460	A		529			22	
Approach Delay, s/veh		13.2			14.3			28.6			21.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	42.1		19.5	8.3	41.6		19.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.0	55.0		27.5	9.5	54.5		27.5
Max Q Clear Time (g_c+I1), s	4.2	15.8		3.2	5.0	23.4		13.5
Green Ext Time (p_c), s	0.0	9.1		0.0	0.1	13.7		1.5

Intersection Summary		
HCM 6th Ctrl Delay		16.3
HCM 6th LOS		B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	342	969	65	1195	410	202	54	174	698
v/c Ratio	0.85	0.62	0.49	0.88	0.86	0.27	0.13	0.79	1.09dr
Control Delay	70.5	24.3	65.5	40.9	67.1	40.4	2.3	74.3	52.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	24.3	65.5	40.9	67.1	40.4	2.3	74.3	52.5
Queue Length 50th (ft)	136	274	49	430	162	70	0	132	216
Queue Length 95th (ft)	#217	347	96	526	#246	106	8	#240	#330
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	411	1576	153	1468	496	760	414	241	791
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.61	0.42	0.81	0.83	0.27	0.13	0.72	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	590	302	60	911	189	377	186	50	160	192	450
Future Volume (veh/h)	315	590	302	60	911	189	377	186	50	160	192	450
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	342	641	0	65	990	205	410	202	54	174	209	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	433	1773		84	1231	254	507	425	189	213	328	
Arrive On Green	0.13	0.50	0.00	0.05	0.42	0.42	0.15	0.12	0.12	0.12	0.09	0.00
Sat Flow, veh/h	3456	3647	0	1781	2925	604	3456	3554	1585	1781	3647	0
Grp Volume(v), veh/h	342	641	0	65	601	594	410	202	54	174	209	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1753	1728	1777	1585	1781	1777	0
Q Serve(g_s), s	8.1	9.2	0.0	3.0	24.8	24.9	9.6	4.4	2.6	8.0	4.8	0.0
Cycle Q Clear(g_c), s	8.1	9.2	0.0	3.0	24.8	24.9	9.6	4.4	2.6	8.0	4.8	0.0
Prop In Lane	1.00		0.00	1.00		0.34	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	433	1773		84	748	738	507	425	189	213	328	
V/C Ratio(X)	0.79	0.36		0.77	0.80	0.81	0.81	0.48	0.28	0.82	0.64	
Avail Cap(c_a), veh/h	565	2209		210	1024	1010	680	1035	462	332	997	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.6	12.8	0.0	39.5	21.2	21.3	34.6	34.4	33.6	36.0	36.7	0.0
Incr Delay (d2), s/veh	5.6	0.1	0.0	14.0	3.3	3.4	5.3	0.8	0.8	8.7	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	3.5	0.0	1.6	10.1	10.0	4.2	1.9	1.0	3.8	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.2	13.0	0.0	53.4	24.5	24.7	39.9	35.3	34.4	44.7	38.7	0.0
LnGrp LOS	D	B		D	C	C	D	D	C	D	D	
Approach Vol, veh/h		983	A		1260			666			383	A
Approach Delay, s/veh		22.8			26.1			38.1			41.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	46.3	16.8	12.2	15.0	39.8	14.5	14.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.9	52.1	16.5	23.5	13.7	48.3	15.6	24.4
Max Q Clear Time (g_c+I1), s	5.0	11.2	11.6	6.8	10.1	26.9	10.0	6.4
Green Ext Time (p_c), s	0.0	5.1	0.7	1.0	0.4	8.4	0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	96	488	1404	629	143
v/c Ratio	0.71	0.23	0.83	0.79	0.30
Control Delay	73.4	10.0	24.2	44.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	10.0	24.2	44.0	8.2
Queue Length 50th (ft)	53	51	275	167	0
Queue Length 95th (ft)	#183	154	#699	#382	56
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	135	2165	1698	793	475
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	0.23	0.83	0.79	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	88	449	710	581	579	132
Future Volume (vph)	88	449	710	581	579	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	3245		3400	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	3245		3400	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	488	772	632	629	143
RTOR Reduction (vph)	0	0	105	0	0	111
Lane Group Flow (vph)	96	488	1299	0	629	32
Confl. Peds. (#/hr)				3		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	7.3	58.6	46.8		22.1	22.1
Effective Green, g (s)	7.3	58.6	46.8		22.1	22.1
Actuated g/C Ratio	0.07	0.59	0.48		0.22	0.22
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	129	2085	1541		762	351
v/s Ratio Prot	c0.05	0.14	c0.40			
v/s Ratio Perm					c0.19	0.02
v/c Ratio	0.74	0.23	0.84		0.83	0.09
Uniform Delay, d1	44.7	9.4	22.6		36.4	30.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	20.5	0.1	4.4		7.3	0.1
Delay (s)	65.2	9.4	27.0		43.6	30.4
Level of Service	E	A	C		D	C
Approach Delay (s)		18.6	27.0		41.2	
Approach LOS		B	C		D	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	98.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	142	426	153	97	843	633	238	609	298	320	311
v/c Ratio	0.68	0.32	0.22	0.54	0.72	0.86	0.77	0.77	0.71	0.52	0.63
Control Delay	64.7	25.3	5.0	60.2	34.6	27.4	60.5	45.1	56.8	44.3	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.7	25.3	5.0	60.2	34.6	27.4	60.5	45.1	56.8	44.3	14.7
Queue Length 50th (ft)	100	114	0	69	273	196	166	218	109	114	25
Queue Length 95th (ft)	#194	169	44	129	366	#451	#287	288	#176	165	119
Internal Link Dist (ft)		1092			186			1440		2310	
Turn Bay Length (ft)	150		150	170		170	230		245		100
Base Capacity (vph)	245	1469	735	230	1437	815	380	1030	462	760	543
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.29	0.21	0.42	0.59	0.78	0.63	0.59	0.65	0.42	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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11: Creston Road & Niblick Road/Sherwood Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	392	141	89	776	582	219	512	48	274	294	286
Future Volume (veh/h)	131	392	141	89	776	582	219	512	48	274	294	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.95	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	142	426	153	97	843	633	238	557	52	298	320	311
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	170	1424	627	122	1327	579	269	799	74	361	703	311
Arrive On Green	0.10	0.41	0.41	0.07	0.38	0.38	0.15	0.25	0.25	0.11	0.20	0.20
Sat Flow, veh/h	1739	3469	1527	1739	3469	1513	1739	3191	297	3374	3469	1534
Grp Volume(v), veh/h	142	426	153	97	843	633	238	302	307	298	320	311
Grp Sat Flow(s),veh/h/ln	1739	1735	1527	1739	1735	1513	1739	1735	1754	1687	1735	1534
Q Serve(g_s), s	8.9	9.2	7.3	6.1	22.0	42.5	14.9	17.5	17.7	9.6	9.0	22.5
Cycle Q Clear(g_c), s	8.9	9.2	7.3	6.1	22.0	42.5	14.9	17.5	17.7	9.6	9.0	22.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	170	1424	627	122	1327	579	269	435	439	361	703	311
V/C Ratio(X)	0.83	0.30	0.24	0.80	0.64	1.09	0.88	0.69	0.70	0.83	0.46	1.00
Avail Cap(c_a), veh/h	227	1424	627	213	1327	579	352	483	488	428	703	311
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	22.0	21.4	50.9	28.0	34.3	46.0	37.8	37.8	48.6	38.9	44.3
Incr Delay (d2), s/veh	17.7	0.1	0.2	11.2	1.0	65.3	18.5	3.8	3.9	10.9	0.5	51.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	3.6	2.6	3.0	8.9	25.2	7.7	7.8	7.9	4.5	3.8	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.9	22.1	21.6	62.0	29.0	99.6	64.4	41.6	41.7	59.5	39.4	95.6
LnGrp LOS	E	C	C	E	C	F	E	D	D	E	D	F
Approach Vol, veh/h		721			1573			847			929	
Approach Delay, s/veh		30.8			59.4			48.0			64.7	
Approach LOS		C			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	32.3	12.3	50.1	21.7	27.0	15.4	47.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.1	30.9	13.6	43.4	22.5	22.5	14.5	42.5
Max Q Clear Time (g_c+I1), s	11.6	19.7	8.1	11.2	16.9	24.5	10.9	44.5
Green Ext Time (p_c), s	0.3	2.8	0.1	3.3	0.3	0.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.2
HCM 6th LOS	D

12: Creston Road & Stoney Creek Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	45.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	141	10	42	10	20	104	34	474	10	35	394	101
Future Vol, veh/h	141	10	42	10	20	104	34	474	10	35	394	101
Conflicting Peds, #/hr	1	0	0	0	0	1	6	0	2	2	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	153	11	46	11	22	113	37	515	11	38	428	110

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1173	1112	434	1185	1217	524	544	0	0	528	0	0
Stage 1	510	510	-	597	597	-	-	-	-	-	-	-
Stage 2	663	602	-	588	620	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	169	209	622	166	181	553	1025	-	-	1039	-	-
Stage 1	546	538	-	490	491	-	-	-	-	-	-	-
Stage 2	450	489	-	495	480	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 114	192	618	139	167	551	1019	-	-	1037	-	-
Mov Cap-2 Maneuver	~ 114	192	-	139	167	-	-	-	-	-	-	-
Stage 1	523	515	-	471	472	-	-	-	-	-	-	-
Stage 2	329	470	-	432	459	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 306.2	22.3	0.6	0.6
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1019	-	-	142	352	1037	-	-
HCM Lane V/C Ratio	0.036	-	-	1.477	0.414	0.037	-	-
HCM Control Delay (s)	8.7	-	-	$ 306.2	22.3	8.6	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	14.1	2	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Intersection Delay, s/veh	49.8
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	10	12	270	10	266	0	14	236	146	252	194
Future Vol, veh/h	20	10	12	270	10	266	0	14	236	146	252	194
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	11	13	293	11	289	0	15	257	159	274	211
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	12.9	89.3	18.5	33
HCM LOS	B	F	C	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	6%	0%	48%	49%	72%	0%
Vol Thru, %	94%	0%	24%	2%	28%	91%
Vol Right, %	0%	100%	29%	49%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	250	146	42	546	349	107
LT Vol	14	0	20	270	252	0
Through Vol	236	0	10	10	97	97
RT Vol	0	146	12	266	0	10
Lane Flow Rate	272	159	46	593	379	116
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.58	0.306	0.107	1.087	0.823	0.239
Departure Headway (Hd)	8.126	7.369	8.813	6.595	8.242	7.8
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	448	490	409	552	444	463
Service Time	5.826	5.069	6.813	4.599	5.942	5.5
HCM Lane V/C Ratio	0.607	0.324	0.112	1.074	0.854	0.251
HCM Control Delay	21.5	13.3	12.9	89.3	39.2	12.9
HCM Lane LOS	C	B	B	F	E	B
HCM 95th-tile Q	3.6	1.3	0.4	18.2	7.7	0.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	10
Future Vol, veh/h	10
Peak Hour Factor	0.92
Heavy Vehicles, %	2
Mvmt Flow	11
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

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Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	191	128	200	192	117	385
Future Vol, veh/h	191	128	200	192	117	385
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	208	139	217	209	127	418

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	666	127	545	0	-	0
Stage 1	127	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Critical Hdwy	6.645	6.245	4.145	-	-	-
Critical Hdwy Stg 1	5.445	-	-	-	-	-
Critical Hdwy Stg 2	5.845	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	406	920	1016	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	319	920	1016	-	-	-
Mov Cap-2 Maneuver	319	-	-	-	-	-
Stage 1	703	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.9	4.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1016	-	319	920	-	-
HCM Lane V/C Ratio	0.214	-	0.651	0.151	-	-
HCM Control Delay (s)	9.5	-	35.1	9.6	-	-
HCM Lane LOS	A	-	E	A	-	-
HCM 95th %tile Q(veh)	0.8	-	4.3	0.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	3	191	10	0	0	0	0	386	20
Future Volume (Veh/h)	0	0	0	3	191	10	0	0	0	0	386	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	3	208	11	0	0	0	0	420	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	535	431	431	431	442	0	442			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	535	431	431	431	442	0	442			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	59	99	100			100		
cM capacity (veh/h)	308	517	624	535	510	1085	1118			1623		

Direction, Lane #	WB 1	SB 1
Volume Total	222	442
Volume Left	3	0
Volume Right	11	22
cSH	530	1700
Volume to Capacity	0.42	0.26
Queue Length 95th (ft)	51	0
Control Delay (s)	16.6	0.0
Lane LOS	C	
Approach Delay (s)	16.6	0.0
Approach LOS	C	

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	25	371	1198	436	580	126	315	608	427	329
v/c Ratio	0.11	0.79	0.81	0.54	0.52	0.67	0.70	0.38	0.76	0.51
Control Delay	58.1	63.6	40.3	33.2	5.0	78.6	67.5	7.5	65.8	48.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	63.6	40.3	33.2	5.0	78.6	67.5	7.5	65.8	48.0
Queue Length 50th (ft)	21	154	507	304	53	117	153	69	200	129
Queue Length 95th (ft)	53	220	632	435	135	189	207	92	269	185
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	253	527	1586	860	1140	245	580	1697	641	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.70	0.76	0.51	0.51	0.51	0.54	0.36	0.67	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	222	120	1102	401	534	116	290	559	393	210	93
Future Volume (veh/h)	23	222	120	1102	401	534	116	290	559	393	210	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	241	130	1198	436	580	126	315	608	427	228	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	294	153	1425	771	874	152	542	1575	499	490	210
Arrive On Green	0.13	0.13	0.13	0.41	0.41	0.41	0.09	0.15	0.15	0.14	0.20	0.20
Sat Flow, veh/h	1781	2259	1177	3456	1870	1564	1781	3554	2790	3456	2420	1037
Grp Volume(v), veh/h	25	188	183	1198	436	580	126	315	608	427	165	164
Grp Sat Flow(s),veh/h/ln	1781	1777	1659	1728	1870	1564	1781	1777	1395	1728	1777	1681
Q Serve(g_s), s	1.6	13.1	13.8	39.7	22.8	33.3	8.9	10.5	15.5	15.4	10.4	11.0
Cycle Q Clear(g_c), s	1.6	13.1	13.8	39.7	22.8	33.3	8.9	10.5	15.5	15.4	10.4	11.0
Prop In Lane	1.00		0.71	1.00		1.00	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	232	231	216	1425	771	874	152	542	1575	499	360	340
V/C Ratio(X)	0.11	0.81	0.85	0.84	0.57	0.66	0.83	0.58	0.39	0.86	0.46	0.48
Avail Cap(c_a), veh/h	271	271	253	1698	919	997	263	619	1636	686	400	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	53.9	54.2	33.7	28.7	19.9	57.3	50.2	15.4	53.2	44.7	44.9
Incr Delay (d2), s/veh	0.2	14.9	20.6	3.4	0.7	1.4	10.7	1.1	0.2	7.8	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.9	7.0	16.7	10.1	11.7	4.4	4.6	9.7	7.2	4.7	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	68.8	74.7	37.1	29.3	21.3	68.0	51.3	15.6	61.0	45.6	45.9
LnGrp LOS	D	E	E	D	C	C	E	D	B	E	D	D
Approach Vol, veh/h		396			2214			1049			756	
Approach Delay, s/veh		70.3			31.4			32.6			54.4	
Approach LOS		E			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.1	25.2		21.2	16.7	31.6		57.9
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 25	22.2		19.4	18.8	* 29		62.6
Max Q Clear Time (g_c+I1), s	17.4	17.5		15.8	10.9	13.0		41.7
Green Ext Time (p_c), s	1.0	2.0		0.8	0.2	1.7		10.8

Intersection Summary			
HCM 6th Ctrl Delay		39.1	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	120	823	292	136	1505	662	384	309	507
v/c Ratio	0.79	0.63	0.38	0.73	1.01	1.01	0.63	0.90	0.77
Control Delay	88.4	33.0	4.7	72.4	59.3	84.8	46.2	75.3	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.4	33.0	4.7	72.4	59.3	84.8	46.2	75.3	44.5
Queue Length 50th (ft)	45	258	0	96	~571	~253	132	219	154
Queue Length 95th (ft)	#104	360	60	#196	#819	#413	183	#412	213
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	151	1302	767	202	1483	653	811	349	860
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.63	0.38	0.67	1.01	1.01	0.47	0.89	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	757	269	125	1108	277	609	299	54	284	267	200
Future Volume (veh/h)	110	757	269	125	1108	277	609	299	54	284	267	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	823	292	136	1204	301	662	325	59	309	290	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	1340	598	164	1199	296	651	554	99	336	362	263
Arrive On Green	0.04	0.38	0.38	0.09	0.43	0.43	0.19	0.18	0.18	0.19	0.18	0.18
Sat Flow, veh/h	3456	3554	1585	1781	2820	696	3456	3006	539	1781	1963	1427
Grp Volume(v), veh/h	120	823	292	136	753	752	662	191	193	309	262	245
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1739	1728	1777	1768	1781	1777	1613
Q Serve(g_s), s	3.9	21.4	9.2	8.6	48.2	48.5	21.5	11.2	11.4	19.4	16.1	16.7
Cycle Q Clear(g_c), s	3.9	21.4	9.2	8.6	48.2	48.5	21.5	11.2	11.4	19.4	16.1	16.7
Prop In Lane	1.00		1.00	1.00		0.40	1.00		0.30	1.00		0.88
Lane Grp Cap(c), veh/h	152	1340	598	164	756	740	651	328	326	336	328	298
V/C Ratio(X)	0.79	0.61	0.49	0.83	1.00	1.02	1.02	0.58	0.59	0.92	0.80	0.82
Avail Cap(c_a), veh/h	152	1340	598	201	756	740	651	408	406	348	421	382
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	28.8	8.8	50.9	32.7	32.8	46.3	42.5	42.6	45.4	44.5	44.7
Incr Delay (d2), s/veh	24.2	0.8	0.6	20.8	31.7	37.5	39.4	1.6	1.7	28.3	8.1	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	8.9	2.9	4.7	26.0	26.8	12.5	4.9	5.0	11.0	7.6	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.2	29.6	9.4	71.7	64.3	70.2	85.6	44.1	44.3	73.7	52.6	55.6
LnGrp LOS	E	C	A	E	E	F	F	D	D	E	D	E
Approach Vol, veh/h		1235			1641			1046			816	
Approach Delay, s/veh		29.6			67.7			70.4			61.5	
Approach LOS		C			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	47.5	26.0	25.5	9.5	53.0	26.0	25.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.9	40.6	21.5	27.0	5.0	48.5	22.3	26.2
Max Q Clear Time (g_c+I1), s	10.6	23.4	23.5	18.7	5.9	50.5	21.4	13.4
Green Ext Time (p_c), s	0.1	6.1	0.0	1.9	0.0	0.0	0.1	1.7

Intersection Summary	
HCM 6th Ctrl Delay	57.3
HCM 6th LOS	E

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18: S. River Road & Riverbank Lane

HCM 6th TWSC

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	94	10	10	908	389	48
Future Vol, veh/h	94	10	10	908	389	48
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	102	11	11	987	423	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1458	450	475	0	-	0
Stage 1	449	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	142	607	1082	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	139	606	1082	-	-	-
Mov Cap-2 Maneuver	139	-	-	-	-	-
Stage 1	626	-	-	-	-	-
Stage 2	351	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	79.5	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1082	-	150	-	-
HCM Lane V/C Ratio	0.01	-	0.754	-	-
HCM Control Delay (s)	8.4	0	79.5	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	4.6	-	-

19: S. River Road & Bridgegate Lane

HCM 6th TWSC

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	12	14	778	369	20
Future Vol, veh/h	60	12	14	778	369	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	13	15	846	401	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1288	412	423	0	-	0
Stage 1	412	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	181	640	1136	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	176	640	1136	-	-	-
Mov Cap-2 Maneuver	356	-	-	-	-	-
Stage 1	652	-	-	-	-	-
Stage 2	407	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1136	-	384	-	-
HCM Lane V/C Ratio	0.013	-	0.204	-	-
HCM Control Delay (s)	8.2	0	16.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

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Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	779	126	414
Demand Flow Rate, veh/h	795	128	422
Vehicles Circulating, veh/h	117	356	28
Vehicles Exiting, veh/h	367	94	884
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	11.6	5.1	5.6
Approach LOS	B	A	A

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	795	128	422
Cap Entry Lane, veh/h	1225	960	1341
Entry HV Adj Factor	0.980	0.982	0.980
Flow Entry, veh/h	779	126	414
Cap Entry, veh/h	1200	943	1315
V/C Ratio	0.649	0.133	0.315
Control Delay, s/veh	11.6	5.1	5.6
LOS	B	A	A
95th %tile Queue, veh	5	0	1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	331	697	10	10	10
Future Vol, veh/h	10	331	697	10	10	10
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	360	758	11	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	775	0	-	0	1152	770
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	382	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	841	-	-	-	219	401
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	690	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	836	-	-	-	214	399
Mov Cap-2 Maneuver	-	-	-	-	214	-
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	686	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	836	-	-	-	279
HCM Lane V/C Ratio	0.013	-	-	-	0.078
HCM Control Delay (s)	9.4	-	-	-	19
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

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Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	311	10	10	647	32	10	0	10	45	0	50
Future Vol, veh/h	20	311	10	10	647	32	10	0	10	45	0	50
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	338	11	11	703	35	11	0	11	49	0	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	745	0	0	349	0	0	1158	1155	344	1143	1143	728
Stage 1	-	-	-	-	-	-	388	388	-	750	750	-
Stage 2	-	-	-	-	-	-	770	767	-	393	393	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	863	-	-	1210	-	-	173	197	699	177	200	423
Stage 1	-	-	-	-	-	-	636	609	-	403	419	-
Stage 2	-	-	-	-	-	-	393	411	-	632	606	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	857	-	-	1210	-	-	147	189	699	169	192	420
Mov Cap-2 Maneuver	-	-	-	-	-	-	147	189	-	169	192	-
Stage 1	-	-	-	-	-	-	619	593	-	390	412	-
Stage 2	-	-	-	-	-	-	339	404	-	606	590	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.1	21.3	29.7
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	243	857	-	-	1210	-	-	247
HCM Lane V/C Ratio	0.089	0.025	-	-	0.009	-	-	0.418
HCM Control Delay (s)	21.3	9.3	-	-	8	-	-	29.7
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	1.9

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	352	679	10	10	10
Future Vol, veh/h	10	352	679	10	10	10
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	383	738	11	11	11

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	758	0	-	0	1158	753	
Stage 1	-	-	-	-	753	-	
Stage 2	-	-	-	-	405	-	
Critical Hdwy	4.12	-	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	-	3.518	3.318	
Pot Cap-1 Maneuver	853	-	-	-	217	410	
Stage 1	-	-	-	-	465	-	
Stage 2	-	-	-	-	673	-	
Platoon blocked, %		-	-	-			
Mov Cap-1 Maneuver	846	-	-	-	210	406	
Mov Cap-2 Maneuver	-	-	-	-	210	-	
Stage 1	-	-	-	-	455	-	
Stage 2	-	-	-	-	667	-	

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	846	-	-	-	277
HCM Lane V/C Ratio	0.013	-	-	-	0.078
HCM Control Delay (s)	9.3	-	-	-	19.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

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Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	292	539	66	28	150
Future Vol, veh/h	70	292	539	66	28	150
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	76	317	586	72	30	163

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	666	0	-	0	1099	630
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	469	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	928	-	-	-	236	483
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	921	-	-	-	213	479
Mov Cap-2 Maneuver	-	-	-	-	213	-
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	627	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	22.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	921	-	-	-	400
HCM Lane V/C Ratio	0.083	-	-	-	0.484
HCM Control Delay (s)	9.3	-	-	-	22.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2.6

Intersection	
Intersection Delay, s/veh	5.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	253	336	55	187
Demand Flow Rate, veh/h	256	339	55	189
Vehicles Circulating, veh/h	9	97	235	366
Vehicles Exiting, veh/h	546	193	30	70
Ped Vol Crossing Leg, #/h	0	0	0	8
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	4.2	5.3	3.7	5.8
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	256	339	55	189
Cap Entry Lane, veh/h	1367	1250	1086	950
Entry HV Adj Factor	0.989	0.991	0.999	0.989
Flow Entry, veh/h	253	336	55	187
Cap Entry, veh/h	1352	1238	1085	939
V/C Ratio	0.187	0.271	0.051	0.199
Control Delay, s/veh	4.2	5.3	3.7	5.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	334	1639	1631	162	157	302
v/c Ratio	0.64	0.49	0.89	0.18	0.61	0.57
Control Delay	57.2	0.5	32.0	4.5	63.2	36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	0.5	32.0	4.5	63.2	36.7
Queue Length 50th (ft)	127	0	560	11	116	178
Queue Length 95th (ft)	224	0	871	51	234	336
Internal Link Dist (ft)		1017	748		574	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	838	3312	2521	1159	432	833
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.49	0.65	0.14	0.36	0.36

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	331	1623	1615	160	155	299
Future Volume (vph)	331	1623	1615	160	155	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3213	3312	3312	1482	1656	1482
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3213	3312	3312	1482	1656	1482
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	334	1639	1631	162	157	302
RTOR Reduction (vph)	0	0	0	57	0	12
Lane Group Flow (vph)	334	1639	1631	105	157	290
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	19.9	121.1	67.3	67.3	18.9	42.8
Effective Green, g (s)	19.9	121.1	67.3	67.3	18.9	42.8
Actuated g/C Ratio	0.16	1.00	0.56	0.56	0.16	0.35
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	527	3312	1840	823	258	523
v/s Ratio Prot	c0.10	0.49	c0.49		c0.09	0.20
v/s Ratio Perm				0.07		
v/c Ratio	0.63	0.49	0.89	0.13	0.61	0.55
Uniform Delay, d1	47.2	0.0	23.6	12.9	47.7	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.5	5.7	0.1	4.2	1.3
Delay (s)	49.7	0.5	29.3	13.0	51.9	32.7
Level of Service	D	A	C	B	D	C
Approach Delay (s)		8.9	27.8		39.3	
Approach LOS		A	C		D	

Intersection Summary

HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	121.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	392	1069	372	403	1134	216	375	503	269	355	320
v/c Ratio	0.98	0.87	0.48	0.94	0.90	0.31	0.85	0.61	0.72	0.87	0.63
Control Delay	104.3	52.8	5.0	94.6	54.9	4.8	82.1	52.1	77.5	78.6	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.3	52.8	5.0	94.6	54.9	4.8	82.1	52.1	77.5	78.6	23.4
Queue Length 50th (ft)	~207	518	0	207	555	0	191	223	134	339	91
Queue Length 95th (ft)	#372	626	67	#384	679	54	#328	321	204	#537	217
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	401	1609	904	429	1609	822	446	922	446	496	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.66	0.41	0.94	0.70	0.26	0.84	0.55	0.60	0.72	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	1037	361	391	1100	210	364	373	114	261	344	310
Future Volume (veh/h)	380	1037	361	391	1100	210	364	373	114	261	344	310
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	392	1069	372	403	1134	216	375	385	118	269	355	320
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	398	1238	552	398	1313	585	418	675	204	319	416	353
Arrive On Green	0.12	0.36	0.36	0.12	0.38	0.38	0.13	0.26	0.26	0.10	0.23	0.23
Sat Flow, veh/h	3319	3413	1521	3319	3413	1521	3319	2579	781	3319	1796	1522
Grp Volume(v), veh/h	392	1069	372	403	1134	216	375	253	250	269	355	320
Grp Sat Flow(s),veh/h/ln	1659	1706	1521	1659	1706	1521	1659	1706	1654	1659	1796	1522
Q Serve(g_s), s	17.7	43.6	21.2	18.0	45.9	15.3	16.7	19.3	19.7	12.0	28.4	30.7
Cycle Q Clear(g_c), s	17.7	43.6	21.2	18.0	45.9	15.3	16.7	19.3	19.7	12.0	28.4	30.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	398	1238	552	398	1313	585	418	447	433	319	416	353
V/C Ratio(X)	0.98	0.86	0.67	1.01	0.86	0.37	0.90	0.57	0.58	0.84	0.85	0.91
Avail Cap(c_a), veh/h	398	1593	710	398	1593	710	443	467	452	443	491	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.8	44.3	18.9	66.0	42.5	33.1	64.6	48.0	48.1	66.6	55.1	56.0
Incr Delay (d2), s/veh	40.7	4.2	1.7	48.0	4.4	0.4	19.9	1.5	1.7	10.2	12.0	21.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	18.3	7.5	10.0	19.2	5.7	8.1	8.3	8.3	5.5	14.1	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.5	48.5	20.5	114.0	46.9	33.5	84.5	49.5	49.8	76.9	67.1	77.1
LnGrp LOS	F	D	C	F	D	C	F	D	D	E	E	E
Approach Vol, veh/h		1833			1753			878			944	
Approach Delay, s/veh		55.2			60.7			64.5			73.3	
Approach LOS		E			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.3	61.7	22.9	40.1	22.0	65.0	18.4	44.5
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	20.0	45.6	18.7	32.7	19.7	47.9	14.0	21.7
Green Ext Time (p_c), s	0.0	8.8	0.2	2.1	0.0	8.3	0.5	2.7

Intersection Summary	
HCM 6th Ctrl Delay	61.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1554	1601	20	0	100
Future Vol, veh/h	0	1554	1601	20	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	165	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	1653	1703	21	0	106

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	852
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.4
Pot Cap-1 Maneuver	0	-	-	-	0	287
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	287
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	287
HCM Lane V/C Ratio	-	-	-	0.371
HCM Control Delay (s)	-	-	-	24.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.6

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑↳			↲	↱		↔	
Traffic Vol, veh/h	0	1521	33	3	1561	0	50	0	6	0	0	10
Future Vol, veh/h	0	1521	33	3	1561	0	50	0	6	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	1568	34	3	1609	0	52	0	6	0	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1609	0	0	1602	0	0	2379	3183	784	2399	3217	805
Stage 1	-	-	-	-	-	-	1568	1568	-	1615	1615	-
Stage 2	-	-	-	-	-	-	811	1615	-	784	1602	-
Critical Hdwy	4.34	-	-	4.34	-	-	7.74	6.74	7.14	7.74	6.74	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Follow-up Hdwy	2.32	-	-	2.32	-	-	3.62	4.12	3.42	3.62	4.12	3.42
Pot Cap-1 Maneuver	358	-	-	361	-	-	~ 16	8	315	15	8	305
Stage 1	-	-	-	-	-	-	105	154	-	98	146	-
Stage 2	-	-	-	-	-	-	319	146	-	331	148	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	358	-	-	361	-	-	~ 15	8	315	15	8	305
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	97	-	89	94	-
Stage 1	-	-	-	-	-	-	105	154	-	98	145	-
Stage 2	-	-	-	-	-	-	306	145	-	325	148	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	75.3	17.2
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	94	315	358	-	-	361	-	-	305
HCM Lane V/C Ratio	0.548	0.02	-	-	-	0.009	-	-	0.034
HCM Control Delay (s)	82.3	16.7	0	-	-	15.1	-	-	17.2
HCM Lane LOS	F	C	A	-	-	C	-	-	C
HCM 95th %tile Q(veh)	2.5	0.1	0	-	-	0	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Intersection Delay, s/veh	37.4
Intersection LOS	E

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	2	2	2
Adj Approach Flow, veh/h	860	843	923	1099
Demand Flow Rate, veh/h	869	851	933	1110
Vehicles Circulating, veh/h	1135	873	815	723
Vehicles Exiting, veh/h	698	875	1026	1001
Ped Vol Crossing Leg, #/h	1	1	1	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.2	20.3	26.1	72.7
Approach LOS	C	C	D	F

Lane	Left	Right	Bypass	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	R	L	TR	LT	R	LT	R
Assumed Moves	LT	TR	R	L	TR	LT	R	LT	R
RT Channelized			Free						
Lane Util	0.470	0.530		0.412	0.588	0.586	0.414	0.706	0.294
Follow-Up Headway, s	2.535	2.535		2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.544	4.544	163	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	332	374	1919	351	500	547	386	784	326
Cap Entry Lane, veh/h	505	505	0.990	605	676	638	710	694	768
Entry HV Adj Factor	0.990	0.991	161	0.991	0.990	0.990	0.990	0.990	0.991
Flow Entry, veh/h	329	371	1900	348	495	541	382	776	323
Cap Entry, veh/h	500	501	0.085	599	669	631	703	687	761
V/C Ratio	0.657	0.740	0.0	0.581	0.740	0.858	0.544	1.129	0.424
Control Delay, s/veh	23.2	28.6	A	16.9	22.8	34.8	13.8	98.6	10.3
LOS	C	D	0	C	C	D	B	F	B
95th %tile Queue, veh	5	6		4	7	10	3	24	2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	545	309	506	760	7	54	319	382	393	117
v/c Ratio	0.23	0.74	0.78	0.61	0.68	0.04	0.30	0.72	0.78	0.79	0.21
Control Delay	58.5	45.3	53.3	27.6	5.5	45.6	50.2	15.5	46.6	47.1	4.8
Queue Delay	0.0	0.0	0.1	4.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.5	45.3	53.4	31.6	6.2	45.6	50.2	15.5	46.6	47.1	4.8
Queue Length 50th (ft)	14	181	197	236	0	4	35	0	242	250	0
Queue Length 95th (ft)	44	274	#358	457	94	19	76	85	#446	#462	34
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	93	889	496	916	1147	339	356	561	596	605	635
Starvation Cap Reductn	0	0	9	320	147	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.61	0.63	0.85	0.76	0.02	0.15	0.57	0.64	0.65	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	480	32	290	476	714	7	51	300	631	98	110
Future Volume (veh/h)	20	480	32	290	476	714	7	51	300	631	98	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	21	511	34	309	506	760	7	54	319	745	0	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	39	826	55	343	776	642	295	309	262	859	0	381
Arrive On Green	0.02	0.24	0.24	0.19	0.41	0.41	0.16	0.16	0.16	0.24	0.00	0.24
Sat Flow, veh/h	1795	3407	226	1795	1885	1559	1795	1885	1598	3591	0	1591
Grp Volume(v), veh/h	21	268	277	309	506	760	7	54	319	745	0	117
Grp Sat Flow(s),veh/h/ln	1795	1791	1842	1795	1885	1559	1795	1885	1598	1795	0	1591
Q Serve(g_s), s	1.3	14.7	14.8	18.5	23.8	45.4	0.4	2.7	18.1	22.0	0.0	6.7
Cycle Q Clear(g_c), s	1.3	14.7	14.8	18.5	23.8	45.4	0.4	2.7	18.1	22.0	0.0	6.7
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	39	434	447	343	776	642	295	309	262	859	0	381
V/C Ratio(X)	0.54	0.62	0.62	0.90	0.65	1.18	0.02	0.17	1.22	0.87	0.00	0.31
Avail Cap(c_a), veh/h	81	434	447	431	776	642	295	309	262	1091	0	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.4	37.2	37.2	43.6	26.1	32.4	38.7	39.7	46.1	40.2	0.0	34.4
Incr Delay (d2), s/veh	11.4	2.6	2.6	18.8	1.9	98.0	0.0	0.3	127.0	6.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.8	7.0	10.0	10.9	34.0	0.2	1.3	16.3	10.2	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.8	39.8	39.9	62.4	28.0	130.5	38.7	39.9	173.1	46.5	0.0	34.9
LnGrp LOS	E	D	D	E	C	F	D	D	F	D	A	C
Approach Vol, veh/h		566			1575			380			862	
Approach Delay, s/veh		40.8			84.2			151.7			44.9	
Approach LOS		D			F			F			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.5	31.2		30.9	6.9	49.9		22.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	26.5	23.9		33.5	5.0	45.4		18.1
Max Q Clear Time (g_c+I1), s	20.5	16.8		24.0	3.3	47.4		20.1
Green Ext Time (p_c), s	0.5	2.0		2.4	0.0	0.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay			74.5
HCM 6th LOS			E

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	94	1425	30	1280	372	280	32	508	9	32
v/c Ratio	0.53	0.77	0.28	0.77	0.44	0.63	0.05	0.85	0.02	0.05
Control Delay	56.8	22.9	54.5	26.2	9.1	35.8	23.9	37.8	23.5	0.2
Queue Delay	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	24.3	54.5	26.2	9.1	35.8	23.9	37.8	23.5	0.2
Queue Length 50th (ft)	61	402	20	370	55	155	14	238	4	0
Queue Length 95th (ft)	#122	516	51	475	132	246	35	#417	15	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	202	2185	108	1986	971	587	797	752	587	751
Starvation Cap Reductn	0	521	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.86	0.28	0.64	0.38	0.48	0.04	0.68	0.02	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1285	40	28	1190	346	260	30	472	8	0	30
Future Volume (veh/h)	87	1285	40	28	1190	346	260	30	472	8	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	94	1382	43	30	1280	0	280	32	508	9	0	32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	121	1674	52	53	1557		543	654	554	373	0	554
Arrive On Green	0.07	0.47	0.47	0.03	0.43	0.00	0.35	0.35	0.35	0.35	0.00	0.35
Sat Flow, veh/h	1795	3543	110	1795	3582	1598	1388	1885	1598	872	0	1598
Grp Volume(v), veh/h	94	698	727	30	1280	0	280	32	508	9	0	32
Grp Sat Flow(s),veh/h/ln	1795	1791	1862	1795	1791	1598	1388	1885	1598	872	0	1598
Q Serve(g_s), s	4.6	30.0	30.2	1.5	28.0	0.0	15.0	1.0	27.2	0.6	0.0	1.2
Cycle Q Clear(g_c), s	4.6	30.0	30.2	1.5	28.0	0.0	16.2	1.0	27.2	1.6	0.0	1.2
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	846	880	53	1557		543	654	554	373	0	554
V/C Ratio(X)	0.78	0.82	0.83	0.57	0.82		0.52	0.05	0.92	0.02	0.00	0.06
Avail Cap(c_a), veh/h	191	1022	1062	103	1867		614	750	636	418	0	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.0	20.3	20.4	42.7	22.2	0.0	24.8	19.4	27.9	19.9	0.0	19.4
Incr Delay (d2), s/veh	10.3	4.7	4.7	9.3	2.6	0.0	0.8	0.0	16.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	12.8	13.3	0.8	11.6	0.0	4.8	0.4	12.3	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	25.1	25.0	52.0	24.8	0.0	25.6	19.4	44.8	19.9	0.0	19.5
LnGrp LOS	D	C	C	D	C		C	B	D	B	A	B
Approach Vol, veh/h		1519			1310	A		820			41	
Approach Delay, s/veh		26.7			25.4			37.3			19.6	
Approach LOS		C			C			D			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	46.7		35.4	10.5	43.3		35.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.1	50.9		35.5	9.5	46.5		35.5
Max Q Clear Time (g_c+I1), s	3.5	32.2		3.6	6.6	30.0		29.2
Green Ext Time (p_c), s	0.0	10.0		0.2	0.0	8.7		1.8

Intersection Summary			
HCM 6th Ctrl Delay			28.5
HCM 6th LOS			C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	508	1349	105	975	306	254	74	146	825
v/c Ratio	0.84	0.88	0.73	0.81	0.78	0.33	0.17	0.74	0.94dr
Control Delay	59.6	35.9	82.4	40.2	65.0	40.7	0.8	73.0	44.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	35.9	82.4	40.2	65.0	40.7	0.8	73.0	44.4
Queue Length 50th (ft)	197	461	81	351	120	88	0	111	225
Queue Length 95th (ft)	#273	567	#171	434	#185	129	1	#204	#343
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	656	1640	149	1283	412	795	461	218	943
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.82	0.70	0.76	0.74	0.32	0.16	0.67	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	483	871	410	100	774	152	291	241	70	139	284	500
Future Volume (veh/h)	483	871	410	100	774	152	291	241	70	139	284	500
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	508	917	0	105	815	160	306	254	74	146	299	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	632	1633		135	1041	204	404	499	223	184	450	
Arrive On Green	0.18	0.46	0.00	0.08	0.35	0.35	0.12	0.14	0.14	0.10	0.13	0.00
Sat Flow, veh/h	3483	3676	0	1795	2977	584	3483	3582	1598	1795	3676	0
Grp Volume(v), veh/h	508	917	0	105	490	485	306	254	74	146	299	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1771	1742	1791	1598	1795	1791	0
Q Serve(g_s), s	11.1	14.8	0.0	4.5	19.4	19.4	6.7	5.2	3.3	6.3	6.3	0.0
Cycle Q Clear(g_c), s	11.1	14.8	0.0	4.5	19.4	19.4	6.7	5.2	3.3	6.3	6.3	0.0
Prop In Lane	1.00		0.00	1.00		0.33	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	632	1633		135	626	619	404	499	223	184	450	
V/C Ratio(X)	0.80	0.56		0.78	0.78	0.78	0.76	0.51	0.33	0.79	0.66	
Avail Cap(c_a), veh/h	946	2420		215	939	928	594	1135	506	315	1153	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.1	15.8	0.0	36.0	23.1	23.1	33.9	31.6	30.8	34.7	33.0	0.0
Incr Delay (d2), s/veh	3.1	0.3	0.0	9.3	2.5	2.6	3.2	0.8	0.9	7.6	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	5.7	0.0	2.3	8.0	7.9	2.9	2.2	1.3	3.0	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	16.1	0.0	45.2	25.6	25.6	37.2	32.4	31.6	42.3	34.7	0.0
LnGrp LOS	C	B		D	C	C	D	C	C	D	C	
Approach Vol, veh/h		1425	A		1080			634			445	A
Approach Delay, s/veh		22.5			27.5			34.6			37.2	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	40.6	13.7	14.5	18.9	32.2	12.6	15.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	53.5	13.5	25.5	21.5	41.5	13.9	25.1
Max Q Clear Time (g_c+I1), s	6.5	16.8	8.7	8.3	13.1	21.4	8.3	7.2
Green Ext Time (p_c), s	0.1	7.9	0.5	1.5	1.3	6.3	0.2	1.6

Intersection Summary	
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	92	574	1244	636	91
v/c Ratio	0.57	0.28	0.80	0.72	0.19
Control Delay	57.6	11.2	22.8	36.8	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	11.2	22.8	36.8	8.9
Queue Length 50th (ft)	46	63	215	147	0
Queue Length 95th (ft)	#168	189	#560	#358	45
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	162	2412	1845	1005	528
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.24	0.67	0.63	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	557	609	598	617	88
Future Volume (vph)	89	557	609	598	617	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3282		3467	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3282		3467	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	92	574	628	616	636	91
RTOR Reduction (vph)	0	0	134	0	0	69
Lane Group Flow (vph)	92	574	1110	0	636	22
Confl. Peds. (#/hr)				4		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	7.8	50.0	37.7		21.9	21.9
Effective Green, g (s)	7.8	50.0	37.7		21.9	21.9
Actuated g/C Ratio	0.09	0.56	0.42		0.25	0.25
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	156	2001	1385		850	392
v/s Ratio Prot	c0.05	0.16	c0.34			
v/s Ratio Perm					c0.18	0.01
v/c Ratio	0.59	0.29	0.80		0.75	0.06
Uniform Delay, d1	39.2	10.3	22.5		31.2	25.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.6	0.1	3.4		3.6	0.1
Delay (s)	44.8	10.4	26.0		34.8	25.9
Level of Service	D	B	C		C	C
Approach Delay (s)		15.1	26.0		33.7	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	89.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	208	831	317	157	569	483	211	456	419	522	146
v/c Ratio	0.71	0.78	0.51	0.65	0.59	0.64	0.70	0.64	0.70	0.71	0.36
Control Delay	56.7	39.9	14.0	58.0	36.7	8.1	55.7	41.2	48.3	44.7	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	39.9	14.0	58.0	36.7	8.1	55.7	41.2	48.3	44.7	16.6
Queue Length 50th (ft)	137	267	51	104	174	7	139	147	142	178	25
Queue Length 95th (ft)	236	390	148	189	265	105	237	215	212	256	86
Internal Link Dist (ft)		1092			186			1440		2310	
Turn Bay Length (ft)	150		150	170		170	230		245		100
Base Capacity (vph)	390	1289	704	317	1143	815	408	963	774	962	496
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.64	0.45	0.50	0.50	0.59	0.52	0.47	0.54	0.54	0.29

Intersection Summary

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11: Creston Road & Niblick Road/Sherwood Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	798	304	151	546	464	203	362	76	402	501	140
Future Volume (veh/h)	200	798	304	151	546	464	203	362	76	402	501	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	208	831	317	157	569	483	211	377	79	419	522	146
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	247	1289	566	193	1180	516	251	541	112	519	692	307
Arrive On Green	0.14	0.36	0.36	0.11	0.33	0.33	0.14	0.19	0.19	0.15	0.19	0.19
Sat Flow, veh/h	1781	3554	1561	1781	3554	1554	1781	2920	605	3456	3554	1575
Grp Volume(v), veh/h	208	831	317	157	569	483	211	228	228	419	522	146
Grp Sat Flow(s),veh/h/ln	1781	1777	1561	1781	1777	1554	1781	1777	1749	1728	1777	1575
Q Serve(g_s), s	10.6	18.1	15.1	8.0	11.8	28.0	10.7	11.1	11.4	10.9	12.9	7.6
Cycle Q Clear(g_c), s	10.6	18.1	15.1	8.0	11.8	28.0	10.7	11.1	11.4	10.9	12.9	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	247	1289	566	193	1180	516	251	329	324	519	692	307
V/C Ratio(X)	0.84	0.64	0.56	0.81	0.48	0.94	0.84	0.69	0.70	0.81	0.75	0.48
Avail Cap(c_a), veh/h	412	1358	597	336	1205	527	432	517	508	819	1014	449
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	24.6	23.7	40.5	24.7	30.1	38.9	35.3	35.4	38.2	35.3	33.2
Incr Delay (d2), s/veh	7.8	1.0	1.1	8.1	0.3	24.1	7.5	2.6	2.8	3.3	1.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	7.3	5.4	3.8	4.8	13.2	5.1	4.9	5.0	4.7	5.6	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	25.6	24.7	48.6	25.0	54.2	46.4	37.9	38.2	41.5	37.2	34.3
LnGrp LOS	D	C	C	D	C	D	D	D	D	D	D	C
Approach Vol, veh/h		1356			1209			667			1087	
Approach Delay, s/veh		28.7			39.7			40.7			38.4	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.4	21.7	14.5	38.2	17.6	22.6	17.4	35.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.0	27.0	17.5	35.5	22.5	26.5	21.5	31.5
Max Q Clear Time (g_c+I1), s	12.9	13.4	10.0	20.1	12.7	14.9	12.6	30.0
Green Ext Time (p_c), s	1.0	2.2	0.2	5.9	0.4	3.0	0.4	0.9

Intersection Summary	
HCM 6th Ctrl Delay	36.1
HCM 6th LOS	D

12: Creston Road & Stoney Creek Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	15.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	135	10	14	10	10	42	23	401	10	53	526	166
Future Vol, veh/h	135	10	14	10	10	42	23	401	10	53	526	166
Conflicting Peds, #/hr	4	0	0	0	0	4	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	136	10	14	10	10	42	23	405	10	54	531	168

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1130	1105	536	1191	1268	414	704	0	0	415	0	0
Stage 1	644	644	-	456	456	-	-	-	-	-	-	-
Stage 2	486	461	-	735	812	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	182	212	547	165	169	640	898	-	-	1149	-	-
Stage 1	463	470	-	586	570	-	-	-	-	-	-	-
Stage 2	565	567	-	413	394	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	151	196	544	146	156	638	894	-	-	1149	-	-
Mov Cap-2 Maneuver	151	196	-	146	156	-	-	-	-	-	-	-
Stage 1	449	446	-	571	555	-	-	-	-	-	-	-
Stage 2	503	552	-	375	374	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	120.8	19.4	0.5	0.6
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	894	-	-	164	312	1149	-	-
HCM Lane V/C Ratio	0.026	-	-	0.979	0.201	0.047	-	-
HCM Control Delay (s)	9.1	-	-	120.8	19.4	8.3	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	7.6	0.7	0.1	-	-

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Intersection	
Intersection Delay, s/veh	24.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	10	10	14	164	10	162	0	13	262	253	272	250
Future Vol, veh/h	10	10	14	164	10	162	0	13	262	253	272	250
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	2	1	1	1	1	1
Mvmt Flow	11	11	15	176	11	174	0	14	282	272	292	269
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.7	22.1	17.1	33.1
HCM LOS	B	C	C	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	5%	0%	29%	49%	69%	0%
Vol Thru, %	95%	0%	29%	3%	31%	86%
Vol Right, %	0%	100%	41%	48%	0%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	275	253	34	336	397	145
LT Vol	13	0	10	164	272	0
Through Vol	262	0	10	10	125	125
RT Vol	0	253	14	162	0	20
Lane Flow Rate	296	272	37	361	427	156
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.58	0.478	0.081	0.668	0.862	0.295
Departure Headway (Hd)	7.066	6.323	7.961	6.658	7.271	6.821
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	512	569	449	542	499	527
Service Time	4.81	4.066	6.029	4.692	5.014	4.564
HCM Lane V/C Ratio	0.578	0.478	0.082	0.666	0.856	0.296
HCM Control Delay	19.2	14.8	11.7	22.1	40.6	12.4
HCM Lane LOS	C	B	B	C	E	B
HCM 95th-tile Q	3.6	2.6	0.3	4.9	9.1	1.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	20
Future Vol, veh/h	20
Peak Hour Factor	0.93
Heavy Vehicles, %	1
Mvmt Flow	22
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

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Intersection	
Int Delay, s/veh	12.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	313	230	136	216	194	234
Future Vol, veh/h	313	230	136	216	194	234
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	323	237	140	223	200	241

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	592	200	441	0	-	0
Stage 1	200	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.115	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	455	843	1123	-	-	-
Stage 1	836	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	398	843	1123	-	-	-
Mov Cap-2 Maneuver	398	-	-	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	655	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.4	3.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1123	-	398	843	-	-
HCM Lane V/C Ratio	0.125	-	0.811	0.281	-	-
HCM Control Delay (s)	8.7	-	43	10.9	-	-
HCM Lane LOS	A	-	E	B	-	-
HCM 95th %tile Q(veh)	0.4	-	7.3	1.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	313	20	0	0	0	0	400	53
Future Volume (Veh/h)	0	0	0	0	313	20	0	0	0	0	400	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	340	22	0	0	0	0	435	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	634	464	464	464	493	0	493			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	634	464	464	464	493	0	493			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	29	98	100			100		
cM capacity (veh/h)	163	497	600	510	478	1088	1076			1630		

Direction, Lane #	WB 1	SB 1
Volume Total	362	493
Volume Left	0	0
Volume Right	22	58
cSH	499	1700
Volume to Capacity	0.73	0.29
Queue Length 95th (ft)	147	0
Control Delay (s)	29.0	0.0
Lane LOS	D	
Approach Delay (s)	29.0	0.0
Approach LOS	D	

Intersection Summary			
Average Delay	12.3		
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	478	759	275	536	141	424	1172	786	461
v/c Ratio	0.27	0.87	0.72	0.48	0.52	0.70	0.81	0.89	0.90	0.46
Control Delay	58.2	73.6	50.2	45.5	8.7	81.0	73.1	32.0	66.0	41.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.2	73.6	50.2	45.5	8.7	81.0	73.1	32.0	66.0	41.1
Queue Length 50th (ft)	65	231	344	222	112	135	212	307	383	177
Queue Length 95th (ft)	118	#321	421	316	201	207	275	411	#489	241
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	293	583	1084	588	1043	258	581	1347	931	1039
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.82	0.70	0.47	0.51	0.55	0.73	0.87	0.84	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	351	113	736	267	520	137	411	1137	762	325	122
Future Volume (veh/h)	73	351	113	736	267	520	137	411	1137	762	325	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	75	362	116	759	275	536	141	424	1172	786	335	126
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	278	414	131	1001	542	845	166	593	1273	856	796	294
Arrive On Green	0.16	0.16	0.16	0.29	0.29	0.29	0.09	0.17	0.17	0.25	0.31	0.31
Sat Flow, veh/h	1795	2668	842	3483	1885	1573	1795	3582	2812	3483	2560	946
Grp Volume(v), veh/h	75	241	237	759	275	536	141	424	1172	786	233	228
Grp Sat Flow(s),veh/h/ln	1795	1791	1719	1742	1885	1573	1795	1791	1406	1742	1791	1715
Q Serve(g_s), s	5.2	18.4	18.9	27.8	17.1	33.8	10.8	15.7	23.2	30.8	14.4	14.8
Cycle Q Clear(g_c), s	5.2	18.4	18.9	27.8	17.1	33.8	10.8	15.7	23.2	30.8	14.4	14.8
Prop In Lane	1.00		0.49	1.00		1.00	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	278	278	267	1001	542	845	166	593	1273	856	557	533
V/C Ratio(X)	0.27	0.87	0.89	0.76	0.51	0.63	0.85	0.72	0.92	0.92	0.42	0.43
Avail Cap(c_a), veh/h	300	299	287	1108	600	893	264	593	1273	952	557	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.2	57.8	58.0	45.5	41.7	23.2	62.6	55.4	27.3	51.5	38.3	38.4
Incr Delay (d2), s/veh	0.5	21.8	25.8	2.8	0.7	1.4	13.6	4.1	11.0	12.8	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	10.1	10.2	12.2	8.0	12.4	5.5	7.3	22.6	15.0	6.5	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	79.6	83.8	48.3	42.4	24.5	76.3	59.4	38.3	64.2	38.8	38.9
LnGrp LOS	D	E	F	D	D	C	E	E	D	E	D	D
Approach Vol, veh/h		553			1570			1737			1247	
Approach Delay, s/veh		77.7			39.2			46.5			54.9	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	39.1	29.0		26.3	18.8	49.4		45.7				
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4				
Max Green Setting (Gmax), s	* 38	23.2		23.4	20.6	* 41		44.6				
Max Q Clear Time (g_c+I1), s	32.8	25.2		20.9	12.8	16.8		35.8				
Green Ext Time (p_c), s	1.6	0.0		0.8	0.2	2.9		4.4				

Intersection Summary

HCM 6th Ctrl Delay			49.7									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	281	1156	661	140	1031	432	377	215	551
v/c Ratio	0.74	0.86	0.74	0.74	0.79	0.80	0.52	0.80	0.78
Control Delay	62.4	40.4	15.1	74.2	36.1	59.1	39.1	69.0	48.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	40.4	15.1	74.2	36.1	59.1	39.1	69.0	48.4
Queue Length 50th (ft)	107	415	127	104	350	162	121	156	195
Queue Length 95th (ft)	#170	#536	299	#208	453	#240	171	#278	258
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	398	1422	912	202	1390	579	860	302	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.81	0.72	0.69	0.74	0.75	0.44	0.71	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	1110	635	134	830	159	415	270	92	206	399	130
Future Volume (veh/h)	270	1110	635	134	830	159	415	270	92	206	399	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	281	1156	661	140	865	166	432	281	96	215	416	135
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	351	1389	620	171	1145	220	510	534	179	249	519	167
Arrive On Green	0.10	0.39	0.39	0.10	0.38	0.38	0.15	0.20	0.20	0.14	0.19	0.19
Sat Flow, veh/h	3483	3582	1598	1795	2997	575	3483	2636	881	1795	2663	855
Grp Volume(v), veh/h	281	1156	661	140	517	514	432	189	188	215	278	273
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1781	1742	1791	1727	1795	1791	1727
Q Serve(g_s), s	8.1	29.9	24.5	7.8	25.7	25.7	12.4	9.6	10.0	12.0	15.2	15.5
Cycle Q Clear(g_c), s	8.1	29.9	24.5	7.8	25.7	25.7	12.4	9.6	10.0	12.0	15.2	15.5
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.51	1.00		0.50
Lane Grp Cap(c), veh/h	351	1389	620	171	684	680	510	363	350	249	349	336
V/C Ratio(X)	0.80	0.83	1.07	0.82	0.76	0.76	0.85	0.52	0.54	0.86	0.80	0.81
Avail Cap(c_a), veh/h	432	1538	686	219	766	761	629	469	452	328	472	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	28.3	11.9	45.5	27.5	27.5	42.6	36.4	36.5	43.2	39.3	39.4
Incr Delay (d2), s/veh	8.5	3.7	54.3	17.3	3.9	3.9	8.8	1.2	1.3	16.6	6.7	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	12.7	16.8	4.2	11.1	11.0	5.8	4.2	4.2	6.3	7.1	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.5	32.1	66.2	62.8	31.4	31.4	51.4	37.6	37.8	59.7	46.1	47.2
LnGrp LOS	D	C	F	E	C	C	D	D	D	E	D	D
Approach Vol, veh/h		2098			1171			809			766	
Approach Delay, s/veh		45.7			35.1			45.0			50.3	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	44.2	19.5	24.5	14.8	43.6	18.7	25.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	44.0	18.5	27.0	12.7	43.8	18.7	26.8
Max Q Clear Time (g_c+I1), s	9.8	31.9	14.4	17.5	10.1	27.7	14.0	12.0
Green Ext Time (p_c), s	0.1	7.8	0.6	2.2	0.2	5.8	0.2	1.8

Intersection Summary	
HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

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Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	10	10	549	850	105
Future Vol, veh/h	57	10	10	549	850	105
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	10	10	572	885	109

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1533	941	995	0	-	0
Stage 1	941	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	128	319	695	-	-	-
Stage 1	380	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	125	319	694	-	-	-
Mov Cap-2 Maneuver	125	-	-	-	-	-
Stage 1	372	-	-	-	-	-
Stage 2	552	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	55.8	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	694	-	137	-	-
HCM Lane V/C Ratio	0.015	-	0.509	-	-
HCM Control Delay (s)	10.3	0	55.8	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0	-	2.4	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	14	23	509	760	54
Future Vol, veh/h	40	14	23	509	760	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	43	15	25	553	826	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1459	856	885	0	-	0
Stage 1	856	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	142	356	761	-	-	-
Stage 1	415	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	135	356	761	-	-	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	395	-	-	-	-	-
Stage 2	544	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	761	-	333	-	-
HCM Lane V/C Ratio	0.033	-	0.176	-	-
HCM Control Delay (s)	9.9	0	18.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

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20: S. River Road & Charolais Road

HCM 6th Roundabout

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	491	142	838
Demand Flow Rate, veh/h	496	143	846
Vehicles Circulating, veh/h	110	729	11
Vehicles Exiting, veh/h	762	128	595
Ped Vol Crossing Leg, #/h	0	0	1
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.9	8.2	10.0
Approach LOS	A	A	B

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	496	143	846
Cap Entry Lane, veh/h	1233	656	1364
Entry HV Adj Factor	0.990	0.992	0.990
Flow Entry, veh/h	491	142	838
Cap Entry, veh/h	1221	651	1351
V/C Ratio	0.402	0.218	0.620
Control Delay, s/veh	6.9	8.2	10.0
LOS	A	A	B
95th %tile Queue, veh	2	1	5

21: Charolais Road & Holstein Drive

HCM 6th TWSC

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	684	442	10	10	10
Future Vol, veh/h	10	684	442	10	10	10
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	743	480	11	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	505	0	-	0	1265	500
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	765	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1065	-	-	-	188	573
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	461	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1051	-	-	-	181	565
Mov Cap-2 Maneuver	-	-	-	-	181	-
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	455	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	19.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1051	-	-	-	274
HCM Lane V/C Ratio	0.01	-	-	-	0.079
HCM Control Delay (s)	8.5	-	-	-	19.3
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

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Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	644	10	10	412	28	10	0	10	31	0	30
Future Vol, veh/h	40	644	10	10	412	28	10	0	10	31	0	30
Conflicting Peds, #/hr	12	0	0	0	0	12	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	42	678	11	11	434	29	11	0	11	33	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	475	0	0	689	0	0	1255	1265	684	1256	1256	461
Stage 1	-	-	-	-	-	-	768	768	-	483	483	-
Stage 2	-	-	-	-	-	-	487	497	-	773	773	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1082	-	-	901	-	-	148	168	447	147	171	598
Stage 1	-	-	-	-	-	-	393	409	-	563	551	-
Stage 2	-	-	-	-	-	-	560	543	-	390	407	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1070	-	-	901	-	-	135	158	447	136	161	591
Mov Cap-2 Maneuver	-	-	-	-	-	-	135	158	-	136	161	-
Stage 1	-	-	-	-	-	-	378	393	-	535	538	-
Stage 2	-	-	-	-	-	-	524	531	-	366	391	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	24.4	28.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	207	1070	-	-	901	-	-	219
HCM Lane V/C Ratio	0.102	0.039	-	-	0.012	-	-	0.293
HCM Control Delay (s)	24.4	8.5	-	-	9	-	-	28.1
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	1.2

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	677	439	10	10	10
Future Vol, veh/h	10	677	439	10	10	10
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	736	477	11	11	11

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	497	0	-	0	1250	492
Stage 1	-	-	-	-	492	-
Stage 2	-	-	-	-	758	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1072	-	-	-	192	579
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	465	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1063	-	-	-	187	574
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	461	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1063	-	-	-	282
HCM Lane V/C Ratio	0.01	-	-	-	0.077
HCM Control Delay (s)	8.4	-	-	-	18.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	175	512	359	31	26	90
Future Vol, veh/h	175	512	359	31	26	90
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	190	557	390	34	28	98

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	426	0	-	0	1346	409
Stage 1	-	-	-	-	409	-
Stage 2	-	-	-	-	937	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1139	-	-	-	168	645
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	383	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1137	-	-	-	139	644
Mov Cap-2 Maneuver	-	-	-	-	139	-
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	382	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1137	-	-	-	355
HCM Lane V/C Ratio	0.167	-	-	-	0.355
HCM Control Delay (s)	8.8	-	-	-	20.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.6	-	-	-	1.6

Intersection	
Intersection Delay, s/veh	5.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	416	211	41	127
Demand Flow Rate, veh/h	420	213	41	128
Vehicles Circulating, veh/h	27	105	389	242
Vehicles Exiting, veh/h	343	325	58	76
Ped Vol Crossing Leg, #/h	0	0	0	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.5	4.4	4.3	4.4
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	420	213	41	128
Cap Entry Lane, veh/h	1342	1240	928	1078
Entry HV Adj Factor	0.990	0.991	0.999	0.992
Flow Entry, veh/h	416	211	41	127
Cap Entry, veh/h	1329	1228	927	1069
V/C Ratio	0.313	0.172	0.044	0.119
Control Delay, s/veh	5.5	4.4	4.3	4.4
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	0

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	435	1773	1732	221	207	342
v/c Ratio	0.82	0.55	0.95	0.25	0.80	0.65
Control Delay	75.1	0.7	43.3	5.8	84.8	45.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.1	0.7	43.3	5.8	84.8	45.8
Queue Length 50th (ft)	225	0	848	25	208	283
Queue Length 95th (ft)	298	0	#1139	74	312	398
Internal Link Dist (ft)		942	2695		514	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	628	3223	1942	934	324	625
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.55	0.89	0.24	0.64	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	400	1631	1593	203	190	315
Future Volume (vph)	400	1631	1593	203	190	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3127	3223	3223	1442	1612	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3127	3223	3223	1442	1612	1442
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	435	1773	1732	221	207	342
RTOR Reduction (vph)	0	0	0	71	0	9
Lane Group Flow (vph)	435	1773	1732	150	207	333
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	25.8	151.3	86.0	86.0	24.5	54.3
Effective Green, g (s)	25.8	151.3	86.0	86.0	24.5	54.3
Actuated g/C Ratio	0.17	1.00	0.57	0.57	0.16	0.36
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	533	3223	1831	819	261	517
v/s Ratio Prot	c0.14	0.55	c0.54		c0.13	0.23
v/s Ratio Perm				0.10		
v/c Ratio	0.82	0.55	0.95	0.18	0.79	0.64
Uniform Delay, d1	60.5	0.0	30.5	15.7	61.0	40.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.4	0.7	10.9	0.1	15.5	2.8
Delay (s)	69.8	0.7	41.4	15.9	76.5	43.2
Level of Service	E	A	D	B	E	D
Approach Delay (s)		14.3	38.5		55.8	
Approach LOS		B	D		E	

Intersection Summary

HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	151.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	435	1158	387	443	1176	326	472	665	255	253	304
v/c Ratio	1.15	0.91	0.48	1.15	0.92	0.43	1.12	0.88	0.72	0.70	0.64
Control Delay	149.8	54.8	4.8	150.2	55.7	6.2	138.4	70.5	79.8	66.6	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	149.8	54.8	4.8	150.2	55.7	6.2	138.4	70.5	79.8	66.6	23.8
Queue Length 50th (ft)	~286	592	0	~291	604	15	~306	347	134	240	85
Queue Length 95th (ft)	#434	716	68	#445	733	87	#458	452	194	357	200
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	379	1521	886	385	1521	841	421	876	421	468	550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.76	0.44	1.15	0.77	0.39	1.12	0.76	0.61	0.54	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	1065	356	408	1082	300	434	519	93	235	233	280
Future Volume (veh/h)	400	1065	356	408	1082	300	434	519	93	235	233	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	435	1158	387	443	1176	326	472	564	101	255	253	304
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	361	1288	574	361	1356	605	401	712	127	299	388	329
Arrive On Green	0.11	0.39	0.39	0.11	0.41	0.41	0.12	0.26	0.26	0.09	0.22	0.22
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	2792	498	3209	1737	1472
Grp Volume(v), veh/h	435	1158	387	443	1176	326	472	333	332	255	253	304
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1640	1605	1737	1472
Q Serve(g_s), s	18.0	52.8	23.7	18.0	52.3	26.9	20.0	30.1	30.3	12.5	21.2	32.4
Cycle Q Clear(g_c), s	18.0	52.8	23.7	18.0	52.3	26.9	20.0	30.1	30.3	12.5	21.2	32.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	361	1288	574	361	1356	605	401	421	418	299	388	329
V/C Ratio(X)	1.21	0.90	0.67	1.23	0.87	0.54	1.18	0.79	0.79	0.85	0.65	0.92
Avail Cap(c_a), veh/h	361	1442	643	361	1442	643	401	422	420	401	445	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.1	45.9	18.7	71.1	43.2	35.7	70.1	55.7	55.8	71.5	56.5	60.9
Incr Delay (d2), s/veh	116.2	7.4	2.4	124.9	5.6	0.8	103.2	9.7	10.1	12.5	2.8	26.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	22.0	8.3	13.5	21.3	9.7	13.9	13.6	13.6	5.6	9.5	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.3	53.3	21.1	196.0	48.9	36.5	173.3	65.4	65.9	84.1	59.3	87.2
LnGrp LOS	F	D	C	F	D	D	F	E	E	F	E	F
Approach Vol, veh/h		1980			1945			1137			812	
Approach Delay, s/veh		76.4			80.3			110.3			77.5	
Approach LOS		E			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.3	69.8	24.0	41.1	22.0	73.1	18.9	46.2
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	20.0	54.8	22.0	34.4	20.0	54.3	14.5	32.3
Green Ext Time (p_c), s	0.0	7.7	0.0	1.4	0.0	7.7	0.4	2.6

Intersection Summary	
HCM 6th Ctrl Delay	84.4
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1289	1690	30	0	100
Future Vol, veh/h	0	1289	1690	30	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	165	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	1401	1837	33	0	109

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	919
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.4
Pot Cap-1 Maneuver	0	-	-	-	0	259
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	259
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	28.6
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	259
HCM Lane V/C Ratio	-	-	-	0.42
HCM Control Delay (s)	-	-	-	28.6
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	2

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑↳			↲	↱		↔	
Traffic Vol, veh/h	0	1233	56	3	1694	0	26	0	10	0	0	0
Future Vol, veh/h	0	1233	56	3	1694	0	26	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	13	13	13	13	13	13	13	13	13	13	13	13
Mvmt Flow	0	1340	61	3	1841	0	28	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1841	0	0	1401	0	0	2267	3187	670	2517	3248	921
Stage 1	-	-	-	-	-	-	1340	1340	-	1847	1847	-
Stage 2	-	-	-	-	-	-	927	1847	-	670	1401	-
Critical Hdwy	4.36	-	-	4.36	-	-	7.76	6.76	7.16	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.76	-	6.76	5.76	-
Follow-up Hdwy	2.33	-	-	2.33	-	-	3.63	4.13	3.43	3.63	4.13	3.43
Pot Cap-1 Maneuver	284	-	-	431	-	-	~ 19	8	375	12	7	252
Stage 1	-	-	-	-	-	-	146	200	-	68	109	-
Stage 2	-	-	-	-	-	-	268	109	-	388	186	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	284	-	-	431	-	-	~ 19	8	375	12	7	252
Mov Cap-2 Maneuver	-	-	-	-	-	-	121	88	-	63	86	-
Stage 1	-	-	-	-	-	-	146	200	-	68	108	-
Stage 2	-	-	-	-	-	-	266	108	-	377	186	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	35.6	0
HCM LOS			E	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	121	375	284	-	-	431	-	-	-
HCM Lane V/C Ratio	0.234	0.029	-	-	-	0.008	-	-	-
HCM Control Delay (s)	43.6	14.9	0	-	-	13.4	-	-	0
HCM Lane LOS	E	B	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	0.9	0.1	0	-	-	0	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Intersection Delay, s/veh	36.2
Intersection LOS	E

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	2	2	2
Adj Approach Flow, veh/h	626	737	1124	989
Demand Flow Rate, veh/h	645	759	1158	1018
Vehicles Circulating, veh/h	1099	1050	589	655
Vehicles Exiting, veh/h	574	697	987	1155
Ped Vol Crossing Leg, #/h	0	0	3	0
Ped Cap Adj	1.000	1.000	0.998	1.000
Approach Delay, s/veh	11.3	24.1	51.4	43.8
Approach LOS	B	C	F	E

Lane	Left	Right	Bypass	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	R	L	TR	LT	R	LT	R
Assumed Moves	LT	TR	R	L	TR	LT	R	LT	R
RT Channelized			Free						
Lane Util	0.470	0.530		0.474	0.526	0.709	0.291	0.725	0.275
Follow-Up Headway, s	2.535	2.535		2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.544	4.544	168	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	224	253	1957	360	399	821	337	738	280
Cap Entry Lane, veh/h	522	522	0.971	514	582	785	861	739	814
Entry HV Adj Factor	0.971	0.969	163	0.972	0.971	0.971	0.970	0.971	0.971
Flow Entry, veh/h	218	245	1900	350	387	797	327	717	272
Cap Entry, veh/h	507	506	0.086	500	565	761	834	718	791
V/C Ratio	0.429	0.484	0.0	0.701	0.686	1.047	0.392	0.999	0.344
Control Delay, s/veh	14.5	16.0	A	25.9	22.6	68.8	9.0	57.2	8.6
LOS	B	C	0	D	C	F	A	F	A
95th %tile Queue, veh	2	3		5	5	20	2	16	2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	432	388	504	767	11	22	166	349	351	43
v/c Ratio	0.12	0.68	0.81	0.56	0.66	0.08	0.15	0.60	0.78	0.78	0.09
Control Delay	53.7	43.2	48.4	21.6	4.6	47.2	48.1	17.3	48.2	47.5	0.3
Queue Delay	0.0	0.0	0.9	1.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	43.2	49.3	23.2	5.2	47.2	48.1	17.3	48.2	47.5	0.3
Queue Length 50th (ft)	7	136	229	211	0	7	14	0	210	211	0
Queue Length 95th (ft)	28	207	#419	403	75	26	41	65	#412	#412	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	94	861	595	1017	1208	339	358	433	529	537	574
Starvation Cap Reductn	0	0	60	335	163	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.50	0.73	0.74	0.73	0.03	0.06	0.38	0.66	0.65	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	365	32	357	464	706	10	20	153	553	91	40
Future Volume (veh/h)	10	365	32	357	464	706	10	20	153	553	91	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	11	397	35	388	504	767	11	22	166	672	0	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	23	799	70	424	874	741	221	232	196	777	0	342
Arrive On Green	0.01	0.24	0.24	0.24	0.47	0.47	0.12	0.12	0.12	0.22	0.00	0.22
Sat Flow, veh/h	1767	3274	287	1767	1856	1572	1767	1856	1569	3534	0	1555
Grp Volume(v), veh/h	11	213	219	388	504	767	11	22	166	672	0	43
Grp Sat Flow(s),veh/h/ln	1767	1763	1798	1767	1856	1572	1767	1856	1569	1767	0	1555
Q Serve(g_s), s	0.6	10.9	11.0	22.5	20.7	49.5	0.6	1.1	10.9	19.2	0.0	2.3
Cycle Q Clear(g_c), s	0.6	10.9	11.0	22.5	20.7	49.5	0.6	1.1	10.9	19.2	0.0	2.3
Prop In Lane	1.00		0.16	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	430	439	424	874	741	221	232	196	777	0	342
V/C Ratio(X)	0.48	0.49	0.50	0.92	0.58	1.04	0.05	0.09	0.85	0.86	0.00	0.13
Avail Cap(c_a), veh/h	84	430	439	530	874	741	303	318	269	992	0	436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.5	34.1	34.2	38.9	20.2	27.8	40.5	40.7	45.0	39.5	0.0	32.9
Incr Delay (d2), s/veh	14.4	0.9	0.9	18.0	0.9	42.6	0.1	0.2	16.5	6.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.8	5.0	11.7	8.9	26.3	0.3	0.5	5.1	8.9	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	35.0	35.1	56.9	21.1	70.4	40.6	40.9	61.5	46.1	0.0	33.1
LnGrp LOS	E	D	D	E	C	F	D	D	E	D	A	C
Approach Vol, veh/h		443			1659			199			715	
Approach Delay, s/veh		35.8			52.3			58.1			45.3	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.7	30.2		27.6	5.9	54.0		17.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	31.5	23.0		29.5	5.0	49.5		18.0
Max Q Clear Time (g_c+I1), s	24.5	13.0		21.2	2.6	51.5		12.9
Green Ext Time (p_c), s	0.7	1.9		1.9	0.0	0.0		0.3

Intersection Summary			
HCM 6th Ctrl Delay			48.6
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	1088	57	1414	433	235	22	272	11	11
v/c Ratio	0.44	0.57	0.35	0.74	0.45	0.72	0.05	0.51	0.03	0.02
Control Delay	52.5	15.9	50.7	20.1	6.6	47.9	29.7	11.6	29.6	0.1
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	16.4	50.7	20.1	6.6	47.9	29.7	11.6	29.6	0.1
Queue Length 50th (ft)	47	223	35	345	46	141	11	27	6	0
Queue Length 95th (ft)	98	318	78	477	123	228	31	99	20	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	207	2257	196	2260	1086	473	631	681	469	654
Starvation Cap Reductn	0	686	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.69	0.29	0.63	0.40	0.50	0.03	0.40	0.02	0.02

Intersection Summary

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	950	51	52	1301	398	216	20	250	10	0	10
Future Volume (veh/h)	70	950	51	52	1301	398	216	20	250	10	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	1033	55	57	1414	0	235	22	272	11	0	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	98	1849	98	85	1889		396	401	340	325	0	340
Arrive On Green	0.06	0.54	0.54	0.05	0.54	0.00	0.22	0.22	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1767	3403	181	1767	3526	1572	1392	1856	1572	1077	0	1572
Grp Volume(v), veh/h	76	535	553	57	1414	0	235	22	272	11	0	11
Grp Sat Flow(s),veh/h/ln	1767	1763	1822	1767	1763	1572	1392	1856	1572	1077	0	1572
Q Serve(g_s), s	3.0	13.9	13.9	2.2	21.8	0.0	11.2	0.7	11.5	0.6	0.0	0.4
Cycle Q Clear(g_c), s	3.0	13.9	13.9	2.2	21.8	0.0	11.6	0.7	11.5	1.2	0.0	0.4
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	958	990	85	1889		396	401	340	325	0	340
V/C Ratio(X)	0.78	0.56	0.56	0.67	0.75		0.59	0.05	0.80	0.03	0.00	0.03
Avail Cap(c_a), veh/h	240	1384	1430	227	2742		642	728	617	515	0	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.7	10.5	10.5	32.8	12.6	0.0	26.3	21.8	26.0	22.3	0.0	21.7
Incr Delay (d2), s/veh	12.3	0.5	0.5	9.0	0.7	0.0	1.4	0.1	4.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	4.7	4.9	1.1	7.4	0.0	3.6	0.3	4.4	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	11.0	11.0	41.8	13.3	0.0	27.7	21.8	30.4	22.3	0.0	21.7
LnGrp LOS	D	B	B	D	B		C	C	C	C	A	C
Approach Vol, veh/h		1164			1471	A		529			22	
Approach Delay, s/veh		13.2			14.4			28.8			22.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.9	42.6		19.6	8.4	42.0		19.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.0	55.0		27.5	9.5	54.5		27.5
Max Q Clear Time (g_c+I1), s	4.2	15.9		3.2	5.0	23.8		13.6
Green Ext Time (p_c), s	0.0	9.2		0.0	0.1	13.8		1.5

Intersection Summary			
HCM 6th Ctrl Delay			16.4
HCM 6th LOS			B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	342	972	65	1204	417	203	54	174	698
v/c Ratio	0.85	0.62	0.49	0.89	0.87	0.27	0.13	0.79	1.09dr
Control Delay	70.8	24.4	65.5	41.3	68.5	40.5	2.3	74.7	53.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.8	24.4	65.5	41.3	68.5	40.5	2.3	74.7	53.0
Queue Length 50th (ft)	136	276	49	435	165	70	0	132	216
Queue Length 95th (ft)	#217	349	96	533	#253	106	8	#240	#331
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	410	1575	153	1463	494	758	413	241	788
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.62	0.42	0.82	0.84	0.27	0.13	0.72	0.89

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	591	304	60	917	190	384	187	50	160	192	450
Future Volume (veh/h)	315	591	304	60	917	190	384	187	50	160	192	450
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	342	642	0	65	997	207	417	203	54	174	209	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	431	1777		84	1235	256	512	430	192	212	327	
Arrive On Green	0.12	0.50	0.00	0.05	0.42	0.42	0.15	0.12	0.12	0.12	0.09	0.00
Sat Flow, veh/h	3456	3647	0	1781	2923	606	3456	3554	1585	1781	3647	0
Grp Volume(v), veh/h	342	642	0	65	605	599	417	203	54	174	209	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1752	1728	1777	1585	1781	1777	0
Q Serve(g_s), s	8.1	9.3	0.0	3.1	25.3	25.4	9.9	4.5	2.6	8.1	4.8	0.0
Cycle Q Clear(g_c), s	8.1	9.3	0.0	3.1	25.3	25.4	9.9	4.5	2.6	8.1	4.8	0.0
Prop In Lane	1.00		0.00	1.00		0.35	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	431	1777		84	751	740	512	430	192	212	327	
V/C Ratio(X)	0.79	0.36		0.77	0.81	0.81	0.81	0.47	0.28	0.82	0.64	
Avail Cap(c_a), veh/h	559	2187		208	1014	1000	673	1024	457	328	986	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.0	12.9	0.0	39.9	21.4	21.5	34.9	34.7	33.9	36.4	37.1	0.0
Incr Delay (d2), s/veh	5.9	0.1	0.0	13.9	3.5	3.7	5.8	0.8	0.8	9.1	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	3.5	0.0	1.6	10.4	10.3	4.4	1.9	1.0	3.8	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	13.0	0.0	53.8	24.9	25.1	40.7	35.5	34.7	45.5	39.2	0.0
LnGrp LOS	D	B		D	C	C	D	D	C	D	D	
Approach Vol, veh/h		984	A		1269			674			383	A
Approach Delay, s/veh		23.1			26.5			38.7			42.0	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	46.8	17.1	12.3	15.1	40.3	14.6	14.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.9	52.1	16.5	23.5	13.7	48.3	15.6	24.4
Max Q Clear Time (g_c+I1), s	5.1	11.3	11.9	6.8	10.1	27.4	10.1	6.5
Green Ext Time (p_c), s	0.0	5.1	0.7	1.0	0.4	8.4	0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	96	491	1425	633	143
v/c Ratio	0.71	0.23	0.84	0.80	0.30
Control Delay	73.4	10.1	24.8	44.2	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	10.1	24.8	44.2	8.2
Queue Length 50th (ft)	53	51	284	169	0
Queue Length 95th (ft)	#183	155	#717	#386	56
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	135	2165	1698	793	475
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	0.23	0.84	0.80	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	88	452	720	591	582	132
Future Volume (vph)	88	452	720	591	582	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	3245		3400	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	3245		3400	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	491	783	642	633	143
RTOR Reduction (vph)	0	0	105	0	0	111
Lane Group Flow (vph)	96	491	1320	0	633	32
Confl. Peds. (#/hr)				3		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	7.3	58.6	46.8		22.1	22.1
Effective Green, g (s)	7.3	58.6	46.8		22.1	22.1
Actuated g/C Ratio	0.07	0.59	0.48		0.22	0.22
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	129	2085	1541		762	351
v/s Ratio Prot	c0.05	0.14	c0.41			
v/s Ratio Perm					c0.19	0.02
v/c Ratio	0.74	0.24	0.86		0.83	0.09
Uniform Delay, d1	44.7	9.4	22.9		36.4	30.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	20.5	0.1	4.9		7.7	0.1
Delay (s)	65.2	9.5	27.8		44.1	30.4
Level of Service	E	A	C		D	C
Approach Delay (s)		18.6	27.8		41.6	
Approach LOS		B	C		D	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	98.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	142	427	158	98	846	636	252	632	299	326	311
v/c Ratio	0.69	0.32	0.23	0.55	0.72	0.87	0.80	0.78	0.72	0.53	0.64
Control Delay	65.6	25.6	5.0	61.3	35.2	28.3	62.6	45.8	57.8	44.8	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	25.6	5.0	61.3	35.2	28.3	62.6	45.8	57.8	44.8	15.4
Queue Length 50th (ft)	103	116	0	71	278	204	179	231	112	119	29
Queue Length 95th (ft)	#194	170	45	130	367	#458	#314	301	#177	168	124
Internal Link Dist (ft)		1092			186			1440		2310	
Turn Bay Length (ft)	150		150	170		170	230		245		100
Base Capacity (vph)	242	1457	733	227	1421	809	376	1019	457	752	536
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.29	0.22	0.43	0.60	0.79	0.67	0.62	0.65	0.43	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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11: Creston Road & Niblick Road/Sherwood Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	393	145	90	778	585	232	532	50	275	300	286
Future Volume (veh/h)	131	393	145	90	778	585	232	532	50	275	300	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.95	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	142	427	158	98	846	636	252	578	54	299	326	311
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	170	1409	620	123	1314	573	282	817	76	361	696	308
Arrive On Green	0.10	0.41	0.41	0.07	0.38	0.38	0.16	0.26	0.26	0.11	0.20	0.20
Sat Flow, veh/h	1739	3469	1527	1739	3469	1513	1739	3191	297	3374	3469	1533
Grp Volume(v), veh/h	142	427	158	98	846	636	252	313	319	299	326	311
Grp Sat Flow(s),veh/h/ln	1739	1735	1527	1739	1735	1513	1739	1735	1754	1687	1735	1533
Q Serve(g_s), s	9.0	9.4	7.7	6.2	22.5	42.5	15.9	18.4	18.5	9.7	9.3	22.5
Cycle Q Clear(g_c), s	9.0	9.4	7.7	6.2	22.5	42.5	15.9	18.4	18.5	9.7	9.3	22.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	170	1409	620	123	1314	573	282	444	449	361	696	308
V/C Ratio(X)	0.84	0.30	0.25	0.80	0.64	1.11	0.89	0.71	0.71	0.83	0.47	1.01
Avail Cap(c_a), veh/h	225	1409	620	211	1314	573	349	478	483	424	696	308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	22.6	22.1	51.3	28.6	34.8	46.0	37.9	37.9	49.1	39.6	44.8
Incr Delay (d2), s/veh	18.2	0.1	0.2	11.2	1.1	71.3	20.9	4.3	4.4	11.3	0.5	54.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	3.7	2.7	3.0	9.2	26.1	8.4	8.2	8.4	4.6	4.0	12.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.9	22.7	22.3	62.5	29.7	106.2	66.9	42.2	42.3	60.4	40.1	99.0
LnGrp LOS	E	C	C	E	C	F	E	D	D	E	D	F
Approach Vol, veh/h		727			1580			884			936	
Approach Delay, s/veh		31.4			62.5			49.3			66.2	
Approach LOS		C			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	33.2	12.4	50.1	22.7	27.0	15.5	47.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.1	30.9	13.6	43.4	22.5	22.5	14.5	42.5
Max Q Clear Time (g_c+I1), s	11.7	20.5	8.2	11.4	17.9	24.5	11.0	44.5
Green Ext Time (p_c), s	0.3	2.8	0.1	3.4	0.3	0.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	55.0
HCM 6th LOS	E

12: Creston Road & Stoney Creek Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	55

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	141	10	42	10	20	104	35	513	10	35	407	101
Future Vol, veh/h	141	10	42	10	20	104	35	513	10	35	407	101
Conflicting Peds, #/hr	1	0	0	0	0	1	6	0	2	2	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	153	11	46	11	22	113	38	558	11	38	442	110

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1232	1171	448	1244	1276	567	558	0	0	571	0	0
Stage 1	524	524	-	642	642	-	-	-	-	-	-	-
Stage 2	708	647	-	602	634	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	154	193	611	151	167	523	1013	-	-	1002	-	-
Stage 1	537	530	-	463	469	-	-	-	-	-	-	-
Stage 2	426	467	-	486	473	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 101	177	608	125	153	522	1007	-	-	1000	-	-
Mov Cap-2 Maneuver	~ 101	177	-	125	153	-	-	-	-	-	-	-
Stage 1	514	507	-	444	450	-	-	-	-	-	-	-
Stage 2	305	448	-	423	452	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 386.4	24.6	0.5	0.6
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1007	-	-	127	327	1000	-	-
HCM Lane V/C Ratio	0.038	-	-	1.652	0.445	0.038	-	-
HCM Control Delay (s)	8.7	-	-	$ 386.4	24.6	8.7	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	15.4	2.2	0.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

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Intersection	
Intersection Delay, s/veh	63.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	10	12	284	10	292	0	15	250	151	261	199
Future Vol, veh/h	20	10	12	284	10	292	0	15	250	151	261	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	11	13	309	11	317	0	16	272	164	284	216
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	13.3	118.5	20.1	37.3
HCM LOS	B	F	C	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	6%	0%	48%	48%	72%	0%
Vol Thru, %	94%	0%	24%	2%	28%	91%
Vol Right, %	0%	100%	29%	50%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	265	151	42	586	361	110
LT Vol	15	0	20	284	261	0
Through Vol	250	0	10	10	100	100
RT Vol	0	151	12	292	0	10
Lane Flow Rate	288	164	46	637	392	119
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.619	0.32	0.108	1.17	0.857	0.246
Departure Headway (Hd)	8.369	7.61	9.159	6.614	8.486	8.044
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	435	476	394	548	431	450
Service Time	6.069	5.31	7.159	4.684	6.186	5.744
HCM Lane V/C Ratio	0.662	0.345	0.117	1.162	0.91	0.264
HCM Control Delay	23.7	13.9	13.3	118.5	44.6	13.3
HCM Lane LOS	C	B	B	F	E	B
HCM 95th-tile Q	4.1	1.4	0.4	22.1	8.5	1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	10
Future Vol, veh/h	10
Peak Hour Factor	0.92
Heavy Vehicles, %	2
Mvmt Flow	11
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

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14: Creston Road & Charolais Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	10

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	196	135	221	208	122	399
Future Vol, veh/h	196	135	221	208	122	399
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	213	147	240	226	133	434

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	726	133	567	0	-	0
Stage 1	133	-	-	-	-	-
Stage 2	593	-	-	-	-	-
Critical Hdwy	6.645	6.245	4.145	-	-	-
Critical Hdwy Stg 1	5.445	-	-	-	-	-
Critical Hdwy Stg 2	5.845	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	373	913	997	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	283	913	997	-	-	-
Mov Cap-2 Maneuver	283	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	514	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.4	5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	997	-	283	913	-	-
HCM Lane V/C Ratio	0.241	-	0.753	0.161	-	-
HCM Control Delay (s)	9.8	-	48.1	9.7	-	-
HCM Lane LOS	A	-	E	A	-	-
HCM 95th %tile Q(veh)	0.9	-	5.6	0.6	-	-

15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	3	192	10	0	0	0	0	386	20
Future Volume (Veh/h)	0	0	0	3	192	10	0	0	0	0	386	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	3	209	11	0	0	0	0	420	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	536	431	431	431	442	0	442			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	536	431	431	431	442	0	442			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	59	99	100			100		
cM capacity (veh/h)	307	517	624	535	510	1085	1118			1623		

Direction, Lane #	WB 1	SB 1
Volume Total	223	442
Volume Left	3	0
Volume Right	11	22
cSH	530	1700
Volume to Capacity	0.42	0.26
Queue Length 95th (ft)	52	0
Control Delay (s)	16.6	0.0
Lane LOS	C	
Approach Delay (s)	16.6	0.0
Approach LOS	C	

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	25	372	1217	439	585	126	315	613	429	329
v/c Ratio	0.11	0.79	0.82	0.55	0.53	0.67	0.70	0.38	0.76	0.50
Control Delay	58.1	64.0	41.0	33.4	5.1	78.8	67.6	7.6	66.0	48.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	64.0	41.0	33.4	5.1	78.8	67.6	7.6	66.0	48.0
Queue Length 50th (ft)	21	155	520	308	55	117	153	71	201	129
Queue Length 95th (ft)	53	221	647	438	140	189	207	94	270	185
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	252	525	1582	858	1140	244	578	1692	639	741
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.71	0.77	0.51	0.51	0.52	0.54	0.36	0.67	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	223	120	1120	404	538	116	290	564	395	210	93
Future Volume (veh/h)	23	223	120	1120	404	538	116	290	564	395	210	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	242	130	1217	439	585	126	315	613	429	228	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	294	152	1435	777	878	152	540	1582	499	490	210
Arrive On Green	0.13	0.13	0.13	0.42	0.42	0.42	0.09	0.15	0.15	0.14	0.20	0.20
Sat Flow, veh/h	1781	2262	1174	3456	1870	1564	1781	3554	2790	3456	2420	1037
Grp Volume(v), veh/h	25	188	184	1217	439	585	126	315	613	429	165	164
Grp Sat Flow(s),veh/h/ln	1781	1777	1659	1728	1870	1564	1781	1777	1395	1728	1777	1681
Q Serve(g_s), s	1.6	13.3	14.0	41.1	23.2	34.0	9.0	10.7	15.7	15.7	10.6	11.1
Cycle Q Clear(g_c), s	1.6	13.3	14.0	41.1	23.2	34.0	9.0	10.7	15.7	15.7	10.6	11.1
Prop In Lane	1.00		0.71	1.00		1.00	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	231	231	215	1435	777	878	152	540	1582	499	360	340
V/C Ratio(X)	0.11	0.82	0.85	0.85	0.57	0.67	0.83	0.58	0.39	0.86	0.46	0.48
Avail Cap(c_a), veh/h	268	267	249	1675	906	987	259	611	1638	677	395	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	54.7	55.0	34.1	28.9	20.0	58.1	51.0	15.5	54.0	45.3	45.5
Incr Delay (d2), s/veh	0.2	15.7	21.6	3.8	0.6	1.5	10.8	1.1	0.2	8.3	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	7.0	7.2	17.3	10.3	12.0	4.4	4.7	9.9	7.4	4.8	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	70.4	76.6	37.9	29.5	21.5	69.0	52.1	15.7	62.3	46.2	46.6
LnGrp LOS	D	E	E	D	C	C	E	D	B	E	D	D
Approach Vol, veh/h		397			2241			1054			758	
Approach Delay, s/veh		72.0			32.0			32.9			55.4	
Approach LOS		E			C			C			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.4	25.4		21.4	16.8	31.9		59.0
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4
Max Green Setting (Gmax), s	* 25	22.2		19.4	18.8	* 29		62.6
Max Q Clear Time (g_c+I1), s	17.7	17.7		16.0	11.0	13.1		43.1
Green Ext Time (p_c), s	1.0	1.9		0.8	0.2	1.7		10.6

Intersection Summary												
HCM 6th Ctrl Delay			39.8									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	120	826	299	136	1518	682	394	310	509
v/c Ratio	0.79	0.63	0.39	0.73	1.02	1.05	0.64	0.91	0.77
Control Delay	88.4	33.1	4.7	72.4	61.8	92.6	46.8	75.7	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.4	33.1	4.7	72.4	61.8	92.6	46.8	75.7	44.5
Queue Length 50th (ft)	45	260	0	96	~608	~276	136	220	155
Queue Length 95th (ft)	#104	362	61	#196	#829	#429	188	#415	214
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	151	1301	771	202	1483	652	811	349	860
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.63	0.39	0.67	1.02	1.05	0.49	0.89	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	760	275	125	1118	279	627	308	54	285	269	200
Future Volume (veh/h)	110	760	275	125	1118	279	627	308	54	285	269	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	826	299	136	1215	303	682	335	59	310	292	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	1340	597	164	1200	295	651	557	97	337	364	263
Arrive On Green	0.04	0.38	0.38	0.09	0.43	0.43	0.19	0.18	0.18	0.19	0.18	0.18
Sat Flow, veh/h	3456	3554	1585	1781	2822	694	3456	3021	526	1781	1969	1422
Grp Volume(v), veh/h	120	826	299	136	759	759	682	195	199	310	263	246
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1740	1728	1777	1771	1781	1777	1614
Q Serve(g_s), s	3.9	21.5	9.4	8.6	48.5	48.5	21.5	11.5	11.8	19.5	16.1	16.7
Cycle Q Clear(g_c), s	3.9	21.5	9.4	8.6	48.5	48.5	21.5	11.5	11.8	19.5	16.1	16.7
Prop In Lane	1.00		1.00	1.00		0.40	1.00		0.30	1.00		0.88
Lane Grp Cap(c), veh/h	151	1340	597	164	755	739	651	327	326	337	329	299
V/C Ratio(X)	0.79	0.62	0.50	0.83	1.00	1.03	1.05	0.60	0.61	0.92	0.80	0.82
Avail Cap(c_a), veh/h	151	1340	597	201	755	739	651	408	407	348	420	382
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	28.9	8.9	50.9	32.8	32.8	46.3	42.7	42.8	45.4	44.5	44.7
Incr Delay (d2), s/veh	24.3	0.9	0.7	20.8	33.8	40.2	48.3	1.7	1.8	28.5	8.2	11.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	9.0	3.0	4.7	26.7	27.4	13.3	5.1	5.2	11.1	7.7	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.3	29.7	9.6	71.7	66.6	73.0	94.6	44.4	44.6	73.9	52.7	55.8
LnGrp LOS	E	C	A	E	F	F	F	D	D	E	D	E
Approach Vol, veh/h		1245			1654			1076			819	
Approach Delay, s/veh		29.6			70.0			76.3			61.6	
Approach LOS		C			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	47.5	26.0	25.6	9.5	53.0	26.1	25.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.9	40.6	21.5	27.0	5.0	48.5	22.3	26.2
Max Q Clear Time (g_c+I1), s	10.6	23.5	23.5	18.7	5.9	50.5	21.5	13.8
Green Ext Time (p_c), s	0.1	6.1	0.0	1.9	0.0	0.0	0.1	1.7

Intersection Summary	
HCM 6th Ctrl Delay	59.5
HCM 6th LOS	E

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Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	94	10	10	938	398	48
Future Vol, veh/h	94	10	10	938	398	48
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	102	11	11	1020	433	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1501	460	485	0	-	0
Stage 1	459	-	-	-	-	-
Stage 2	1042	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	133	599	1073	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	130	598	1073	-	-	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	338	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	91.8	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1073	-	141	-	-
HCM Lane V/C Ratio	0.01	-	0.802	-	-
HCM Control Delay (s)	8.4	0	91.8	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	5	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	12	15	808	378	20
Future Vol, veh/h	60	12	15	808	378	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	13	16	878	411	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1332	422	433	0	-	0
Stage 1	422	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	170	632	1127	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	165	632	1127	-	-	-
Mov Cap-2 Maneuver	344	-	-	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.2	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1127	-	372	-	-
HCM Lane V/C Ratio	0.014	-	0.21	-	-
HCM Control Delay (s)	8.2	0	17.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

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Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	813	126	425
Demand Flow Rate, veh/h	830	128	433
Vehicles Circulating, veh/h	117	367	28
Vehicles Exiting, veh/h	378	94	919
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	12.4	5.1	5.7
Approach LOS	B	A	A

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	830	128	433
Cap Entry Lane, veh/h	1225	949	1341
Entry HV Adj Factor	0.980	0.982	0.981
Flow Entry, veh/h	813	126	425
Cap Entry, veh/h	1200	932	1315
V/C Ratio	0.678	0.135	0.323
Control Delay, s/veh	12.4	5.1	5.7
LOS	B	A	A
95th %tile Queue, veh	6	0	1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	341	728	10	10	10
Future Vol, veh/h	10	341	728	10	10	10
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	371	791	11	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	808	0	-	0	1196	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	393	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	817	-	-	-	206	383
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	682	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	812	-	-	-	201	381
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	432	-
Stage 2	-	-	-	-	678	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	19.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	812	-	-	-	263
HCM Lane V/C Ratio	0.013	-	-	-	0.083
HCM Control Delay (s)	9.5	-	-	-	19.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

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Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	321	10	10	678	33	10	0	10	45	0	50
Future Vol, veh/h	20	321	10	10	678	33	10	0	10	45	0	50
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	349	11	11	737	36	11	0	11	49	0	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	780	0	0	360	0	0	1203	1201	355	1188	1188	762
Stage 1	-	-	-	-	-	-	399	399	-	784	784	-
Stage 2	-	-	-	-	-	-	804	802	-	404	404	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	837	-	-	1199	-	-	161	185	689	165	188	405
Stage 1	-	-	-	-	-	-	627	602	-	386	404	-
Stage 2	-	-	-	-	-	-	377	396	-	623	599	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	831	-	-	1199	-	-	135	177	689	157	180	402
Mov Cap-2 Maneuver	-	-	-	-	-	-	135	177	-	157	180	-
Stage 1	-	-	-	-	-	-	611	586	-	373	398	-
Stage 2	-	-	-	-	-	-	323	390	-	597	583	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.1	22.6	32.6
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	226	831	-	-	1199	-	-	231
HCM Lane V/C Ratio	0.096	0.026	-	-	0.009	-	-	0.447
HCM Control Delay (s)	22.6	9.4	-	-	8	-	-	32.6
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	2.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	362	711	10	10	10
Future Vol, veh/h	10	362	711	10	10	10
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	393	773	11	11	11

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	793	0	-	0	1203	788
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	415	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	828	-	-	-	204	391
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	666	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	821	-	-	-	198	388
Mov Cap-2 Maneuver	-	-	-	-	198	-
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	660	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	821	-	-	-	262
HCM Lane V/C Ratio	0.013	-	-	-	0.083
HCM Control Delay (s)	9.4	-	-	-	20
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

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Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	302	571	68	29	150
Future Vol, veh/h	70	302	571	68	29	150
Conflicting Peds, #/hr	8	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	76	328	621	74	32	163

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	703	0	-	0	1146	666
Stage 1	-	-	-	-	666	-
Stage 2	-	-	-	-	480	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	899	-	-	-	221	461
Stage 1	-	-	-	-	513	-
Stage 2	-	-	-	-	624	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	892	-	-	-	199	457
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	466	-
Stage 2	-	-	-	-	619	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	24.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	892	-	-	-	378
HCM Lane V/C Ratio	0.085	-	-	-	0.515
HCM Control Delay (s)	9.4	-	-	-	24.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2.8

Intersection	
Intersection Delay, s/veh	5.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	262	349	70	187
Demand Flow Rate, veh/h	265	352	70	189
Vehicles Circulating, veh/h	10	109	241	390
Vehicles Exiting, veh/h	569	202	34	71
Ped Vol Crossing Leg, #/h	0	0	0	8
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	4.3	5.5	3.9	6.0
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	265	352	70	189
Cap Entry Lane, veh/h	1366	1235	1079	927
Entry HV Adj Factor	0.989	0.991	0.999	0.989
Flow Entry, veh/h	262	349	70	187
Cap Entry, veh/h	1351	1223	1078	916
V/C Ratio	0.194	0.285	0.065	0.204
Control Delay, s/veh	4.3	5.5	3.9	6.0
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	334	1643	1634	163	159	302
v/c Ratio	0.64	0.50	0.89	0.19	0.62	0.57
Control Delay	57.5	0.5	32.2	4.6	63.4	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	0.5	32.2	4.6	63.4	36.9
Queue Length 50th (ft)	128	0	566	12	118	180
Queue Length 95th (ft)	224	0	879	52	235	336
Internal Link Dist (ft)		1017	748		574	
Turn Bay Length (ft)	345			330	450	
Base Capacity (vph)	834	3312	2512	1155	430	829
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.50	0.65	0.14	0.37	0.36

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	331	1627	1618	161	157	299
Future Volume (vph)	331	1627	1618	161	157	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	7.3	7.3	4.2	3.7
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3213	3312	3312	1482	1656	1482
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3213	3312	3312	1482	1656	1482
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	334	1643	1634	163	159	302
RTOR Reduction (vph)	0	0	0	57	0	12
Lane Group Flow (vph)	334	1643	1634	106	159	290
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	8	Free!	6		7!	4
Permitted Phases				6		4
Actuated Green, G (s)	19.9	121.6	67.6	67.6	19.1	43.0
Effective Green, g (s)	19.9	121.6	67.6	67.6	19.1	43.0
Actuated g/C Ratio	0.16	1.00	0.56	0.56	0.16	0.35
Clearance Time (s)	3.5		7.3	7.3	4.2	3.7
Vehicle Extension (s)	3.0		4.0	4.0	3.5	3.0
Lane Grp Cap (vph)	525	3312	1841	823	260	524
v/s Ratio Prot	c0.10	0.50	c0.49		c0.10	0.20
v/s Ratio Perm				0.07		
v/c Ratio	0.64	0.50	0.89	0.13	0.61	0.55
Uniform Delay, d1	47.5	0.0	23.7	12.9	47.8	31.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.5	5.8	0.1	4.4	1.3
Delay (s)	50.0	0.5	29.4	13.0	52.2	32.9
Level of Service	D	A	C	B	D	C
Approach Delay (s)		8.9	27.9		39.5	
Approach LOS		A	C		D	

Intersection Summary

HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	121.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	392	1073	374	405	1134	216	378	507	271	357	320
v/c Ratio	0.98	0.87	0.48	0.95	0.90	0.31	0.85	0.61	0.73	0.88	0.63
Control Delay	105.1	53.0	5.0	97.6	55.2	4.8	82.4	52.1	77.8	79.0	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.1	53.0	5.0	97.6	55.2	4.8	82.4	52.1	77.8	79.0	23.3
Queue Length 50th (ft)	~211	522	0	210	556	0	193	225	136	341	92
Queue Length 95th (ft)	#372	628	68	#388	679	54	#331	323	205	#541	217
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	400	1604	903	425	1604	821	444	920	444	495	574
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.67	0.41	0.95	0.71	0.26	0.85	0.55	0.61	0.72	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	1041	363	393	1100	210	367	376	115	263	346	310
Future Volume (veh/h)	380	1041	363	393	1100	210	367	376	115	263	346	310
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	392	1073	374	405	1134	216	378	388	119	271	357	320
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	397	1241	553	397	1316	586	420	675	204	321	416	353
Arrive On Green	0.12	0.36	0.36	0.12	0.39	0.39	0.13	0.26	0.26	0.10	0.23	0.23
Sat Flow, veh/h	3319	3413	1521	3319	3413	1521	3319	2579	781	3319	1796	1522
Grp Volume(v), veh/h	392	1073	374	405	1134	216	378	255	252	271	357	320
Grp Sat Flow(s),veh/h/ln	1659	1706	1521	1659	1706	1521	1659	1706	1654	1659	1796	1522
Q Serve(g_s), s	17.8	44.0	21.4	18.0	46.1	15.3	16.9	19.6	20.0	12.1	28.7	30.8
Cycle Q Clear(g_c), s	17.8	44.0	21.4	18.0	46.1	15.3	16.9	19.6	20.0	12.1	28.7	30.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	397	1241	553	397	1316	586	420	446	433	321	416	353
V/C Ratio(X)	0.99	0.86	0.68	1.02	0.86	0.37	0.90	0.57	0.58	0.85	0.86	0.91
Avail Cap(c_a), veh/h	397	1586	707	397	1586	707	441	464	450	441	489	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	44.5	18.9	66.3	42.6	33.2	64.8	48.3	48.4	66.9	55.5	56.3
Incr Delay (d2), s/veh	42.0	4.3	1.8	50.7	4.4	0.4	20.5	1.6	1.8	10.5	12.6	21.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	18.4	7.6	10.2	19.2	5.7	8.3	8.5	8.4	5.6	14.3	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	108.2	48.8	20.6	117.0	47.0	33.5	85.3	49.8	50.2	77.5	68.1	77.6
LnGrp LOS	F	D	C	F	D	C	F	D	D	E	E	E
Approach Vol, veh/h		1839			1755			885			948	
Approach Delay, s/veh		55.7			61.5			65.1			74.0	
Approach LOS		E			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.3	62.1	23.1	40.2	22.0	65.4	18.6	44.7
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	18.0	* 70	20.0	41.0	18.0	70.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	20.0	46.0	18.9	32.8	19.8	48.1	14.1	22.0
Green Ext Time (p_c), s	0.0	8.8	0.2	2.1	0.0	8.3	0.5	2.7

Intersection Summary

HCM 6th Ctrl Delay	62.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1555	1603	20	0	100
Future Vol, veh/h	0	1555	1603	20	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	165	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	1654	1705	21	0	106

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	853
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.4
Pot Cap-1 Maneuver	0	-	-	-	0	287
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	287
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	287
HCM Lane V/C Ratio	-	-	-	0.371
HCM Control Delay (s)	-	-	-	24.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.6

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑↳			↲	↱		↔	
Traffic Vol, veh/h	0	1522	33	3	1563	0	50	0	6	0	0	10
Future Vol, veh/h	0	1522	33	3	1563	0	50	0	6	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	305	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	1569	34	3	1611	0	52	0	6	0	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1611	0	0	1603	0	0	2381	3186	785	2402	3220	806
Stage 1	-	-	-	-	-	-	1569	1569	-	1617	1617	-
Stage 2	-	-	-	-	-	-	812	1617	-	785	1603	-
Critical Hdwy	4.34	-	-	4.34	-	-	7.74	6.74	7.14	7.74	6.74	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.74	5.74	-
Follow-up Hdwy	2.32	-	-	2.32	-	-	3.62	4.12	3.42	3.62	4.12	3.42
Pot Cap-1 Maneuver	358	-	-	360	-	-	~ 16	8	315	15	8	305
Stage 1	-	-	-	-	-	-	105	154	-	98	146	-
Stage 2	-	-	-	-	-	-	318	146	-	331	148	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	358	-	-	360	-	-	~ 15	8	315	15	8	305
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	97	-	89	94	-
Stage 1	-	-	-	-	-	-	105	154	-	98	145	-
Stage 2	-	-	-	-	-	-	305	145	-	325	148	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	75.3	17.2
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	94	315	358	-	-	360	-	-	305
HCM Lane V/C Ratio	0.548	0.02	-	-	-	0.009	-	-	0.034
HCM Control Delay (s)	82.3	16.7	0	-	-	15.1	-	-	17.2
HCM Lane LOS	F	C	A	-	-	C	-	-	C
HCM 95th %tile Q(veh)	2.5	0.1	0	-	-	0	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Intersection	
Intersection Delay, s/veh	39.1
Intersection LOS	E

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	2	2	2
Adj Approach Flow, veh/h	860	846	934	1106
Demand Flow Rate, veh/h	869	855	944	1117
Vehicles Circulating, veh/h	1146	882	815	727
Vehicles Exiting, veh/h	698	877	1037	1010
Ped Vol Crossing Leg, #/h	1	1	1	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.8	20.9	27.3	76.5
Approach LOS	C	C	D	F

Lane	Left	Right	Bypass	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	R	L	TR	LT	R	LT	R
Assumed Moves	LT	TR	R	L	TR	LT	R	LT	R
RT Channelized			Free						
Lane Util	0.470	0.530		0.415	0.585	0.589	0.411	0.708	0.292
Follow-Up Headway, s	2.535	2.535		2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.544	4.544	163	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	332	374	1919	355	500	556	388	791	326
Cap Entry Lane, veh/h	500	500	0.990	600	671	638	710	692	765
Entry HV Adj Factor	0.990	0.991	161	0.989	0.990	0.990	0.990	0.990	0.991
Flow Entry, veh/h	329	371	1900	351	495	550	384	783	323
Cap Entry, veh/h	495	496	0.085	593	664	631	703	685	758
V/C Ratio	0.663	0.747	0.0	0.592	0.745	0.872	0.546	1.144	0.426
Control Delay, s/veh	23.8	29.5	A	17.5	23.3	36.6	13.8	103.8	10.4
LOS	C	D	0	C	C	E	B	F	B
95th %tile Queue, veh	5	6		4	7	10	3	24	2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	550	309	510	763	7	54	319	387	396	117
v/c Ratio	0.23	0.75	0.78	0.61	0.69	0.04	0.30	0.72	0.79	0.80	0.21
Control Delay	58.6	45.6	53.6	27.8	5.5	45.6	50.3	15.6	47.1	47.5	4.8
Queue Delay	0.0	0.0	0.1	4.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	45.6	53.7	32.1	6.3	45.6	50.3	15.6	47.1	47.5	4.8
Queue Length 50th (ft)	14	184	199	240	0	5	36	0	247	253	0
Queue Length 95th (ft)	44	276	#358	463	94	19	76	85	#458	#467	34
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	93	886	494	913	1148	337	355	560	594	602	633
Starvation Cap Reductn	0	0	9	319	146	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.62	0.64	0.86	0.76	0.02	0.15	0.57	0.65	0.66	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	485	32	290	479	717	7	51	300	638	98	110
Future Volume (veh/h)	20	485	32	290	479	717	7	51	300	638	98	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	21	516	34	309	510	763	7	54	319	753	0	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	39	823	54	342	774	640	294	309	262	866	0	384
Arrive On Green	0.02	0.24	0.24	0.19	0.41	0.41	0.16	0.16	0.16	0.24	0.00	0.24
Sat Flow, veh/h	1795	3409	224	1795	1885	1559	1795	1885	1598	3591	0	1591
Grp Volume(v), veh/h	21	270	280	309	510	763	7	54	319	753	0	117
Grp Sat Flow(s),veh/h/ln	1795	1791	1843	1795	1885	1559	1795	1885	1598	1795	0	1591
Q Serve(g_s), s	1.3	14.9	15.0	18.6	24.2	45.4	0.4	2.7	18.1	22.3	0.0	6.7
Cycle Q Clear(g_c), s	1.3	14.9	15.0	18.6	24.2	45.4	0.4	2.7	18.1	22.3	0.0	6.7
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	39	432	445	342	774	640	294	309	262	866	0	384
V/C Ratio(X)	0.54	0.63	0.63	0.90	0.66	1.19	0.02	0.17	1.22	0.87	0.00	0.30
Avail Cap(c_a), veh/h	81	432	445	430	774	640	294	309	262	1088	0	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.6	37.5	37.5	43.7	26.3	32.6	38.8	39.8	46.2	40.3	0.0	34.3
Incr Delay (d2), s/veh	11.4	2.8	2.8	18.9	2.1	101.2	0.0	0.3	128.3	6.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.9	7.1	10.0	11.1	34.5	0.2	1.3	16.4	10.4	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.9	40.3	40.3	62.7	28.4	133.8	38.8	40.1	174.5	46.7	0.0	34.8
LnGrp LOS	E	D	D	E	C	F	D	D	F	D	A	C
Approach Vol, veh/h		571			1582			380			870	
Approach Delay, s/veh		41.2			85.9			152.9			45.1	
Approach LOS		D			F			F			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.6	31.2		31.2	6.9	49.9		22.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	26.5	23.9		33.5	5.0	45.4		18.1
Max Q Clear Time (g_c+I1), s	20.6	17.0		24.3	3.3	47.4		20.1
Green Ext Time (p_c), s	0.5	1.9		2.4	0.0	0.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay			75.5
HCM 6th LOS			E

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	94	1437	30	1287	374	280	32	508	9	32
v/c Ratio	0.53	0.78	0.28	0.78	0.44	0.63	0.05	0.85	0.02	0.05
Control Delay	56.8	23.1	54.6	26.4	9.1	35.8	23.9	38.0	23.5	0.2
Queue Delay	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	24.6	54.6	26.4	9.1	35.8	23.9	38.0	23.5	0.2
Queue Length 50th (ft)	61	408	20	374	56	155	14	239	4	0
Queue Length 95th (ft)	#122	523	51	479	133	246	35	#418	15	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	202	2187	108	1980	969	586	795	749	586	749
Starvation Cap Reductn	0	518	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.86	0.28	0.65	0.39	0.48	0.04	0.68	0.02	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1296	40	28	1197	348	260	30	472	8	0	30
Future Volume (veh/h)	87	1296	40	28	1197	348	260	30	472	8	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	94	1394	43	30	1287	0	280	32	508	9	0	32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	121	1681	52	53	1563		542	653	553	372	0	553
Arrive On Green	0.07	0.47	0.47	0.03	0.44	0.00	0.35	0.35	0.35	0.35	0.00	0.35
Sat Flow, veh/h	1795	3544	109	1795	3582	1598	1388	1885	1598	872	0	1598
Grp Volume(v), veh/h	94	703	734	30	1287	0	280	32	508	9	0	32
Grp Sat Flow(s),veh/h/ln	1795	1791	1862	1795	1791	1598	1388	1885	1598	872	0	1598
Q Serve(g_s), s	4.6	30.6	30.7	1.5	28.4	0.0	15.2	1.0	27.4	0.6	0.0	1.2
Cycle Q Clear(g_c), s	4.6	30.6	30.7	1.5	28.4	0.0	16.4	1.0	27.4	1.6	0.0	1.2
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	849	883	53	1563		542	653	553	372	0	553
V/C Ratio(X)	0.78	0.83	0.83	0.57	0.82		0.52	0.05	0.92	0.02	0.00	0.06
Avail Cap(c_a), veh/h	190	1014	1054	102	1853		610	744	631	415	0	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.3	20.5	20.5	43.1	22.3	0.0	25.1	19.5	28.2	20.1	0.0	19.6
Incr Delay (d2), s/veh	10.3	5.0	4.9	9.3	2.7	0.0	0.8	0.0	17.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	13.0	13.6	0.8	11.8	0.0	4.9	0.4	12.5	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.6	25.5	25.4	52.4	25.0	0.0	25.8	19.6	45.5	20.1	0.0	19.6
LnGrp LOS	D	C	C	D	C		C	B	D	C	A	B
Approach Vol, veh/h		1531			1317	A		820			41	
Approach Delay, s/veh		27.0			25.6			37.7			19.8	
Approach LOS		C			C			D			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	47.1		35.6	10.5	43.7		35.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.1	50.9		35.5	9.5	46.5		35.5
Max Q Clear Time (g_c+I1), s	3.5	32.7		3.6	6.6	30.4		29.4
Green Ext Time (p_c), s	0.0	9.9		0.2	0.0	8.6		1.7

Intersection Summary			
HCM 6th Ctrl Delay			28.8
HCM 6th LOS			C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	508	1361	105	979	311	255	74	148	827
v/c Ratio	0.84	0.89	0.74	0.81	0.79	0.34	0.17	0.75	0.94dr
Control Delay	59.8	36.3	82.7	40.3	66.0	40.8	0.8	73.8	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	36.3	82.7	40.3	66.0	40.8	0.8	73.8	44.9
Queue Length 50th (ft)	197	468	81	353	122	89	0	112	226
Queue Length 95th (ft)	#273	575	#171	437	#189	129	1	#207	#345
Internal Link Dist (ft)		353		673		608			523
Turn Bay Length (ft)	295		235		140		130	225	
Base Capacity (vph)	653	1633	148	1278	410	790	459	217	940
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.83	0.71	0.77	0.76	0.32	0.16	0.68	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	483	878	415	100	777	153	295	242	70	141	286	500
Future Volume (veh/h)	483	878	415	100	777	153	295	242	70	141	286	500
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	508	924	0	105	818	161	311	255	74	148	301	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	630	1634		135	1042	205	408	500	223	186	451	
Arrive On Green	0.18	0.46	0.00	0.08	0.35	0.35	0.12	0.14	0.14	0.10	0.13	0.00
Sat Flow, veh/h	3483	3676	0	1795	2976	586	3483	3582	1598	1795	3676	0
Grp Volume(v), veh/h	508	924	0	105	492	487	311	255	74	148	301	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1770	1742	1791	1598	1795	1791	0
Q Serve(g_s), s	11.2	15.1	0.0	4.6	19.7	19.7	6.9	5.3	3.3	6.4	6.4	0.0
Cycle Q Clear(g_c), s	11.2	15.1	0.0	4.6	19.7	19.7	6.9	5.3	3.3	6.4	6.4	0.0
Prop In Lane	1.00		0.00	1.00		0.33	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	630	1634		135	627	620	408	500	223	186	451	
V/C Ratio(X)	0.81	0.57		0.78	0.79	0.79	0.76	0.51	0.33	0.80	0.67	
Avail Cap(c_a), veh/h	939	2402		214	932	921	589	1127	503	313	1145	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.3	15.9	0.0	36.2	23.2	23.2	34.1	31.8	31.0	34.9	33.3	0.0
Incr Delay (d2), s/veh	3.2	0.3	0.0	9.3	2.7	2.7	3.5	0.8	0.9	7.6	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	5.8	0.0	2.3	8.1	8.0	3.0	2.2	1.3	3.0	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	16.2	0.0	45.5	25.9	25.9	37.7	32.6	31.8	42.5	35.0	0.0
LnGrp LOS	C	B		D	C	C	D	C	C	D	C	
Approach Vol, veh/h		1432	A		1084			640			449	A
Approach Delay, s/veh		22.7			27.8			35.0			37.4	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	40.9	13.8	14.6	18.9	32.4	12.8	15.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	53.5	13.5	25.5	21.5	41.5	13.9	25.1
Max Q Clear Time (g_c+I1), s	6.6	17.1	8.9	8.4	13.2	21.7	8.4	7.3
Green Ext Time (p_c), s	0.1	8.0	0.5	1.5	1.3	6.3	0.2	1.6

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	92	586	1259	647	91
v/c Ratio	0.58	0.28	0.80	0.73	0.19
Control Delay	59.0	11.3	23.1	37.4	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	59.0	11.3	23.1	37.4	8.9
Queue Length 50th (ft)	47	67	224	154	0
Queue Length 95th (ft)	#168	193	#573	#368	45
Internal Link Dist (ft)		1151	2310	505	
Turn Bay Length (ft)	125			120	
Base Capacity (vph)	159	2359	1809	983	519
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.25	0.70	0.66	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	568	616	605	628	88
Future Volume (vph)	89	568	616	605	628	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574	3282		3467	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1787	3574	3282		3467	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	92	586	635	624	647	91
RTOR Reduction (vph)	0	0	133	0	0	68
Lane Group Flow (vph)	92	586	1126	0	647	23
Confl. Peds. (#/hr)				4		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases					4	4
Actuated Green, G (s)	7.8	50.9	38.6		22.5	22.5
Effective Green, g (s)	7.8	50.9	38.6		22.5	22.5
Actuated g/C Ratio	0.09	0.56	0.43		0.25	0.25
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	153	2003	1395		859	396
v/s Ratio Prot	c0.05	0.16	c0.34			
v/s Ratio Perm					c0.19	0.01
v/c Ratio	0.60	0.29	0.81		0.75	0.06
Uniform Delay, d1	40.0	10.5	22.8		31.6	26.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.5	0.1	3.5		3.8	0.1
Delay (s)	46.5	10.6	26.4		35.4	26.1
Level of Service	D	B	C		D	C
Approach Delay (s)		15.4	26.4		34.2	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	208	833	331	159	571	486	221	472	423	544	146
v/c Ratio	0.71	0.79	0.53	0.66	0.59	0.64	0.73	0.65	0.71	0.73	0.36
Control Delay	58.0	40.6	14.3	59.5	37.3	8.5	57.7	41.6	49.3	45.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	40.6	14.3	59.5	37.3	8.5	57.7	41.6	49.3	45.8	17.5
Queue Length 50th (ft)	144	281	56	110	183	10	152	156	150	192	28
Queue Length 95th (ft)	236	391	156	191	266	112	248	223	214	268	90
Internal Link Dist (ft)		1092			186			1440		2310	
Turn Bay Length (ft)	150		150	170		170	230		245		100
Base Capacity (vph)	382	1262	700	311	1125	808	399	944	758	942	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.66	0.47	0.51	0.51	0.60	0.55	0.50	0.56	0.58	0.30

Intersection Summary

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11: Creston Road & Niblick Road/Sherwood Road

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	800	318	153	548	467	212	375	78	406	522	140
Future Volume (veh/h)	200	800	318	153	548	467	212	375	78	406	522	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	208	833	331	159	571	486	221	391	81	423	544	146
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	1273	559	194	1170	511	260	566	116	520	703	312
Arrive On Green	0.14	0.36	0.36	0.11	0.33	0.33	0.15	0.19	0.19	0.15	0.20	0.20
Sat Flow, veh/h	1781	3554	1561	1781	3554	1554	1781	2927	600	3456	3554	1575
Grp Volume(v), veh/h	208	833	331	159	571	486	221	236	236	423	544	146
Grp Sat Flow(s),veh/h/ln	1781	1777	1561	1781	1777	1554	1781	1777	1750	1728	1777	1575
Q Serve(g_s), s	10.8	18.7	16.4	8.3	12.2	29.1	11.5	11.7	12.0	11.3	13.8	7.8
Cycle Q Clear(g_c), s	10.8	18.7	16.4	8.3	12.2	29.1	11.5	11.7	12.0	11.3	13.8	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	246	1273	559	194	1170	511	260	343	338	520	703	312
V/C Ratio(X)	0.85	0.65	0.59	0.82	0.49	0.95	0.85	0.69	0.70	0.81	0.77	0.47
Avail Cap(c_a), veh/h	402	1325	582	327	1176	514	421	504	496	799	989	439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	25.6	24.9	41.5	25.5	31.2	39.6	35.7	35.8	39.1	36.2	33.7
Incr Delay (d2), s/veh	8.6	1.1	1.5	8.2	0.3	27.6	8.9	2.4	2.6	3.8	2.5	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	7.6	6.0	4.0	5.0	14.1	5.6	5.2	5.2	4.9	6.1	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.7	26.7	26.4	49.7	25.8	58.8	48.6	38.2	38.4	42.9	38.7	34.8
LnGrp LOS	D	C	C	D	C	E	D	D	D	D	D	C
Approach Vol, veh/h		1372			1216			693			1113	
Approach Delay, s/veh		30.0			42.1			41.6			39.8	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.8	22.9	14.9	38.6	18.4	23.3	17.6	35.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.0	27.0	17.5	35.5	22.5	26.5	21.5	31.5
Max Q Clear Time (g_c+I1), s	13.3	14.0	10.3	20.7	13.5	15.8	12.8	31.1
Green Ext Time (p_c), s	1.0	2.2	0.2	5.9	0.4	3.0	0.4	0.3

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

12: Creston Road & Stoney Creek Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	19.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	135	10	16	10	10	42	24	426	10	53	568	166
Future Vol, veh/h	135	10	16	10	10	42	24	426	10	53	568	166
Conflicting Peds, #/hr	4	0	0	0	0	4	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	30	-	-	70	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	136	10	16	10	10	42	24	430	10	54	574	168

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1200	1175	579	1262	1338	439	747	0	0	440	0	0
Stage 1	687	687	-	483	483	-	-	-	-	-	-	-
Stage 2	513	488	-	779	855	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	163	192	517	147	154	620	866	-	-	1125	-	-
Stage 1	439	449	-	567	554	-	-	-	-	-	-	-
Stage 2	546	552	-	390	376	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 134	177	515	128	142	618	862	-	-	1125	-	-
Mov Cap-2 Maneuver	~ 134	177	-	128	142	-	-	-	-	-	-	-
Stage 1	425	425	-	551	538	-	-	-	-	-	-	-
Stage 2	483	537	-	351	356	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	166.4	21.1	0.5	0.6
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	862	-	-	147	286	1125	-	-
HCM Lane V/C Ratio	0.028	-	-	1.106	0.219	0.048	-	-
HCM Control Delay (s)	9.3	-	-	166.4	21.1	8.4	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	8.8	0.8	0.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

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Intersection	
Intersection Delay, s/veh	32.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	10	10	16	173	10	178	0	14	271	268	300	265
Future Vol, veh/h	10	10	16	173	10	178	0	14	271	268	300	265
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	2	1	1	1	1	1
Mvmt Flow	11	11	17	186	11	191	0	15	291	288	323	285
Number of Lanes	0	1	0	0	1	0	0	0	1	1	0	2

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	12.3	26.8	19.2	49
HCM LOS	B	D	C	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	5%	0%	28%	48%	69%	0%
Vol Thru, %	95%	0%	28%	3%	31%	87%
Vol Right, %	0%	100%	44%	49%	0%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	285	268	36	361	433	153
LT Vol	14	0	10	173	300	0
Through Vol	271	0	10	10	133	133
RT Vol	0	268	16	178	0	20
Lane Flow Rate	306	288	39	388	465	164
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.626	0.529	0.09	0.738	0.971	0.322
Departure Headway (Hd)	7.355	6.609	8.358	6.844	7.515	7.065
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	490	545	427	528	484	508
Service Time	5.112	4.366	6.443	4.885	5.27	4.819
HCM Lane V/C Ratio	0.624	0.528	0.091	0.735	0.961	0.323
HCM Control Delay	21.7	16.6	12.3	26.8	61.6	13.2
HCM Lane LOS	C	C	B	D	F	B
HCM 95th-tile Q	4.2	3.1	0.3	6.2	12.3	1.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	20
Future Vol, veh/h	20
Peak Hour Factor	0.93
Heavy Vehicles, %	1
Mvmt Flow	22
Number of Lanes	0

Approach
Opposing Approach
Opposing Lanes
Conflicting Approach Left
Conflicting Lanes Left
Conflicting Approach Right
Conflicting Lanes Right
HCM Control Delay
HCM LOS

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14: Creston Road & Charolais Road

HCM 6th TWSC

Intersection	
Int Delay, s/veh	18.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	328	253	150	225	210	243
Future Vol, veh/h	328	253	150	225	210	243
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	145	105	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	338	261	155	232	216	251

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	642	216	467	0	-	0
Stage 1	216	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.115	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	424	826	1099	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	364	826	1099	-	-	-
Mov Cap-2 Maneuver	364	-	-	-	-	-
Stage 1	706	-	-	-	-	-
Stage 2	630	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	41.8	3.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1099	-	364	826	-	-
HCM Lane V/C Ratio	0.141	-	0.929	0.316	-	-
HCM Control Delay (s)	8.8	-	65.2	11.4	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.5	-	9.8	1.4	-	-

15: US 101 SB Ramp & Pine Street & Riverside Avenue

HCM Unsignalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	315	20	0	0	0	0	400	53
Future Volume (Veh/h)	0	0	0	0	315	20	0	0	0	0	400	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	342	22	0	0	0	0	435	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	635	464	464	464	493	0	493			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	635	464	464	464	493	0	493			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	29	98	100			100		
cM capacity (veh/h)	161	497	600	510	478	1088	1076			1630		

Direction, Lane #	WB 1	SB 1
Volume Total	364	493
Volume Left	0	0
Volume Right	22	58
cSH	499	1700
Volume to Capacity	0.73	0.29
Queue Length 95th (ft)	150	0
Control Delay (s)	29.3	0.0
Lane LOS	D	
Approach Delay (s)	29.3	0.0
Approach LOS	D	

Intersection Summary			
Average Delay	12.5		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	482	770	278	539	141	424	1192	793	461
v/c Ratio	0.27	0.88	0.73	0.49	0.53	0.70	0.82	0.90	0.90	0.46
Control Delay	58.2	74.9	50.6	45.6	8.7	81.4	73.7	33.6	67.1	41.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.2	74.9	50.6	45.6	8.7	81.4	73.7	33.6	67.1	41.2
Queue Length 50th (ft)	65	233	351	225	114	135	212	317	388	177
Queue Length 95th (ft)	118	#325	429	319	203	207	275	431	#496	241
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	290	578	1075	583	1042	256	576	1338	924	1034
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.83	0.72	0.48	0.52	0.55	0.74	0.89	0.86	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	355	113	747	270	523	137	411	1156	769	325	122
Future Volume (veh/h)	73	355	113	747	270	523	137	411	1156	769	325	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	75	366	116	770	278	539	141	424	1192	793	335	126
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	279	416	130	1002	542	847	166	589	1271	861	797	294
Arrive On Green	0.16	0.16	0.16	0.29	0.29	0.29	0.09	0.16	0.16	0.25	0.31	0.31
Sat Flow, veh/h	1795	2676	835	3483	1885	1573	1795	3582	2812	3483	2560	946
Grp Volume(v), veh/h	75	243	239	770	278	539	141	424	1192	793	233	228
Grp Sat Flow(s),veh/h/ln	1795	1791	1720	1742	1885	1573	1795	1791	1406	1742	1791	1715
Q Serve(g_s), s	5.2	18.7	19.2	28.5	17.4	34.2	10.9	15.8	23.2	31.3	14.5	14.9
Cycle Q Clear(g_c), s	5.2	18.7	19.2	28.5	17.4	34.2	10.9	15.8	23.2	31.3	14.5	14.9
Prop In Lane	1.00		0.49	1.00		1.00	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	279	279	268	1002	542	847	166	589	1271	861	557	534
V/C Ratio(X)	0.27	0.87	0.89	0.77	0.51	0.64	0.85	0.72	0.94	0.92	0.42	0.43
Avail Cap(c_a), veh/h	298	297	285	1101	596	892	262	589	1271	945	557	534
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	58.2	58.4	46.0	42.0	23.2	63.1	55.9	27.5	51.8	38.5	38.6
Incr Delay (d2), s/veh	0.5	22.7	26.8	3.1	0.8	1.4	14.0	4.3	13.1	13.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	10.3	10.4	12.6	8.1	12.5	5.5	7.4	23.5	15.3	6.5	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	80.9	85.2	49.0	42.7	24.6	77.0	60.1	40.6	65.1	39.0	39.2
LnGrp LOS	D	F	F	D	D	C	E	E	D	E	D	D
Approach Vol, veh/h		557			1587			1757			1254	
Approach Delay, s/veh		79.0			39.6			48.3			55.5	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	39.6	29.0		26.5	18.8	49.7		46.0				
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4				
Max Green Setting (Gmax), s	* 38	23.2		23.4	20.6	* 41		44.6				
Max Q Clear Time (g_c+I1), s	33.3	25.2		21.2	12.9	16.9		36.2				
Green Ext Time (p_c), s	1.5	0.0		0.7	0.2	2.9		4.4				

Intersection Summary

HCM 6th Ctrl Delay			50.7									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	281	1168	683	140	1040	444	384	217	558
v/c Ratio	0.75	0.87	0.77	0.75	0.79	0.82	0.52	0.81	0.78
Control Delay	63.0	41.1	16.8	75.0	36.6	60.5	39.4	70.1	49.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	41.1	16.8	75.0	36.6	60.5	39.4	70.1	49.0
Queue Length 50th (ft)	107	424	150	104	356	168	124	158	198
Queue Length 95th (ft)	#170	#552	332	#208	460	#252	174	#283	262
Internal Link Dist (ft)		1510			1609		962		896
Turn Bay Length (ft)	140			80		150		110	
Base Capacity (vph)	394	1407	906	200	1377	574	851	299	854
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.83	0.75	0.70	0.76	0.77	0.45	0.73	0.65

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	1121	656	134	837	161	426	276	92	208	406	130
Future Volume (veh/h)	270	1121	656	134	837	161	426	276	92	208	406	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	281	1168	683	140	872	168	444	288	96	217	423	135
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	350	1388	619	170	1143	220	519	545	178	250	523	165
Arrive On Green	0.10	0.39	0.39	0.09	0.38	0.38	0.15	0.21	0.21	0.14	0.20	0.20
Sat Flow, veh/h	3483	3582	1598	1795	2994	577	3483	2654	866	1795	2674	845
Grp Volume(v), veh/h	281	1168	683	140	521	519	444	192	192	217	282	276
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1780	1742	1791	1729	1795	1791	1728
Q Serve(g_s), s	8.2	30.9	24.8	8.0	26.4	26.4	12.9	10.0	10.3	12.3	15.6	15.9
Cycle Q Clear(g_c), s	8.2	30.9	24.8	8.0	26.4	26.4	12.9	10.0	10.3	12.3	15.6	15.9
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.50	1.00		0.49
Lane Grp Cap(c), veh/h	350	1388	619	170	684	680	519	368	355	250	350	338
V/C Ratio(X)	0.80	0.84	1.10	0.82	0.76	0.76	0.85	0.52	0.54	0.87	0.80	0.82
Avail Cap(c_a), veh/h	425	1514	675	216	753	749	619	461	445	322	464	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	29.0	12.1	46.3	28.1	28.1	43.2	36.8	37.0	43.8	40.0	40.1
Incr Delay (d2), s/veh	9.0	4.2	67.8	18.0	4.2	4.2	9.9	1.2	1.3	17.6	7.5	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	13.2	19.3	4.3	11.5	11.4	6.1	4.4	4.4	6.5	7.4	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.8	33.2	79.9	64.3	32.3	32.3	53.1	38.0	38.2	61.4	47.4	48.6
LnGrp LOS	D	C	F	E	C	C	D	D	D	E	D	D
Approach Vol, veh/h		2132			1180			828			775	
Approach Delay, s/veh		51.0			36.1			46.1			51.8	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	44.8	20.0	24.9	15.0	44.3	19.0	25.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	44.0	18.5	27.0	12.7	43.8	18.7	26.8
Max Q Clear Time (g_c+I1), s	10.0	32.9	14.9	17.9	10.2	28.4	14.3	12.3
Green Ext Time (p_c), s	0.1	7.5	0.6	2.2	0.2	5.8	0.2	1.8

Intersection Summary	
HCM 6th Ctrl Delay	46.7
HCM 6th LOS	D

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18: S. River Road & Riverbank Lane

HCM 6th TWSC

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	10	10	569	883	105
Future Vol, veh/h	57	10	10	569	883	105
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	10	10	593	920	109

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1589	976	1030	0	-	0
Stage 1	976	-	-	-	-	-
Stage 2	613	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	119	305	674	-	-	-
Stage 1	365	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	116	305	673	-	-	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	357	-	-	-	-	-
Stage 2	540	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	62.6	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	673	-	128	-	-
HCM Lane V/C Ratio	0.015	-	0.545	-	-
HCM Control Delay (s)	10.4	0	62.6	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0	-	2.6	-	-

19: S. River Road & Bridgegate Lane

HCM 6th TWSC

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	16	24	529	793	54
Future Vol, veh/h	40	16	24	529	793	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	43	17	26	575	862	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1519	892	921	0	-	0
Stage 1	892	-	-	-	-	-
Stage 2	627	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	130	339	737	-	-	-
Stage 1	399	-	-	-	-	-
Stage 2	531	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	123	339	737	-	-	-
Mov Cap-2 Maneuver	312	-	-	-	-	-
Stage 1	378	-	-	-	-	-
Stage 2	531	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.9	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	737	-	319	-	-
HCM Lane V/C Ratio	0.035	-	0.191	-	-
HCM Control Delay (s)	10.1	0	18.9	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

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Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	513	142	875
Demand Flow Rate, veh/h	518	143	884
Vehicles Circulating, veh/h	110	767	11
Vehicles Exiting, veh/h	800	128	617
Ped Vol Crossing Leg, #/h	0	0	1
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.2	8.6	10.7
Approach LOS	A	A	B

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	518	143	884
Cap Entry Lane, veh/h	1233	631	1364
Entry HV Adj Factor	0.990	0.992	0.990
Flow Entry, veh/h	513	142	875
Cap Entry, veh/h	1222	626	1350
V/C Ratio	0.420	0.227	0.648
Control Delay, s/veh	7.2	8.6	10.7
LOS	A	A	B
95th %tile Queue, veh	2	1	5

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	718	462	10	10	10
Future Vol, veh/h	10	718	462	10	10	10
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	780	502	11	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	527	0	-	0	1324	522
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	802	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1045	-	-	-	173	557
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	443	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1031	-	-	-	167	550
Mov Cap-2 Maneuver	-	-	-	-	167	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	437	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1031	-	-	-	256
HCM Lane V/C Ratio	0.011	-	-	-	0.085
HCM Control Delay (s)	8.5	-	-	-	20.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

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Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	678	10	10	432	29	10	0	10	33	0	30
Future Vol, veh/h	40	678	10	10	432	29	10	0	10	33	0	30
Conflicting Peds, #/hr	12	0	0	0	0	12	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	42	714	11	11	455	31	11	0	11	35	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	498	0	0	725	0	0	1313	1324	720	1314	1314	483
Stage 1	-	-	-	-	-	-	804	804	-	505	505	-
Stage 2	-	-	-	-	-	-	509	520	-	809	809	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1061	-	-	873	-	-	135	155	426	134	157	582
Stage 1	-	-	-	-	-	-	375	394	-	548	539	-
Stage 2	-	-	-	-	-	-	545	530	-	373	392	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	873	-	-	122	145	426	124	147	575
Mov Cap-2 Maneuver	-	-	-	-	-	-	122	145	-	124	147	-
Stage 1	-	-	-	-	-	-	360	378	-	520	526	-
Stage 2	-	-	-	-	-	-	509	517	-	349	376	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	26.3	32.1
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	190	1049	-	-	873	-	-	198
HCM Lane V/C Ratio	0.111	0.04	-	-	0.012	-	-	0.335
HCM Control Delay (s)	26.3	8.6	-	-	9.2	-	-	32.1
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	1.4

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	712	460	10	10	10
Future Vol, veh/h	10	712	460	10	10	10
Conflicting Peds, #/hr	9	0	0	9	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	774	500	11	11	11

Major/Minor	Major1			Major2		
Conflicting Flow All	520	0	-	0	1311	515
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	796	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1051	-	-	-	176	562
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	446	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1042	-	-	-	171	557
Mov Cap-2 Maneuver	-	-	-	-	171	-
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	442	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1042	-	-	-	262
HCM Lane V/C Ratio	0.01	-	-	-	0.083
HCM Control Delay (s)	8.5	-	-	-	20
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

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Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	175	547	380	33	28	90
Future Vol, veh/h	175	547	380	33	28	90
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	190	595	413	36	30	98

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	451	0	-	0	1408	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	975	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1115	-	-	-	154	625
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	367	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1113	-	-	-	127	624
Mov Cap-2 Maneuver	-	-	-	-	127	-
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	366	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	23.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1113	-	-	-	324
HCM Lane V/C Ratio	0.171	-	-	-	0.396
HCM Control Delay (s)	8.9	-	-	-	23.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.6	-	-	-	1.8

Intersection	
Intersection Delay, s/veh	5.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	441	225	52	129
Demand Flow Rate, veh/h	446	227	52	130
Vehicles Circulating, veh/h	34	113	402	263
Vehicles Exiting, veh/h	359	341	78	77
Ped Vol Crossing Leg, #/h	0	0	0	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.8	4.5	4.5	4.5
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	446	227	52	130
Cap Entry Lane, veh/h	1333	1230	916	1055
Entry HV Adj Factor	0.988	0.991	0.999	0.992
Flow Entry, veh/h	441	225	52	129
Cap Entry, veh/h	1317	1218	915	1046
V/C Ratio	0.335	0.185	0.057	0.123
Control Delay, s/veh	5.8	4.5	4.5	4.5
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	0

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	435	1158	387	443	1176	326	472	665	255	253	304
v/c Ratio	0.88	0.97	0.50	0.90	0.99	0.45	0.92	0.88	0.73	0.82	0.49
Control Delay	84.6	69.0	5.6	86.6	72.2	8.1	88.2	71.4	81.3	82.2	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.6	69.0	5.6	86.6	72.2	8.1	88.2	71.4	81.3	82.2	23.0
Queue Length 50th (ft)	231	~638	0	236	~681	24	254	349	135	255	134
Queue Length 95th (ft)	#329	#839	79	#340	#860	109	#374	435	189	361	225
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	527	1191	778	527	1191	718	527	844	405	385	637
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.97	0.50	0.84	0.99	0.45	0.90	0.79	0.63	0.66	0.48

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	1065	356	408	1082	300	434	519	93	235	233	280
Future Volume (veh/h)	400	1065	356	408	1082	300	434	519	93	235	233	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	435	1158	387	443	1176	326	472	564	101	255	253	304
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	11	11	11	11	11	11	11	11	11	11	11
Cap, veh/h	476	1163	519	481	1236	551	508	717	128	299	333	500
Arrive On Green	0.15	0.35	0.35	0.15	0.37	0.37	0.16	0.26	0.26	0.09	0.19	0.19
Sat Flow, veh/h	3209	3300	1472	3209	3300	1472	3209	2792	498	3209	1737	1472
Grp Volume(v), veh/h	435	1158	387	443	1176	326	472	333	332	255	253	304
Grp Sat Flow(s),veh/h/ln	1605	1650	1472	1605	1650	1472	1605	1650	1640	1605	1737	1472
Q Serve(g_s), s	21.6	56.6	24.2	22.0	56.0	28.8	23.5	30.3	30.6	12.7	22.3	27.8
Cycle Q Clear(g_c), s	21.6	56.6	24.2	22.0	56.0	28.8	23.5	30.3	30.6	12.7	22.3	27.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	476	1163	519	481	1236	551	508	424	421	299	333	500
V/C Ratio(X)	0.91	1.00	0.75	0.92	0.95	0.59	0.93	0.79	0.79	0.85	0.76	0.61
Avail Cap(c_a), veh/h	516	1163	519	516	1236	551	516	424	421	397	376	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.8	52.2	19.3	67.8	49.2	40.6	67.2	55.9	56.0	72.2	61.8	44.4
Incr Delay (d2), s/veh	19.9	25.2	5.8	20.5	15.5	1.7	23.3	9.4	9.7	12.9	7.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	26.4	9.0	10.2	24.7	10.6	11.2	13.6	13.7	5.7	10.5	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.7	77.4	25.1	88.3	64.7	42.3	90.5	65.3	65.8	85.1	69.6	46.1
LnGrp LOS	F	E	C	F	E	D	F	E	E	F	E	D
Approach Vol, veh/h		1980			1945			1137			812	
Approach Delay, s/veh		69.5			66.3			75.9			65.7	
Approach LOS		E			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.5	64.3	29.6	36.3	28.0	67.8	19.1	46.8
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	26.0	* 57	26.0	35.0	26.0	57.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	24.0	58.6	25.5	29.8	23.6	58.0	14.7	32.6
Green Ext Time (p_c), s	0.2	0.0	0.1	1.2	0.4	0.0	0.4	2.5

Intersection Summary

HCM 6th Ctrl Delay	69.1
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	432	388	504	767	11	22	166	349	351	43
v/c Ratio	0.12	0.44	0.85	0.48	0.52	0.12	0.23	0.31	0.78	0.77	0.08
Control Delay	48.6	33.1	37.8	7.3	2.4	48.5	51.5	6.2	47.3	46.5	0.3
Queue Delay	0.0	0.0	1.5	0.4	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	33.1	39.3	7.7	3.4	48.5	51.5	6.2	47.3	46.5	0.3
Queue Length 50th (ft)	7	134	209	56	8	7	14	13	201	202	0
Queue Length 95th (ft)	25	175	#383	169	0	25	39	34	#364	#362	0
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	91	1029	492	1042	1479	92	97	566	466	473	543
Starvation Cap Reductn	0	0	27	185	427	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.42	0.83	0.59	0.73	0.12	0.23	0.29	0.75	0.74	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	365	32	357	464	706	10	20	153	553	91	40
Future Volume (veh/h)	10	365	32	357	464	706	10	20	153	553	91	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	11	397	35	388	504	767	11	22	166	672	0	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	23	529	46	688	998	1190	88	92	690	774	0	340
Arrive On Green	0.01	0.16	0.16	0.13	0.18	0.18	0.05	0.05	0.05	0.22	0.00	0.22
Sat Flow, veh/h	1767	3271	287	1767	1856	1572	1767	1856	1563	3534	0	1555
Grp Volume(v), veh/h	11	213	219	388	504	767	11	22	166	672	0	43
Grp Sat Flow(s),veh/h/ln	1767	1763	1795	1767	1856	1572	1767	1856	1563	1767	0	1555
Q Serve(g_s), s	0.6	11.5	11.7	20.6	24.5	25.1	0.6	1.1	0.0	18.3	0.0	2.2
Cycle Q Clear(g_c), s	0.6	11.5	11.7	20.6	24.5	25.1	0.6	1.1	0.0	18.3	0.0	2.2
Prop In Lane	1.00		0.16	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	285	290	688	998	1190	88	92	690	774	0	340
V/C Ratio(X)	0.47	0.75	0.75	0.56	0.50	0.64	0.12	0.24	0.24	0.87	0.00	0.13
Avail Cap(c_a), veh/h	88	405	413	688	998	1190	88	93	691	937	0	412
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.65	0.65	0.65	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.0	40.0	40.0	35.6	29.1	10.7	45.4	45.7	17.6	37.7	0.0	31.4
Incr Delay (d2), s/veh	14.2	16.3	16.6	0.7	0.3	0.8	0.6	1.3	0.2	7.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.3	6.5	9.9	12.2	20.3	0.3	0.6	2.3	8.5	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.1	56.3	56.6	36.3	29.4	11.5	46.1	47.0	17.7	45.2	0.0	31.5
LnGrp LOS	E	E	E	D	C	B	D	D	B	D	A	C
Approach Vol, veh/h		443			1659			199			715	
Approach Delay, s/veh		56.6			22.7			22.5			44.4	
Approach LOS		E			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	43.5	20.7		26.4	5.8	58.3		9.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	27.5	23.0		26.5	5.0	45.5		5.0				
Max Q Clear Time (g_c+I1), s	27.1	13.7		20.3	2.6	27.1		3.1				
Green Ext Time (p_c), s	0.6	1.8		1.6	0.0	6.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	1088	57	1414	433	235	22	272	11	11
v/c Ratio	0.54	0.54	0.27	0.68	0.42	0.80	0.06	0.53	0.04	0.02
Control Delay	51.0	9.3	34.3	11.3	4.2	56.8	29.3	10.4	28.9	0.1
Queue Delay	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	9.4	34.3	11.4	4.2	56.8	29.3	10.4	28.9	0.1
Queue Length 50th (ft)	45	244	28	222	36	140	11	19	6	0
Queue Length 95th (ft)	m71	282	m36	m282	m42	220	30	87	20	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	152	2124	227	2072	1026	352	470	574	349	539
Starvation Cap Reductn	0	222	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	65	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.57	0.25	0.70	0.42	0.67	0.05	0.47	0.03	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	950	51	52	1301	398	216	20	250	10	0	10
Future Volume (veh/h)	70	950	51	52	1301	398	216	20	250	10	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	1033	55	57	1414	0	235	22	272	11	0	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	97	1266	67	518	2151		342	371	314	277	0	314
Arrive On Green	0.06	0.37	0.37	0.29	0.61	0.00	0.20	0.20	0.20	0.20	0.00	0.20
Sat Flow, veh/h	1767	3403	181	1767	3526	1572	1392	1856	1572	1077	0	1572
Grp Volume(v), veh/h	76	535	553	57	1414	0	235	22	272	11	0	11
Grp Sat Flow(s),veh/h/ln	1767	1763	1821	1767	1763	1572	1392	1856	1572	1077	0	1572
Q Serve(g_s), s	4.2	27.4	27.4	2.4	26.1	0.0	16.4	1.0	16.7	0.8	0.0	0.6
Cycle Q Clear(g_c), s	4.2	27.4	27.4	2.4	26.1	0.0	16.9	1.0	16.7	1.8	0.0	0.6
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	97	656	678	518	2151		342	371	314	277	0	314
V/C Ratio(X)	0.78	0.82	0.82	0.11	0.66		0.69	0.06	0.87	0.04	0.00	0.04
Avail Cap(c_a), veh/h	150	918	949	518	2151		419	473	401	336	0	401
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.6	28.3	28.3	25.8	12.7	0.0	39.1	32.4	38.7	33.1	0.0	32.2
Incr Delay (d2), s/veh	10.9	9.0	8.7	0.1	1.6	0.0	3.5	0.1	14.7	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	12.8	13.2	1.0	9.8	0.0	5.8	0.4	7.6	0.2	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	37.3	37.0	25.9	14.3	0.0	42.5	32.5	53.4	33.2	0.0	32.3
LnGrp LOS	E	D	D	C	B		D	C	D	C	A	C
Approach Vol, veh/h		1164			1471	A		529			22	
Approach Delay, s/veh		38.5			14.7			47.7			32.7	
Approach LOS		D			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.8	41.7		24.5	10.0	65.5		24.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	29.5	52.1		25.5	8.5	52.5		25.5				
Max Q Clear Time (g_c+I1), s	4.4	29.4		3.8	6.2	28.1		18.9				
Green Ext Time (p_c), s	0.0	7.8		0.0	0.0	12.3		1.1				

Intersection Summary

HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	342	972	65	1204	417	203	54	174	209	489
v/c Ratio	0.91	0.64	0.58	0.93	0.96	0.25	0.11	0.89	0.53	0.94
Control Delay	58.1	9.0	66.2	43.8	78.5	31.9	0.5	85.9	39.9	47.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	9.0	66.2	43.8	78.5	31.9	0.5	85.9	39.9	47.3
Queue Length 50th (ft)	102	26	41	384	138	54	0	111	117	166
Queue Length 95th (ft)	#195	73	#98	#534	#232	86	0	#235	189	#361
Internal Link Dist (ft)		353		673		608			523	
Turn Bay Length (ft)	295		235		140		130	225		
Base Capacity (vph)	377	1520	115	1295	435	863	510	196	424	543
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.64	0.57	0.93	0.96	0.24	0.11	0.89	0.49	0.90

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	591	304	60	917	190	384	187	50	160	192	450
Future Volume (veh/h)	315	591	304	60	917	190	384	187	50	160	192	450
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	342	642	0	65	997	207	417	203	54	174	209	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	694	1815		84	1043	216	439	538	240	198	253	
Arrive On Green	0.20	0.51	0.00	0.05	0.36	0.36	0.13	0.15	0.15	0.11	0.14	0.00
Sat Flow, veh/h	3456	3647	0	1781	2923	606	3456	3554	1585	1781	1870	1585
Grp Volume(v), veh/h	342	642	0	65	605	599	417	203	54	174	209	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1781	1777	1752	1728	1777	1585	1781	1870	1585
Q Serve(g_s), s	8.8	10.8	0.0	3.6	33.2	33.4	12.0	5.1	3.0	9.6	10.9	0.0
Cycle Q Clear(g_c), s	8.8	10.8	0.0	3.6	33.2	33.4	12.0	5.1	3.0	9.6	10.9	0.0
Prop In Lane	1.00		0.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	694	1815		84	634	625	439	538	240	198	253	
V/C Ratio(X)	0.49	0.35		0.78	0.95	0.96	0.95	0.38	0.23	0.88	0.83	
Avail Cap(c_a), veh/h	694	1815		116	636	627	439	867	387	198	426	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.5	14.6	0.0	47.1	31.4	31.4	43.3	38.2	37.3	43.8	42.1	0.0
Incr Delay (d2), s/veh	0.5	0.5	0.0	19.6	26.1	27.0	30.5	0.4	0.5	33.5	6.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	4.3	0.0	2.0	18.1	18.1	6.8	2.2	1.2	5.9	5.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	15.2	0.0	66.8	57.5	58.4	73.9	38.6	37.7	77.3	48.8	0.0
LnGrp LOS	D	B		E	E	E	E	D	D	E	D	
Approach Vol, veh/h		984	A		1269			674			383	A
Approach Delay, s/veh		22.4			58.4			60.4			61.7	
Approach LOS		C			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	55.6	17.2	18.0	24.6	40.2	15.6	19.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	40.0	12.7	22.8	10.7	35.8	11.1	24.4
Max Q Clear Time (g_c+I1), s	5.6	12.8	14.0	12.9	10.8	35.4	11.6	7.1
Green Ext Time (p_c), s	0.0	4.8	0.0	0.7	0.0	0.3	0.0	1.2

Intersection Summary

HCM 6th Ctrl Delay	48.5
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	210	146	38	569	38	442	110
v/c Ratio	0.57	0.29	0.20	0.66	0.20	0.51	0.14
Control Delay	21.1	7.5	27.7	18.4	27.7	14.4	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	7.5	27.7	18.4	27.7	14.4	4.4
Queue Length 50th (ft)	41	6	10	95	10	67	1
Queue Length 95th (ft)	113	44	40	#361	40	226	29
Internal Link Dist (ft)	560	1033		1337		2227	
Turn Bay Length (ft)			30		70		60
Base Capacity (vph)	782	973	189	934	189	936	822
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.15	0.20	0.61	0.20	0.47	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	10	42	10	20	104	35	513	10	35	407	101
Future Volume (veh/h)	141	10	42	10	20	104	35	513	10	35	407	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	153	11	46	11	22	113	38	558	11	38	442	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	29	66	109	63	253	77	713	14	77	729	613
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.04	0.39	0.39	0.04	0.39	0.39
Sat Flow, veh/h	1039	146	332	56	313	1263	1781	1828	36	1781	1870	1573
Grp Volume(v), veh/h	210	0	0	146	0	0	38	0	569	38	442	110
Grp Sat Flow(s),veh/h/ln	1517	0	0	1632	0	0	1781	0	1864	1781	1870	1573
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	0.8	0.0	10.6	0.8	7.5	1.8
Cycle Q Clear(g_c), s	4.6	0.0	0.0	3.1	0.0	0.0	0.8	0.0	10.6	0.8	7.5	1.8
Prop In Lane	0.73		0.22	0.08		0.77	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	461	0	0	424	0	0	77	0	727	77	729	613
V/C Ratio(X)	0.46	0.00	0.00	0.34	0.00	0.00	0.49	0.00	0.78	0.49	0.61	0.18
Avail Cap(c_a), veh/h	1105	0	0	1196	0	0	225	0	1108	225	1112	935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	0.0	13.9	0.0	0.0	18.5	0.0	10.6	18.5	9.6	7.9
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.5	0.0	0.0	4.8	0.0	2.1	4.8	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.0	0.0	0.0	0.4	0.0	3.4	0.4	2.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.1	0.0	0.0	14.4	0.0	0.0	23.3	0.0	12.7	23.3	10.4	8.0
LnGrp LOS	B	A	A	B	A	A	C	A	B	C	B	A
Approach Vol, veh/h		210			146			607			590	
Approach Delay, s/veh		15.1			14.4			13.3			10.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	20.4		12.4	6.7	20.4		12.4				
Change Period (Y+Rc), s	5.0	5.0		4.5	5.0	5.0		4.5				
Max Green Setting (Gmax), s	5.0	23.5		27.0	5.0	23.5		27.0				
Max Q Clear Time (g_c+I1), s	2.8	12.6		6.6	2.8	9.5		5.1				
Green Ext Time (p_c), s	0.0	2.7		1.2	0.0	2.6		0.8				

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

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Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	46	320	317	16	272	164	284	227
v/c Ratio	0.30	0.69	0.35	0.12	0.65	0.18	0.68	0.13
Control Delay	38.6	36.8	2.5	45.7	38.0	1.8	38.7	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	36.8	2.5	45.7	38.0	1.8	38.7	13.5
Queue Length 50th (ft)	16	148	0	8	129	0	134	30
Queue Length 95th (ft)	58	276	36	32	241	20	256	68
Internal Link Dist (ft)	284	314			712			1337
Turn Bay Length (ft)				150			250	
Base Capacity (vph)	153	723	1057	130	661	1123	628	2234
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.44	0.30	0.12	0.41	0.15	0.45	0.10

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	12	284	10	292	15	250	151	261	199	10
Future Volume (veh/h)	20	10	12	284	10	292	15	250	151	261	199	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.87	1.00		0.95	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	11	13	309	11	317	16	272	164	284	216	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	17	20	475	17	719	34	373	748	343	1281	65
Arrive On Green	0.04	0.04	0.04	0.28	0.28	0.28	0.02	0.20	0.20	0.19	0.37	0.37
Sat Flow, veh/h	796	398	470	1723	61	1502	1781	1870	1557	1781	3440	174
Grp Volume(v), veh/h	46	0	0	320	0	317	16	272	164	284	111	116
Grp Sat Flow(s),veh/h/ln	1664	0	0	1784	0	1502	1781	1870	1557	1781	1777	1837
Q Serve(g_s), s	1.8	0.0	0.0	10.4	0.0	9.3	0.6	9.0	4.1	10.1	2.7	2.8
Cycle Q Clear(g_c), s	1.8	0.0	0.0	10.4	0.0	9.3	0.6	9.0	4.1	10.1	2.7	2.8
Prop In Lane	0.48		0.28	0.97		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	72	0	0	492	0	719	34	373	748	343	662	684
V/C Ratio(X)	0.64	0.00	0.00	0.65	0.00	0.44	0.47	0.73	0.22	0.83	0.17	0.17
Avail Cap(c_a), veh/h	139	0	0	747	0	933	136	683	1006	651	1163	1202
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	0.0	0.0	21.0	0.0	11.8	31.9	24.6	10.1	25.5	13.8	13.8
Incr Delay (d2), s/veh	9.1	0.0	0.0	1.5	0.0	0.4	9.5	2.7	0.1	5.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	4.3	0.0	2.9	0.3	3.8	2.1	4.4	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	0.0	0.0	22.4	0.0	12.2	41.4	27.4	10.3	30.6	13.9	13.9
LnGrp LOS	D	A	A	C	A	B	D	C	B	C	B	B
Approach Vol, veh/h		46			637			452			511	
Approach Delay, s/veh		40.0			17.3			21.7			23.2	
Approach LOS		D			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.6	18.1		7.3	6.3	29.5		22.6
Change Period (Y+Rc), s	5.0	5.0		4.5	5.0	5.0		4.5
Max Green Setting (Gmax), s	24.0	24.0		5.5	5.0	43.0		27.5
Max Q Clear Time (g_c+I1), s	12.1	11.0		3.8	2.6	4.8		12.4
Green Ext Time (p_c), s	0.6	1.6		0.0	0.0	1.3		3.0

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

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Intersection has too many lanes per leg.
HCM All-Way analysis is limited to two lanes per leg.
Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	196	135	221	208	122	399
Future Vol, veh/h	196	135	221	208	122	399
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	213	147	240	226	133	434
Number of Lanes	1	1	1	2	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	16.2	15.4	25.7
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	104	104	196	135	122	399
LT Vol	221	0	0	196	0	0	0
Through Vol	0	104	104	0	0	122	0
RT Vol	0	0	0	0	135	0	399
Lane Flow Rate	240	113	113	213	147	133	434
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.531	0.234	0.178	0.489	0.287	0.268	0.79
Departure Headway (Hd)	7.965	7.454	5.662	8.262	7.043	7.277	6.56
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	454	482	633	437	511	495	551
Service Time	5.711	5.199	3.407	6.01	4.79	5.017	4.3
HCM Lane V/C Ratio	0.529	0.234	0.179	0.487	0.288	0.269	0.788
HCM Control Delay	19.4	12.5	9.6	18.7	12.6	12.7	29.7
HCM Lane LOS	C	B	A	C	B	B	D
HCM 95th-tile Q	3	0.9	0.6	2.6	1.2	1.1	7.4

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	3	192	10	0	0	0	0	386	20
Future Volume (vph)	0	0	0	3	192	10	0	0	0	0	386	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	3	209	11	0	0	0	0	420	22

Direction, Lane #	WB 1	WB 2	SB 1
Volume Total (vph)	212	11	442
Volume Left (vph)	3	0	0
Volume Right (vph)	0	11	22
Hadj (s)	0.04	-0.57	0.00
Departure Headway (s)	5.0	3.2	4.5
Degree Utilization, x	0.29	0.01	0.55
Capacity (veh/h)	671	1121	785
Control Delay (s)	10.1	6.2	12.8
Approach Delay (s)	9.9		12.8
Approach LOS	A		B

Intersection Summary			
Delay		11.8	
Level of Service		B	
Intersection Capacity Utilization		38.5%	ICU Level of Service A
Analysis Period (min)		15	

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	192	10	0	0	0	0	386	20
Future Vol, veh/h	0	0	0	3	192	10	0	0	0	0	386	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	209	11	0	0	0	0	420	22
Number of Lanes	0	0	0	0	1	1	0	0	0	0	1	0

Approach	WB	SB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		WB
Conflicting Lanes Left	0	2
Conflicting Approach Right	SB	
Conflicting Lanes Right	1	0
HCM Control Delay	10.9	13.1
HCM LOS	B	B

Lane	WBLn1	WBLn2	SBLn1
Vol Left, %	2%	0%	0%
Vol Thru, %	98%	0%	95%
Vol Right, %	0%	100%	5%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	195	10	406
LT Vol	3	0	0
Through Vol	192	0	386
RT Vol	0	10	20
Lane Flow Rate	212	11	441
Geometry Grp	7	7	2
Degree of Util (X)	0.329	0.015	0.555
Departure Headway (Hd)	5.58	4.865	4.531
Convergence, Y/N	Yes	Yes	Yes
Cap	642	731	794
Service Time	3.339	2.624	2.562
HCM Lane V/C Ratio	0.33	0.015	0.555
HCM Control Delay	11.1	7.7	13.1
HCM Lane LOS	B	A	B
HCM 95th-tile Q	1.4	0	3.5

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	25	372	1217	439	585	126	315	613	429	329
v/c Ratio	0.11	0.79	0.82	0.55	0.53	0.67	0.70	0.38	0.76	0.50
Control Delay	58.1	64.0	41.0	33.4	5.1	78.8	67.6	7.6	66.0	48.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	64.0	41.0	33.4	5.1	78.8	67.6	7.6	66.0	48.0
Queue Length 50th (ft)	21	155	520	308	55	117	153	71	201	129
Queue Length 95th (ft)	53	221	647	438	140	189	207	94	270	185
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	252	525	1582	858	1140	244	578	1692	639	741
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.71	0.77	0.51	0.51	0.52	0.54	0.36	0.67	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	223	120	1120	404	538	116	290	564	395	210	93
Future Volume (veh/h)	23	223	120	1120	404	538	116	290	564	395	210	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	242	130	1217	439	585	126	315	613	429	228	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	294	152	1435	777	878	152	540	1582	499	490	210
Arrive On Green	0.13	0.13	0.13	0.42	0.42	0.42	0.09	0.15	0.15	0.14	0.20	0.20
Sat Flow, veh/h	1781	2262	1174	3456	1870	1564	1781	3554	2790	3456	2420	1037
Grp Volume(v), veh/h	25	188	184	1217	439	585	126	315	613	429	165	164
Grp Sat Flow(s),veh/h/ln	1781	1777	1659	1728	1870	1564	1781	1777	1395	1728	1777	1681
Q Serve(g_s), s	1.6	13.3	14.0	41.1	23.2	34.0	9.0	10.7	15.7	15.7	10.6	11.1
Cycle Q Clear(g_c), s	1.6	13.3	14.0	41.1	23.2	34.0	9.0	10.7	15.7	15.7	10.6	11.1
Prop In Lane	1.00		0.71	1.00		1.00	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	231	231	215	1435	777	878	152	540	1582	499	360	340
V/C Ratio(X)	0.11	0.82	0.85	0.85	0.57	0.67	0.83	0.58	0.39	0.86	0.46	0.48
Avail Cap(c_a), veh/h	268	267	249	1675	906	987	259	611	1638	677	395	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	54.7	55.0	34.1	28.9	20.0	58.1	51.0	15.5	54.0	45.3	45.5
Incr Delay (d2), s/veh	0.2	15.7	21.6	3.8	0.6	1.5	10.8	1.1	0.2	8.3	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	7.0	7.2	17.3	10.3	12.0	4.4	4.7	9.9	7.4	4.8	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	70.4	76.6	37.9	29.5	21.5	69.0	52.1	15.7	62.3	46.2	46.6
LnGrp LOS	D	E	E	D	C	C	E	D	B	E	D	D
Approach Vol, veh/h		397			2241			1054			758	
Approach Delay, s/veh		72.0			32.0			32.9			55.4	
Approach LOS		E			C			C			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.4	25.4		21.4	16.8	31.9		59.0				
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4				
Max Green Setting (Gmax), s	* 25	22.2		19.4	18.8	* 29		62.6				
Max Q Clear Time (g_c+I1), s	17.7	17.7		16.0	11.0	13.1		43.1				
Green Ext Time (p_c), s	1.0	1.9		0.8	0.2	1.7		10.6				

Intersection Summary

HCM 6th Ctrl Delay	39.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	120	826	299	136	1215	303	682	394	310	509
v/c Ratio	0.73	0.73	0.42	0.82	0.94	0.42	0.85	0.56	0.82	0.75
Control Delay	76.6	37.7	5.5	84.3	48.7	8.4	50.1	39.7	57.9	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.6	37.7	5.5	84.3	48.7	8.4	50.1	39.7	57.9	40.4
Queue Length 50th (ft)	42	264	0	93	422	27	224	122	200	143
Queue Length 95th (ft)	#98	376	64	#221	#647	103	#322	176	#335	203
Internal Link Dist (ft)		1510			1609			962		896
Turn Bay Length (ft)	140			80			150		110	
Base Capacity (vph)	164	1126	707	166	1288	717	886	904	458	933
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.73	0.42	0.82	0.94	0.42	0.77	0.44	0.68	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	760	275	125	1118	279	627	308	54	285	269	200
Future Volume (veh/h)	110	760	275	125	1118	279	627	308	54	285	269	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	826	299	136	1215	303	682	335	59	310	292	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	1136	507	165	1293	572	770	662	115	346	376	271
Arrive On Green	0.05	0.32	0.32	0.09	0.36	0.36	0.22	0.22	0.22	0.19	0.19	0.19
Sat Flow, veh/h	3456	3554	1585	1781	3554	1572	3456	3022	526	1781	1969	1422
Grp Volume(v), veh/h	120	826	299	136	1215	303	682	195	199	310	263	246
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1572	1728	1777	1771	1781	1777	1614
Q Serve(g_s), s	3.5	21.3	8.9	7.8	34.2	15.7	19.7	10.0	10.2	17.5	14.5	15.1
Cycle Q Clear(g_c), s	3.5	21.3	8.9	7.8	34.2	15.7	19.7	10.0	10.2	17.5	14.5	15.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.88
Lane Grp Cap(c), veh/h	167	1136	507	165	1293	572	770	390	388	346	339	308
V/C Ratio(X)	0.72	0.73	0.59	0.83	0.94	0.53	0.89	0.50	0.51	0.90	0.77	0.80
Avail Cap(c_a), veh/h	167	1142	509	169	1307	578	896	464	463	465	468	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.5	31.2	8.7	46.1	31.8	25.9	38.9	35.4	35.5	40.6	39.7	39.9
Incr Delay (d2), s/veh	13.8	2.3	1.8	26.8	13.1	0.9	9.5	1.0	1.0	15.8	5.4	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	9.1	2.9	4.6	16.1	5.7	9.1	4.3	4.4	8.9	6.6	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.2	33.5	10.5	72.8	44.9	26.8	48.4	36.4	36.5	56.4	45.1	47.3
LnGrp LOS	E	C	B	E	D	C	D	D	D	E	D	D
Approach Vol, veh/h		1245			1654			1076			819	
Approach Delay, s/veh		30.8			43.8			44.0			50.0	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	37.5	27.5	24.2	9.5	42.1	24.6	27.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.8	33.2	26.8	27.2	5.0	38.0	27.0	27.0
Max Q Clear Time (g_c+I1), s	9.3	23.3	21.7	17.1	5.5	36.2	19.5	12.2
Green Ext Time (p_c), s	0.0	4.5	1.3	2.1	0.0	1.4	0.6	1.8

Intersection Summary

HCM 6th Ctrl Delay	41.5
HCM 6th LOS	D

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	392	1073	374	405	1134	216	378	507	271	357	320
v/c Ratio	1.00	0.92	0.50	0.82	0.89	0.31	0.79	0.60	0.73	0.91	0.49
Control Delay	111.8	61.8	6.4	78.3	54.9	4.9	76.6	52.3	78.9	86.5	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.8	61.8	6.4	78.3	54.9	4.9	76.6	52.3	78.9	86.5	25.3
Queue Length 50th (ft)	~233	560	8	215	570	0	200	238	143	371	154
Queue Length 95th (ft)	#357	#714	89	282	683	55	263	311	199	#587	263
Internal Link Dist (ft)		1323			2509			853		451	
Turn Bay Length (ft)	225		485	125		390	160		140		
Base Capacity (vph)	392	1280	789	566	1460	766	566	902	435	413	648
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.84	0.47	0.72	0.78	0.28	0.67	0.56	0.62	0.86	0.49

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	1041	363	393	1100	210	367	376	115	263	346	310
Future Volume (veh/h)	380	1041	363	393	1100	210	367	376	115	263	346	310
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	392	1073	374	405	1134	216	378	388	119	271	357	320
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	408	1201	535	454	1325	590	435	648	196	322	390	518
Arrive On Green	0.12	0.35	0.35	0.14	0.39	0.39	0.13	0.25	0.25	0.10	0.22	0.22
Sat Flow, veh/h	3319	3413	1521	3319	3413	1521	3319	2579	781	3319	1796	1522
Grp Volume(v), veh/h	392	1073	374	405	1134	216	378	255	252	271	357	320
Grp Sat Flow(s),veh/h/ln	1659	1706	1521	1659	1706	1521	1659	1706	1653	1659	1796	1522
Q Serve(g_s), s	17.2	43.5	21.0	17.6	44.6	14.8	16.4	19.3	19.7	11.8	28.4	25.7
Cycle Q Clear(g_c), s	17.2	43.5	21.0	17.6	44.6	14.8	16.4	19.3	19.7	11.8	28.4	25.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	408	1201	535	454	1325	590	435	429	415	322	390	518
V/C Ratio(X)	0.96	0.89	0.70	0.89	0.86	0.37	0.87	0.60	0.61	0.84	0.91	0.62
Avail Cap(c_a), veh/h	408	1328	592	589	1514	675	589	478	463	453	429	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.9	44.9	18.8	62.2	41.1	32.0	62.4	48.3	48.4	65.0	56.0	40.4
Incr Delay (d2), s/veh	34.5	7.6	3.2	11.4	4.6	0.4	10.3	1.7	1.9	9.6	22.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	18.8	7.7	7.9	18.6	5.5	7.4	8.3	8.3	5.4	15.2	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.4	52.5	22.0	73.5	45.6	32.3	72.7	49.9	50.3	74.6	78.8	42.3
LnGrp LOS	F	D	C	E	D	C	E	D	D	E	E	D
Approach Vol, veh/h		1839			1755			885			948	
Approach Delay, s/veh		56.1			50.4			59.8			65.3	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.3	58.8	23.2	37.1	22.0	64.2	18.2	42.1
Change Period (Y+Rc), s	7.3	* 7.3	4.0	5.3	4.0	7.3	4.0	5.3
Max Green Setting (Gmax), s	26.0	* 57	26.0	35.0	18.0	65.0	20.0	41.0
Max Q Clear Time (g_c+I1), s	19.6	45.5	18.4	30.4	19.2	46.6	13.8	21.7
Green Ext Time (p_c), s	0.4	6.0	0.8	1.4	0.0	7.7	0.5	2.8

Intersection Summary

HCM 6th Ctrl Delay	56.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	550	309	510	763	7	54	319	387	396	117
v/c Ratio	0.18	0.55	0.84	0.56	0.57	0.07	0.49	0.70	0.78	0.79	0.21
Control Delay	48.0	34.4	41.6	16.3	4.1	46.4	61.6	28.0	44.9	45.2	2.4
Queue Delay	0.0	0.2	0.0	0.7	0.1	0.0	0.0	2.3	1.6	1.7	0.0
Total Delay	48.0	34.6	41.6	17.0	4.3	46.4	61.6	30.2	46.5	46.9	2.4
Queue Length 50th (ft)	13	171	161	89	15	4	34	80	226	231	0
Queue Length 95th (ft)	38	220	#307	175	137	19	#83	177	#383	#391	18
Internal Link Dist (ft)		346		307			744			674	
Turn Bay Length (ft)	65		125			140		165	150		185
Base Capacity (vph)	116	1033	404	935	1338	104	110	485	515	523	587
Starvation Cap Reductn	0	0	0	165	81	0	0	0	0	0	0
Spillback Cap Reductn	0	85	0	0	0	0	0	74	40	40	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.58	0.76	0.66	0.61	0.07	0.49	0.78	0.81	0.82	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	485	32	290	479	717	7	51	300	638	98	110
Future Volume (veh/h)	20	485	32	290	479	717	7	51	300	638	98	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	21	516	34	309	510	763	7	54	319	753	0	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	235	645	42	607	748	1006	90	94	620	870	0	386
Arrive On Green	0.13	0.19	0.19	0.34	0.40	0.40	0.05	0.05	0.05	0.24	0.00	0.24
Sat Flow, veh/h	1795	3409	224	1795	1885	1559	1795	1885	1598	3591	0	1591
Grp Volume(v), veh/h	21	271	279	309	510	763	7	54	319	753	0	117
Grp Sat Flow(s),veh/h/ln	1795	1791	1842	1795	1885	1559	1795	1885	1598	1795	0	1591
Q Serve(g_s), s	1.0	14.4	14.5	13.8	22.4	34.6	0.4	2.8	0.0	20.1	0.0	6.0
Cycle Q Clear(g_c), s	1.0	14.4	14.5	13.8	22.4	34.6	0.4	2.8	0.0	20.1	0.0	6.0
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	235	339	349	607	748	1006	90	94	620	870	0	386
V/C Ratio(X)	0.09	0.80	0.80	0.51	0.68	0.76	0.08	0.57	0.51	0.87	0.00	0.30
Avail Cap(c_a), veh/h	235	439	451	607	792	1042	99	104	628	1059	0	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.65	0.65	0.65	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.2	38.7	38.7	26.4	24.9	12.8	45.3	46.5	23.4	36.3	0.0	31.0
Incr Delay (d2), s/veh	0.2	17.6	17.5	0.5	1.5	2.1	0.4	6.2	0.7	6.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	8.0	8.2	5.9	10.0	19.6	0.2	1.5	5.6	9.3	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.4	56.3	56.2	26.9	26.4	14.8	45.7	52.6	24.1	42.9	0.0	31.4
LnGrp LOS	D	E	E	C	C	B	D	D	C	D	A	C
Approach Vol, veh/h		571			1582			380			870	
Approach Delay, s/veh		55.6			20.9			28.5			41.3	
Approach LOS		E			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	38.3	23.4		28.7	17.6	44.2		9.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	22.5	24.5		29.5	5.0	42.0		5.5
Max Q Clear Time (g_c+I1), s	15.8	16.5		22.1	3.0	36.6		4.8
Green Ext Time (p_c), s	0.5	2.2		2.1	0.0	3.1		0.1

Intersection Summary

HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	94	1437	30	1287	374	280	32	508	9	32
v/c Ratio	0.64	0.72	0.31	0.70	0.41	0.69	0.06	0.91	0.02	0.05
Control Delay	57.2	18.9	47.8	19.3	7.4	40.3	23.8	45.7	23.1	0.2
Queue Delay	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	19.6	47.8	19.4	7.4	40.3	23.8	45.7	23.1	0.2
Queue Length 50th (ft)	62	336	17	221	33	149	14	227	4	0
Queue Length 95th (ft)	m92	478	m22	292	m75	241	35	#408	15	0
Internal Link Dist (ft)		307		269			836			575
Turn Bay Length (ft)	120		220		145	130		110	95	
Base Capacity (vph)	155	1990	96	1827	920	452	615	611	452	663
Starvation Cap Reductn	0	238	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	23	0	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.82	0.31	0.71	0.41	0.62	0.05	0.83	0.02	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1296	40	28	1197	348	260	30	472	8	0	30
Future Volume (veh/h)	87	1296	40	28	1197	348	260	30	472	8	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	94	1394	43	30	1287	0	280	32	508	9	0	32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	119	1559	48	176	1690		507	616	522	347	0	522
Arrive On Green	0.09	0.59	0.59	0.10	0.47	0.00	0.33	0.33	0.33	0.33	0.00	0.33
Sat Flow, veh/h	1795	3544	109	1795	3582	1598	1388	1885	1598	872	0	1598
Grp Volume(v), veh/h	94	704	733	30	1287	0	280	32	508	9	0	32
Grp Sat Flow(s),veh/h/ln	1795	1791	1862	1795	1791	1598	1388	1885	1598	872	0	1598
Q Serve(g_s), s	5.1	34.1	34.3	1.5	29.6	0.0	17.4	1.2	31.4	0.7	0.0	1.4
Cycle Q Clear(g_c), s	5.1	34.1	34.3	1.5	29.6	0.0	18.7	1.2	31.4	1.9	0.0	1.4
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	788	819	176	1690		507	616	522	347	0	522
V/C Ratio(X)	0.79	0.89	0.90	0.17	0.76		0.55	0.05	0.97	0.03	0.00	0.06
Avail Cap(c_a), veh/h	154	872	907	176	1690		507	616	522	347	0	522
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.70	0.70	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.9	18.7	18.7	41.4	21.8	0.0	29.5	23.0	33.2	23.7	0.0	23.1
Incr Delay (d2), s/veh	13.4	10.9	10.7	0.5	3.3	0.0	1.3	0.0	32.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	13.7	14.3	0.7	12.6	0.0	5.8	0.5	16.3	0.1	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	29.6	29.5	41.8	25.1	0.0	30.8	23.1	65.5	23.7	0.0	23.2
LnGrp LOS	E	C	C	D	C		C	C	E	C	A	C
Approach Vol, veh/h		1531			1317	A		820			41	
Approach Delay, s/veh		31.3			25.5			52.0			23.3	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.3	48.5		37.2	11.1	51.7		37.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	48.7		32.7	8.6	45.2		32.7				
Max Q Clear Time (g_c+I1), s	3.5	36.3		3.9	7.1	31.6		33.4				
Green Ext Time (p_c), s	0.0	7.7		0.2	0.0	7.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	508	1361	105	979	311	255	74	148	301	526
v/c Ratio	0.87	0.89	0.78	0.81	0.86	0.34	0.16	0.86	0.78	0.88
Control Delay	60.1	31.0	81.7	36.3	68.5	34.0	0.7	86.0	51.7	29.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	31.0	81.7	36.3	68.5	34.0	0.7	86.0	51.7	29.8
Queue Length 50th (ft)	173	324	67	297	102	71	0	95	178	112
Queue Length 95th (ft) m	#258	#553	#157	#386	#179	106	0	#208	269	#297
Internal Link Dist (ft)		353		673		608			523	
Turn Bay Length (ft)	295		235		140		130	225		
Base Capacity (vph)	584	1523	135	1205	360	857	508	172	440	634
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.89	0.78	0.81	0.86	0.30	0.15	0.86	0.68	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	483	878	415	100	777	153	295	242	70	141	286	500
Future Volume (veh/h)	483	878	415	100	777	153	295	242	70	141	286	500
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	508	924	0	105	818	161	311	255	74	148	301	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	554	1132		395	1121	221	352	678	302	171	345	
Arrive On Green	0.16	0.32	0.00	0.22	0.38	0.38	0.10	0.19	0.19	0.09	0.18	0.00
Sat Flow, veh/h	3483	3676	0	1795	2976	586	3483	3582	1598	1795	1885	1598
Grp Volume(v), veh/h	508	924	0	105	492	487	311	255	74	148	301	0
Grp Sat Flow(s),veh/h/ln	1742	1791	0	1795	1791	1770	1742	1791	1598	1795	1885	1598
Q Serve(g_s), s	14.4	23.8	0.0	4.8	23.6	23.6	8.8	6.2	2.4	8.1	15.5	0.0
Cycle Q Clear(g_c), s	14.4	23.8	0.0	4.8	23.6	23.6	8.8	6.2	2.4	8.1	15.5	0.0
Prop In Lane	1.00		0.00	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	554	1132		395	675	667	352	678	302	171	345	
V/C Ratio(X)	0.92	0.82		0.27	0.73	0.73	0.88	0.38	0.24	0.87	0.87	
Avail Cap(c_a), veh/h	554	1469		395	675	667	352	860	383	171	441	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.4	31.5	0.0	32.3	26.8	26.8	44.4	35.4	13.2	44.6	39.7	0.0
Incr Delay (d2), s/veh	20.3	6.5	0.0	0.4	6.8	6.9	22.3	0.3	0.4	34.7	14.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	11.1	0.0	2.1	10.9	10.8	4.8	2.7	1.5	5.1	8.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	38.1	0.0	32.7	33.6	33.7	66.7	35.7	13.6	79.3	53.9	0.0
LnGrp LOS	E	D		C	C	C	E	D	B	E	D	
Approach Vol, veh/h		1432	A		1084			640			449	A
Approach Delay, s/veh		46.4			33.5			48.2			62.3	
Approach LOS		D			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.5	36.1	14.6	22.8	20.4	42.2	14.0	23.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	41.0	10.1	23.4	15.9	32.6	9.5	24.0
Max Q Clear Time (g_c+I1), s	6.8	25.8	10.8	17.5	16.4	25.6	10.1	8.2
Green Ext Time (p_c), s	0.0	5.8	0.0	0.7	0.0	3.4	0.0	1.5

Intersection Summary

HCM 6th Ctrl Delay	44.9
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	162	62	24	440	54	574	168
v/c Ratio	0.53	0.16	0.10	0.40	0.24	0.69	0.22
Control Delay	25.8	10.3	25.8	12.5	28.1	19.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	10.3	25.8	12.5	28.1	19.9	4.0
Queue Length 50th (ft)	48	6	8	102	17	147	3
Queue Length 95th (ft)	101	31	28	209	51	#347	36
Internal Link Dist (ft)	560	1033		1337		2227	
Turn Bay Length (ft)			30		70		60
Base Capacity (vph)	497	623	666	1344	240	993	891
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.10	0.04	0.33	0.23	0.58	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	10	16	10	10	42	24	426	10	53	568	166
Future Volume (veh/h)	135	10	16	10	10	42	24	426	10	53	568	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	136	10	16	10	10	42	24	430	10	54	574	168
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	354	21	24	121	66	183	214	843	20	100	747	629
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.12	0.46	0.46	0.06	0.40	0.40
Sat Flow, veh/h	1204	129	146	131	405	1124	1795	1835	43	1795	1885	1588
Grp Volume(v), veh/h	162	0	0	62	0	0	24	0	440	54	574	168
Grp Sat Flow(s),veh/h/ln	1478	0	0	1660	0	0	1795	0	1877	1795	1885	1588
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.0	0.5	0.0	6.9	1.2	11.1	3.0
Cycle Q Clear(g_c), s	4.2	0.0	0.0	1.4	0.0	0.0	0.5	0.0	6.9	1.2	11.1	3.0
Prop In Lane	0.84		0.10	0.16		0.68	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	399	0	0	370	0	0	214	0	863	100	747	629
V/C Ratio(X)	0.41	0.00	0.00	0.17	0.00	0.00	0.11	0.00	0.51	0.54	0.77	0.27
Avail Cap(c_a), veh/h	771	0	0	793	0	0	771	0	1656	278	1146	965
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	0.0	15.3	0.0	0.0	16.5	0.0	8.0	19.3	11.0	8.6
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.5	4.5	1.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.5	0.0	0.0	0.2	0.0	1.9	0.6	3.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	0.0	0.0	15.5	0.0	0.0	16.7	0.0	8.5	23.8	12.7	8.8
LnGrp LOS	B	A	A	B	A	A	B	A	A	C	B	A
Approach Vol, veh/h		162			62			464			796	
Approach Delay, s/veh		17.0			15.5			8.9			12.6	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	23.8		11.3	9.5	21.1		11.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	37.0		18.0	18.0	25.5		18.0				
Max Q Clear Time (g_c+I1), s	3.2	8.9		6.2	2.5	13.1		3.4				
Green Ext Time (p_c), s	0.0	2.8		0.6	0.0	3.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

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Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	39	197	191	15	291	288	323	307
v/c Ratio	0.30	0.58	0.25	0.13	0.48	0.29	0.76	0.14
Control Delay	34.9	38.1	2.6	44.5	29.1	1.8	42.0	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	38.1	2.6	44.5	29.1	1.8	42.0	9.3
Queue Length 50th (ft)	11	96	0	8	129	0	158	33
Queue Length 95th (ft)	47	170	30	30	248	27	278	83
Internal Link Dist (ft)	284	314			712			1337
Turn Bay Length (ft)				150			250	
Base Capacity (vph)	128	629	896	116	606	1216	580	2137
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.31	0.21	0.13	0.48	0.24	0.56	0.14

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	16	173	10	178	14	271	268	300	265	20
Future Volume (veh/h)	10	10	16	173	10	178	14	271	268	300	265	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	11	11	17	186	11	191	15	291	288	323	285	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	18	18	27	266	16	578	32	683	826	372	1855	142
Arrive On Green	0.04	0.04	0.04	0.16	0.16	0.16	0.02	0.36	0.36	0.21	0.55	0.55
Sat Flow, veh/h	483	483	747	1700	101	1582	1795	1885	1591	1795	3364	258
Grp Volume(v), veh/h	39	0	0	197	0	191	15	291	288	323	151	156
Grp Sat Flow(s),veh/h/ln	1714	0	0	1800	0	1582	1795	1885	1591	1795	1791	1831
Q Serve(g_s), s	1.8	0.0	0.0	8.3	0.0	7.0	0.7	9.3	8.5	13.9	3.3	3.3
Cycle Q Clear(g_c), s	1.8	0.0	0.0	8.3	0.0	7.0	0.7	9.3	8.5	13.9	3.3	3.3
Prop In Lane	0.28		0.44	0.94		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	62	0	0	281	0	578	32	683	826	372	988	1010
V/C Ratio(X)	0.63	0.00	0.00	0.70	0.00	0.33	0.47	0.43	0.35	0.87	0.15	0.15
Avail Cap(c_a), veh/h	107	0	0	609	0	866	113	683	826	563	988	1010
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	0.0	31.9	0.0	18.4	38.8	19.2	11.3	30.6	8.8	8.8
Incr Delay (d2), s/veh	10.0	0.0	0.0	3.1	0.0	0.3	10.4	1.9	1.2	9.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	3.8	0.0	2.5	0.4	4.0	4.0	6.6	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	0.0	0.0	35.0	0.0	18.7	49.3	21.1	12.5	39.8	9.1	9.1
LnGrp LOS	D	A	A	D	A	B	D	C	B	D	A	A
Approach Vol, veh/h		39			388			594			630	
Approach Delay, s/veh		47.9			27.0			17.6			24.8	
Approach LOS		D			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.5	33.9		7.4	6.4	49.0		17.0				
Change Period (Y+Rc), s	5.0	5.0		4.5	5.0	5.0		4.5				
Max Green Setting (Gmax), s	25.0	24.0		5.0	5.0	44.0		27.0				
Max Q Clear Time (g_c+I1), s	5.9	11.3		3.8	2.7	5.3		10.3				
Green Ext Time (p_c), s	0.7	2.1		0.0	0.0	1.8		1.7				

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

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Intersection has too many lanes per leg.
HCM All-Way analysis is limited to two lanes per leg.
Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	18.6
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	328	253	150	225	210	243
Future Vol, veh/h	328	253	150	225	210	243
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	338	261	155	232	216	251
Number of Lanes	1	1	1	2	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	23.4	13.4	16.7
HCM LOS	C	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	113	113	328	253	210	243
LT Vol	150	0	0	328	0	0	0
Through Vol	0	113	113	0	0	210	0
RT Vol	0	0	0	0	253	0	243
Lane Flow Rate	155	116	116	338	261	216	251
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.361	0.254	0.197	0.737	0.48	0.465	0.488
Departure Headway (Hd)	8.404	7.89	6.125	7.846	6.632	7.74	7.018
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	428	456	586	460	543	465	514
Service Time	6.149	5.635	3.87	5.587	4.372	5.482	4.761
HCM Lane V/C Ratio	0.362	0.254	0.198	0.735	0.481	0.465	0.488
HCM Control Delay	15.8	13.3	10.4	29.6	15.4	17.1	16.3
HCM Lane LOS	C	B	B	D	C	C	C
HCM 95th-tile Q	1.6	1	0.7	6	2.6	2.4	2.6

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	0	315	20	0	0	0	0	400	53
Future Volume (vph)	0	0	0	0	315	20	0	0	0	0	400	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	342	22	0	0	0	0	435	58

Direction, Lane #	WB 1	WB 2	SB 1
Volume Total (vph)	342	22	493
Volume Left (vph)	0	0	0
Volume Right (vph)	0	22	58
Hadj (s)	0.02	-0.58	-0.05
Departure Headway (s)	5.2	3.2	4.8
Degree Utilization, x	0.49	0.02	0.66
Capacity (veh/h)	658	1121	723
Control Delay (s)	13.1	6.3	16.4
Approach Delay (s)	12.7		16.4
Approach LOS	B		C

Intersection Summary			
Delay		14.8	
Level of Service		B	
Intersection Capacity Utilization		47.5%	ICU Level of Service	A
Analysis Period (min)		15	

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	315	20	0	0	0	0	400	53
Future Vol, veh/h	0	0	0	0	315	20	0	0	0	0	400	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	0	342	22	0	0	0	0	435	58
Number of Lanes	0	0	0	0	1	1	0	0	0	0	1	0

Approach	WB	SB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		WB
Conflicting Lanes Left	0	2
Conflicting Approach Right	SB	
Conflicting Lanes Right	1	0
HCM Control Delay	15.1	17.2
HCM LOS	C	C

Lane	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	100%	0%	88%
Vol Right, %	0%	100%	12%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	315	20	453
LT Vol	0	0	0
Through Vol	315	0	400
RT Vol	0	20	53
Lane Flow Rate	342	22	492
Geometry Grp	7	7	2
Degree of Util (X)	0.555	0.031	0.666
Departure Headway (Hd)	5.833	5.125	4.867
Convergence, Y/N	Yes	Yes	Yes
Cap	623	703	734
Service Time	3.533	2.825	2.95
HCM Lane V/C Ratio	0.549	0.031	0.67
HCM Control Delay	15.6	8	17.2
HCM Lane LOS	C	A	C
HCM 95th-tile Q	3.4	0.1	5.1

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	482	770	278	539	141	424	1192	793	461
v/c Ratio	0.25	0.78	0.94	0.62	0.58	0.62	0.75	0.99	1.03	0.51
Control Delay	37.6	45.7	57.4	41.1	8.5	52.7	48.0	40.4	78.9	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	45.7	57.4	41.1	8.5	52.7	48.0	40.4	78.9	30.5
Queue Length 50th (ft)	41	143	251	161	68	86	135	190	~287	117
Queue Length 95th (ft)	83	200	#372	250	161	146	188	#369	#405	172
Internal Link Dist (ft)		521		1372			611			680
Turn Bay Length (ft)	115		515		115	165		290	305	
Base Capacity (vph)	329	663	821	445	924	281	625	1205	770	910
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.73	0.94	0.62	0.58	0.50	0.68	0.99	1.03	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	355	113	747	270	523	137	411	1156	769	325	122
Future Volume (veh/h)	73	355	113	747	270	523	137	411	1156	769	325	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	75	366	116	770	278	539	141	424	1192	793	335	126
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	295	439	137	816	441	719	174	620	1145	766	730	270
Arrive On Green	0.16	0.16	0.16	0.23	0.23	0.23	0.10	0.17	0.17	0.22	0.29	0.29
Sat Flow, veh/h	1795	2676	835	3483	1885	1571	1795	3582	2812	3483	2560	946
Grp Volume(v), veh/h	75	243	239	770	278	539	141	424	1192	793	233	228
Grp Sat Flow(s),veh/h/ln	1795	1791	1720	1742	1885	1571	1795	1791	1406	1742	1791	1715
Q Serve(g_s), s	3.6	12.9	13.2	21.3	13.0	23.0	7.6	10.9	17.0	21.6	10.5	10.8
Cycle Q Clear(g_c), s	3.6	12.9	13.2	21.3	13.0	23.0	7.6	10.9	17.0	21.6	10.5	10.8
Prop In Lane	1.00		0.49	1.00		1.00	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	295	294	282	816	441	719	174	620	1145	766	511	489
V/C Ratio(X)	0.25	0.83	0.85	0.94	0.63	0.75	0.81	0.68	1.04	1.04	0.46	0.47
Avail Cap(c_a), veh/h	327	326	313	816	441	719	280	620	1145	766	511	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	39.7	39.8	37.0	33.8	22.3	43.5	38.1	22.3	38.3	28.8	29.0
Incr Delay (d2), s/veh	0.5	14.8	17.6	19.2	2.9	4.4	9.0	3.1	37.8	41.9	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	6.9	7.0	10.9	6.1	10.4	3.7	4.8	19.6	13.5	4.5	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	54.5	57.4	56.2	36.6	26.6	52.5	41.2	60.1	80.2	29.5	29.7
LnGrp LOS	D	D	E	E	D	C	D	D	F	F	C	C
Approach Vol, veh/h		557			1587			1757			1254	
Approach Delay, s/veh		53.3			42.7			55.0			61.6	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.3	22.8		20.7	15.3	33.8		28.4				
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.8	* 5.8		5.4				
Max Green Setting (Gmax), s	* 22	17.0		17.9	15.3	* 23		23.0				
Max Q Clear Time (g_c+I1), s	23.6	19.0		15.2	9.6	12.8		25.0				
Green Ext Time (p_c), s	0.0	0.0		0.9	0.1	2.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	52.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	281	1168	683	140	872	168	444	384	195	580
v/c Ratio	0.91	1.09	0.86	1.06	0.85	0.29	0.86	0.36	0.73	0.76
Control Delay	85.3	92.1	25.4	145.6	48.1	6.2	65.0	30.4	60.4	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.3	92.1	25.4	145.6	48.1	6.2	65.0	30.4	60.4	37.3
Queue Length 50th (ft)	108	~513	183	~114	321	0	167	104	152	182
Queue Length 95th (ft)	#189	#648	#425	#244	#408	51	#246	162	226	242
Internal Link Dist (ft)		1510			1609			962		896
Turn Bay Length (ft)	140			80			150		110	
Base Capacity (vph)	308	1076	792	132	1023	571	529	1064	383	767
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	1.09	0.86	1.06	0.85	0.29	0.84	0.36	0.51	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	1121	656	134	837	161	426	276	92	208	406	130
Future Volume (veh/h)	270	1121	656	134	837	161	426	276	92	208	406	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	281	1168	683	140	872	168	444	288	96	217	423	135
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	352	1291	576	163	1254	558	529	564	184	259	562	177
Arrive On Green	0.10	0.36	0.36	0.09	0.35	0.35	0.15	0.21	0.21	0.14	0.20	0.20
Sat Flow, veh/h	3483	3582	1598	1795	3582	1595	3483	2654	866	1795	2744	866
Grp Volume(v), veh/h	281	1168	683	140	872	168	444	192	192	217	289	269
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1795	1791	1595	1742	1791	1729	1795	1885	1725
Q Serve(g_s), s	7.4	29.0	20.7	7.2	19.6	7.2	11.6	8.9	9.2	11.0	13.5	13.8
Cycle Q Clear(g_c), s	7.4	29.0	20.7	7.2	19.6	7.2	11.6	8.9	9.2	11.0	13.5	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		0.50
Lane Grp Cap(c), veh/h	352	1291	576	163	1254	558	529	381	368	259	386	353
V/C Ratio(X)	0.80	0.90	1.19	0.86	0.70	0.30	0.84	0.51	0.52	0.84	0.75	0.76
Avail Cap(c_a), veh/h	379	1318	588	163	1254	558	650	516	498	517	734	672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	28.4	11.2	42.0	26.2	22.1	38.6	32.6	32.7	39.1	35.0	35.1
Incr Delay (d2), s/veh	10.8	9.0	100.2	34.3	1.7	0.3	8.0	1.0	1.1	7.1	2.9	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	13.1	22.2	4.6	8.1	2.6	5.4	3.8	3.8	5.2	6.2	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.0	37.4	111.5	76.4	27.9	22.4	46.7	33.6	33.8	46.2	37.9	38.5
LnGrp LOS	D	D	F	E	C	C	D	C	C	D	D	D
Approach Vol, veh/h		2132			1180			828			775	
Approach Delay, s/veh		63.1			32.8			40.7			40.4	
Approach LOS		E			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	38.3	18.7	23.7	14.0	37.3	18.0	24.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	34.5	17.5	36.5	10.2	32.8	27.0	27.0
Max Q Clear Time (g_c+I1), s	9.2	31.0	13.6	15.8	9.4	21.6	13.0	11.2
Green Ext Time (p_c), s	0.0	2.8	0.6	3.1	0.1	4.7	0.5	1.8

Intersection Summary

HCM 6th Ctrl Delay	48.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

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Appendix C: Freeway LOS Calculation Sheets

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Existing AM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1940	146
Peak Hour Factor (PHF)	0.90	0.83
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2328	187
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.468
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2328	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.2
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1794	427
Peak Hour Factor (PHF)	0.90	0.91
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2153	498
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.60	0.27

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	23.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.353
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2153	Ramp Junction Speed (S), mi/h	57.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2651	Average Density (D), pc/mi/ln	37.9
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	2221	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.90	Flow Rate (v_P), pc/h/ln	1332
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	2221	756
Peak Hour Factor (PHF)	0.90	0.84
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.862	0.980
Flow Rate (v_i), pc/h	2863	918
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.65	0.49

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.534
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2863	Ramp Junction Speed (S_J), mi/h	53.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	38.8
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1465	323
Peak Hour Factor (PHF)	0.90	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1758	347
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.40	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	16.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.483
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1758	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	16.1
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1142	394
Peak Hour Factor (PHF)	0.90	0.73
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1370	545
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.43	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.321
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1370	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1915	Average Density (D), pc/mi/ln	18.3
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1536	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.90	Flow Rate (v_P), pc/h/ln	922
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.6
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1536	890
Peak Hour Factor (PHF)	0.90	0.85
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	1843	1100
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.42	0.59

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.550
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1843	Ramp Junction Speed (S_R), mi/h	53.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	17.9
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	646	260
Peak Hour Factor (PHF)	0.78	0.78
Total Trucks, %	18.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.847	0.847
Flow Rate (v_i), pc/h	978	394
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.31	0.21

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.309
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	978	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1372	Average Density (D), pc/mi/ln	11.6
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	906	Heavy Vehicle Adjustment Factor (f_{HV})	0.847
Peak Hour Factor (PHF)	0.78	Flow Rate (v_P), pc/h/ln	686
Total Trucks, %	18.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.1
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	850	Heavy Vehicle Adjustment Factor (f_{HV})	0.840
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	544
Total Trucks, %	19.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	850	248
Peak Hour Factor (PHF)	0.93	0.95
Total Trucks, %	19.00	19.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.840	0.840
Flow Rate (v_i), pc/h	1088	311
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.25	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	12.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.479
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1088	Ramp Junction Speed (S_R), mi/h	54.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	8.9
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	892 vph
Truck %	7%
PCE for Trucks	2
Volume (pcph)	954 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	218 vph
Truck %	0%
PCE for Trucks	2
Volume (pcph)	218 pcph

Mainline to Mainline

Volume (vph)	384 vph
Truck %	19%
PCE for Trucks	2
Volume (pcph)	457 pcph

457 pcph

W2 = 218 pcph

W1 = 954 pcph

0 pcph

V = 1629 pcph

V_w = 1172 pcph

R = 0.19

W1 = 954 pcph

W2 = 218 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Existing AM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: AM

Results

Weave LOS = C

Total Volume LOS = A

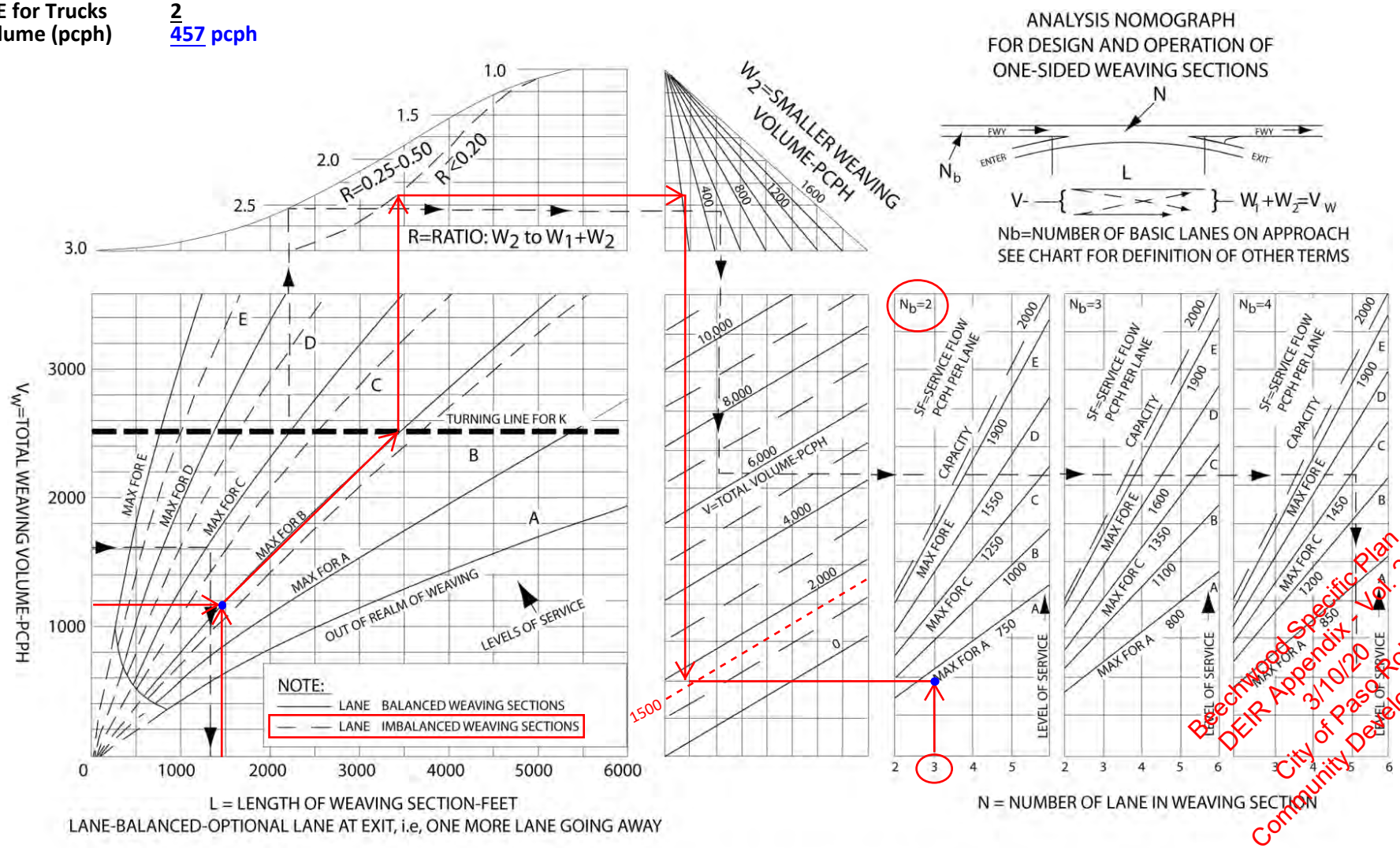

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1276	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	741
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1276	298
Peak Hour Factor (PHF)	0.93	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	1482	323
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.325
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1482	Ramp Junction Speed (S_J), mi/h	58.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1805	Average Density (D_R), pc/mi/ln	17.6
Level of Service (LOS)	B		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1574	93
Peak Hour Factor (PHF)	0.93	0.82
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	1828	119
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.06

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.462
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1828	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	16.6
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1830	1190
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	2125	1334
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.78	0.71

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	23.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.357
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2125	Ramp Junction Speed (S), mi/h	57.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3459	Average Density (D), pc/mi/ln	39.9
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3020	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	1754
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3020	510
Peak Hour Factor (PHF)	0.93	0.89
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3507	608
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.79	0.32

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	32.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.506
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3507	Ramp Junction Speed (S_R), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	32.5
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX AM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2510	92
Peak Hour Factor (PHF)	0.93	0.88
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2915	111
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.69	0.06

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.380
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2915	Ramp Junction Speed (S), mi/h	57.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3026	Average Density (D), pc/mi/ln	26.5
Level of Service (LOS)	C		

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Existing PM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2640	114
Peak Hour Factor (PHF)	0.98	0.73
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2800	158
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.63	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.466
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2800	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	25.4
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2526	755
Peak Hour Factor (PHF)	0.98	0.92
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2679	829
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.79	0.44

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.428
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2679	Ramp Junction Speed (S), mi/h	56.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3508	Average Density (D), pc/mi/ln	31.3
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	6/14/2018
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3281	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1740
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.0
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3281	1337
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	3616	1378
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.82	0.73

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.575
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3616	Ramp Junction Speed (S_J), mi/h	52.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	33.6
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1944	561
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2062	596
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.32

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.505
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2062	Ramp Junction Speed (S), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1383	326
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	1467	343
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.318
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1467	Ramp Junction Speed (S_M), mi/h	58.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1810	Average Density (D), pc/mi/ln	19.3
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1709	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	906
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.4
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1709	947
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	1813	1016
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.54

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.543
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1813	Ramp Junction Speed (S_R), mi/h	53.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	17.8
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	762	249
Peak Hour Factor (PHF)	0.86	0.86
Total Trucks, %	12.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.893	0.893
Flow Rate (v_i), pc/h	992	324
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.30	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.309
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	992	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1316	Average Density (D), pc/mi/ln	11.2
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1011	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.86	Flow Rate (v_P), pc/h/ln	658
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1361	Heavy Vehicle Adjustment Factor (f_{HV})	0.826
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	896
Total Trucks, %	21.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.4
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1361	327
Peak Hour Factor (PHF)	0.92	0.94
Total Trucks, %	21.00	21.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.826	0.826
Flow Rate (v_i), pc/h	1791	421
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.22

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.489
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1791	Ramp Junction Speed (S_R), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	18.3
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	992 vph
Truck %	4%
PCE for Trucks	2
Volume (pcph)	1032 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	303 vph
Truck %	1%
PCE for Trucks	2
Volume (pcph)	306 pcph

Mainline to Mainline

Volume (vph)	731 vph
Truck %	21%
PCE for Trucks	2
Volume (pcph)	885 pcph

885 pcph

W2 = 306 pcph

W1 = 1032 pcph

0 pcph

V = 2223 pcph

V_w = 1338 pcph

R = 0.23

W1 = 1032 pcph

W2 = 306 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Existing PM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: PM

Results

Weave LOS = C

Total Volume LOS = B

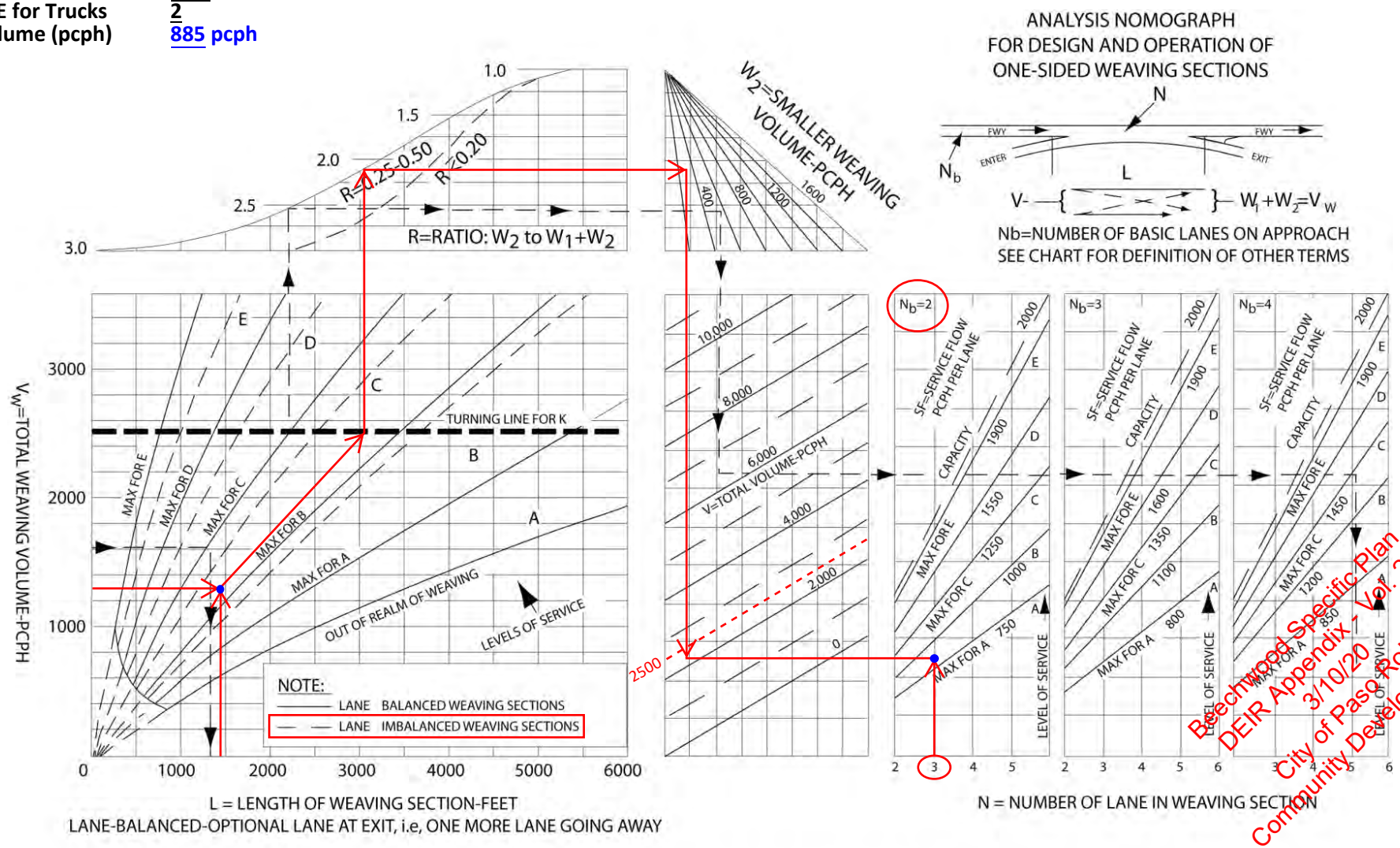

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1723	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	993
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.8
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1723	205
Peak Hour Factor (PHF)	0.92	0.85
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	1986	244
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.51	0.13

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.337
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1986	Ramp Junction Speed (S_S), mi/h	58.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2230	Average Density (D_R), pc/mi/ln	19.2
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1928	126
Peak Hour Factor (PHF)	0.92	0.77
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2222	165
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.50	0.09

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.466
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2222	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.2
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2152	894
Peak Hour Factor (PHF)	0.92	0.90
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2481	1003
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.79	0.53

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	23.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.360
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2481	Ramp Junction Speed (S), mi/h	57.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3484	Average Density (D), pc/mi/ln	30.2
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3046	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	1756
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3046	523
Peak Hour Factor (PHF)	0.92	0.90
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3511	598
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.80	0.32

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	32.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.505
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3511	Ramp Junction Speed (S_J), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	32.6
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX PM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2523	146
Peak Hour Factor (PHF)	0.92	0.83
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	2908	181
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.70	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.386
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2908	Ramp Junction Speed (S), mi/h	57.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3089	Average Density (D), pc/mi/ln	27.1
Level of Service (LOS)	C		

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Existing Plus 674-Unit Project AM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1968	146
Peak Hour Factor (PHF)	0.90	0.83
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2361	187
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.468
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2361	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1822	435
Peak Hour Factor (PHF)	0.90	0.91
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2186	507
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.61	0.27

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.356
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2186	Ramp Junction Speed (S_M), mi/h	57.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2693	Average Density (D_R), pc/mi/ln	33.3
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	2257	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.90	Flow Rate (v_P), pc/h/ln	1354
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.2
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	2257	792
Peak Hour Factor (PHF)	0.90	0.84
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.862	0.980
Flow Rate (v_i), pc/h	2909	962
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.66	0.51

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.538
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2909	Ramp Junction Speed (S_J), mi/h	53.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	27.5
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1465	323
Peak Hour Factor (PHF)	0.90	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1758	347
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.40	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	16.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.483
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1758	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	16.1
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1142	406
Peak Hour Factor (PHF)	0.90	0.73
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1370	562
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.44	0.30

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.321
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1370	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1932	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1548	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.90	Flow Rate (v_P), pc/h/ln	928
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1548	890
Peak Hour Factor (PHF)	0.90	0.85
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	1857	1100
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.42	0.59

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.550
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1857	Ramp Junction Speed (S_J), mi/h	53.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	17.9
Level of Service (LOS)	B		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	658	260
Peak Hour Factor (PHF)	0.78	0.78
Total Trucks, %	18.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.847	0.847
Flow Rate (v_i), pc/h	996	394
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.31	0.21

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.310
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	996	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1390	Average Density (D), pc/mi/ln	11.8
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	918	Heavy Vehicle Adjustment Factor (f_{HV})	0.847
Peak Hour Factor (PHF)	0.78	Flow Rate (v_P), pc/h/ln	695
Total Trucks, %	18.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	856	Heavy Vehicle Adjustment Factor (f_{HV})	0.840
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	548
Total Trucks, %	19.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	856	248
Peak Hour Factor (PHF)	0.93	0.95
Total Trucks, %	19.00	19.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.840	0.840
Flow Rate (v_i), pc/h	1096	311
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.25	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	12.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.479
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1096	Ramp Junction Speed (S_J), mi/h	54.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	100
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	892 vph
Truck %	7%
PCE for Trucks	2
Volume (pcph)	954 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	218 vph
Truck %	0%
PCE for Trucks	2
Volume (pcph)	218 pcph

Mainline to Mainline

Volume (vph)	390 vph
Truck %	19%
PCE for Trucks	2
Volume (pcph)	464 pcph

464 pcph

W2 = 218 pcph

W1 = 954 pcph

0 pcph

V = 1639 pcph

V_w = 1172 pcph

R = 0.19

W1 = 954 pcph

W2 = 218 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Existing Plus 674 Unit Project AM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: AM

Results

Weave LOS = C

Total Volume LOS = A

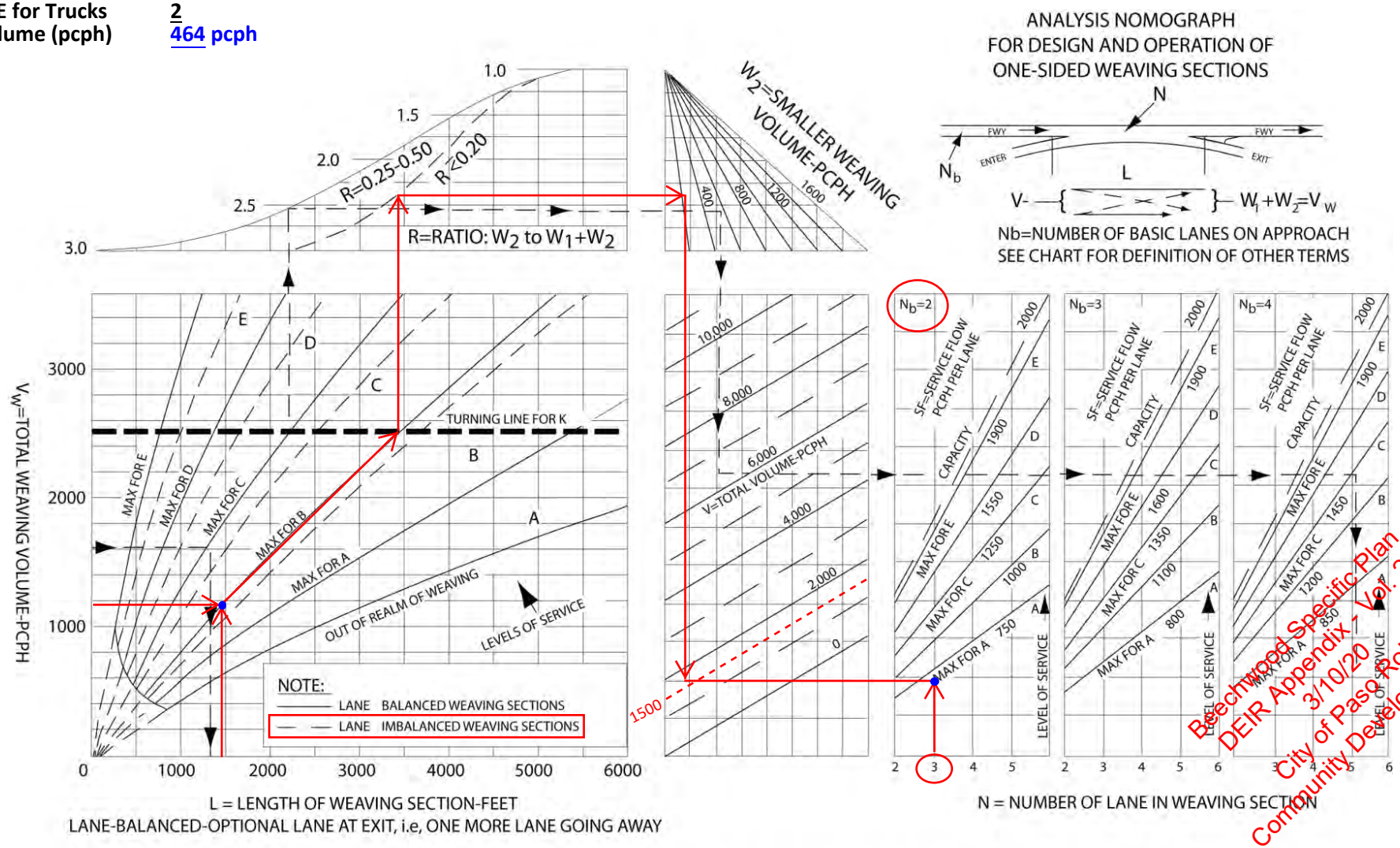

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1282	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	744
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1282	298
Peak Hour Factor (PHF)	0.93	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	1489	323
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.325
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1489	Ramp Junction Speed (S_J), mi/h	58.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1812	Average Density (D_R), pc/mi/ln	17.7
Level of Service (LOS)	B		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1580	99
Peak Hour Factor (PHF)	0.93	0.82
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	1835	127
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.42	0.07

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.463
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1835	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	16.6
Level of Service (LOS)	B		

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17 - EX+674 AM US 101 Off Ramp at Riverside-Pine - SB.xuf

HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1830	1256
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	2125	1408
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.80	0.75

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.366
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2125	Ramp Junction Speed (S), mi/h	57.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3533	Average Density (D), pc/mi/ln	30.0
Level of Service (LOS)	C		

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18 - EX+674 AM US 101 On Ramp at Spring - SB.xuf

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3086	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	1792
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3086	526
Peak Hour Factor (PHF)	0.93	0.89
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3583	627
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.81	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.508
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3583	Ramp Junction Speed (S_J), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	33.2
Level of Service (LOS)	D		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+674 AM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2560	92
Peak Hour Factor (PHF)	0.93	0.88
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2973	111
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.70	0.06

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.385
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2973	Ramp Junction Speed (S), mi/h	57.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3084	Average Density (D), pc/mi/ln	27.0
Level of Service (LOS)	C		

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Existing Plus 674-Unit Project PM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2698	114
Peak Hour Factor (PHF)	0.98	0.73
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2862	158
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.65	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.466
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2862	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	26.0
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2584	773
Peak Hour Factor (PHF)	0.98	0.92
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2741	849
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.81	0.45

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	31.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.439
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2741	Ramp Junction Speed (S), mi/h	55.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3590	Average Density (D), pc/mi/ln	32.3
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3357	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1780
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.9
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3357	1413
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	3699	1456
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.84	0.78

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	34.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.582
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3699	Ramp Junction Speed (S_J), mi/h	52.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	35.0
Level of Service (LOS)	D		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1944	561
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2062	596
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.32

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.505
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2062	Ramp Junction Speed (S), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1383	335
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	1467	352
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.318
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1467	Ramp Junction Speed (S_M), mi/h	58.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1819	Average Density (D), pc/mi/ln	15.5
Level of Service (LOS)	B		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1718	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	911
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1718	947
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	1822	1016
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.54

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.543
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1822	Ramp Junction Speed (S_R), mi/h	53.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	17.9
Level of Service (LOS)	B		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	771	249
Peak Hour Factor (PHF)	0.86	0.86
Total Trucks, %	12.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.893	0.893
Flow Rate (v_i), pc/h	1004	324
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.30	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.309
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1004	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1328	Average Density (D), pc/mi/ln	11.3
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1020	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.86	Flow Rate (v_P), pc/h/ln	664
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1374	Heavy Vehicle Adjustment Factor (f_{HV})	0.826
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	904
Total Trucks, %	21.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1374	327
Peak Hour Factor (PHF)	0.92	0.94
Total Trucks, %	21.00	21.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.826	0.826
Flow Rate (v_i), pc/h	1808	421
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.22

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.489
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1808	Ramp Junction Speed (S_R), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	18.6
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	992 vph
Truck %	4%
PCE for Trucks	2
Volume (pcph)	1032 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	303 vph
Truck %	1%
PCE for Trucks	2
Volume (pcph)	306 pcph

Mainline to Mainline

Volume (vph)	744 vph
Truck %	21%
PCE for Trucks	2
Volume (pcph)	900 pcph

900 pcph

W2 = 306 pcph

W1 = 1032 pcph

0 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

V = 2238 pcph

V_w = 1338 pcph

R = 0.23

W1 = 1032 pcph

W2 = 306 pcph

Existing Plus 674 Unit Project PM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: PM

Results

Weave LOS = C

Total Volume LOS = B

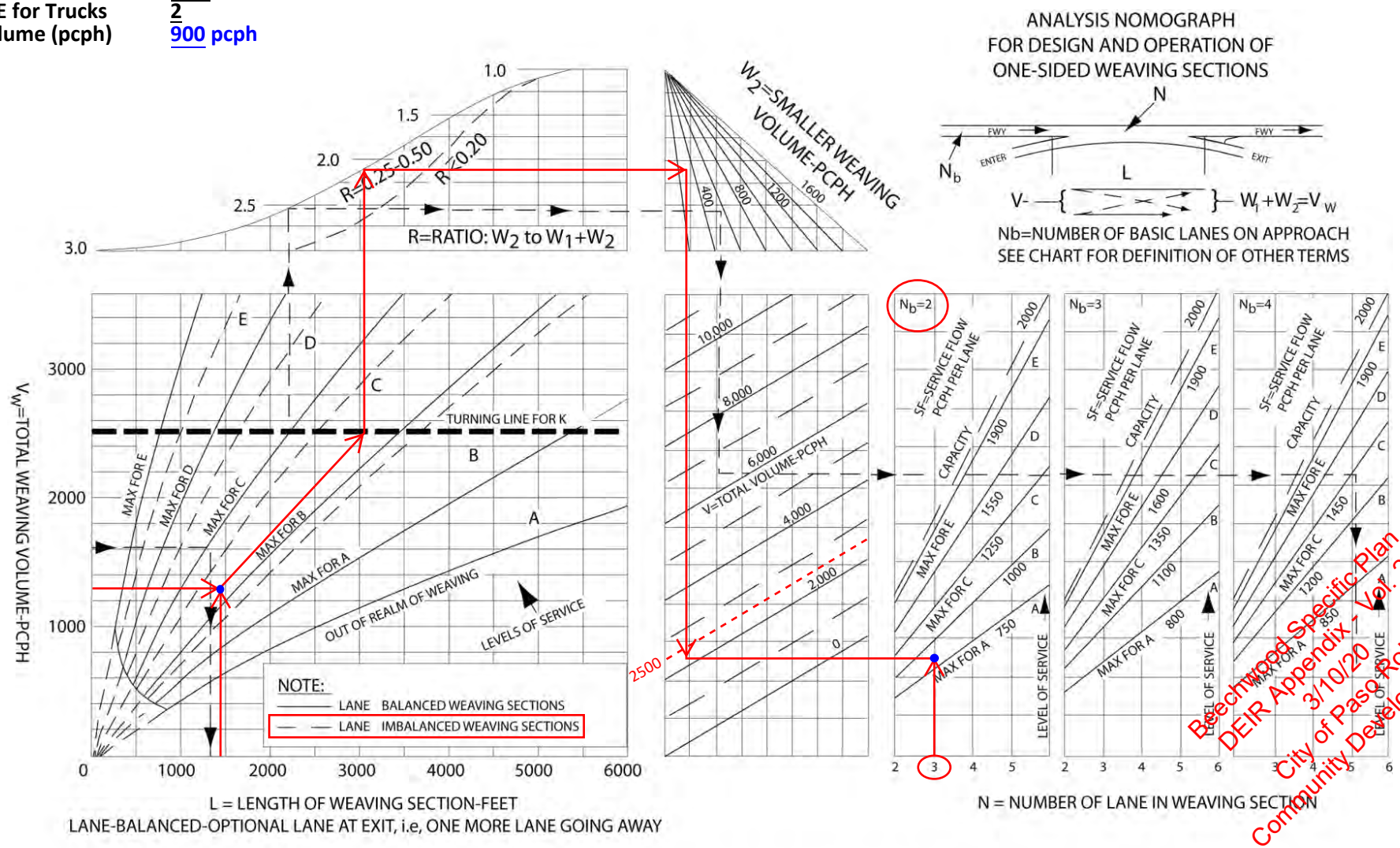

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1736	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	1000
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.9
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1736	205
Peak Hour Factor (PHF)	0.92	0.85
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2001	244
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.51	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.338
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2001	Ramp Junction Speed (S_J), mi/h	58.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2245	Average Density (D_R), pc/mi/ln	19.3
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1941	139
Peak Hour Factor (PHF)	0.92	0.77
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2237	182
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.51	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.468
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2237	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.3
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2152	947
Peak Hour Factor (PHF)	0.92	0.90
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2481	1063
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.80	0.57

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.368
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2481	Ramp Junction Speed (S), mi/h	57.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3544	Average Density (D), pc/mi/ln	30.8
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3099	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	1786
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.3
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3099	535
Peak Hour Factor (PHF)	0.92	0.90
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3572	612
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.81	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.506
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3572	Ramp Junction Speed (S_J), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	33.1
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+674 PM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2564	146
Peak Hour Factor (PHF)	0.92	0.83
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	2955	181
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.71	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.390
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2955	Ramp Junction Speed (S), mi/h	56.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3136	Average Density (D), pc/mi/ln	27.6
Level of Service (LOS)	C		

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Existing Plus 911-Unit Project AM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1972	146
Peak Hour Factor (PHF)	0.90	0.83
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2366	187
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.468
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2366	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1826	437
Peak Hour Factor (PHF)	0.90	0.91
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2191	509
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.61	0.27

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.356
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2191	Ramp Junction Speed (S), mi/h	57.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2700	Average Density (D), pc/mi/ln	33.9
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2263	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.90	Flow Rate (v_P), pc/h/ln	1358
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2263	798
Peak Hour Factor (PHF)	0.90	0.84
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.862	0.980
Flow Rate (v_i), pc/h	2917	969
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.66	0.52

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.539
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2917	Ramp Junction Speed (S_J), mi/h	53.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	27.6
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1465	323
Peak Hour Factor (PHF)	0.90	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1758	347
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.40	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	16.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.483
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1758	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	16.1
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1142	409
Peak Hour Factor (PHF)	0.90	0.73
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1370	566
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.44	0.30

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.321
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1370	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1936	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1551	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.90	Flow Rate (v_P), pc/h/ln	930
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1551	890
Peak Hour Factor (PHF)	0.90	0.85
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	1861	1100
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.42	0.59

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.550
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1861	Ramp Junction Speed (S_J), mi/h	53.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	17.6
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	661	260
Peak Hour Factor (PHF)	0.78	0.78
Total Trucks, %	18.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.847	0.847
Flow Rate (v_i), pc/h	1001	394
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.32	0.21

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.310
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1001	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1395	Average Density (D), pc/mi/ln	11.8
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	921	Heavy Vehicle Adjustment Factor (f_{HV})	0.847
Peak Hour Factor (PHF)	0.78	Flow Rate (v_P), pc/h/ln	697
Total Trucks, %	18.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	857	Heavy Vehicle Adjustment Factor (f_{HV})	0.840
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	548
Total Trucks, %	19.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	857	248
Peak Hour Factor (PHF)	0.93	0.95
Total Trucks, %	19.00	19.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.840	0.840
Flow Rate (v_i), pc/h	1097	311
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.25	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	12.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.479
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1097	Ramp Junction Speed (S_J), mi/h	54.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	10.0
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	892 vph
Truck %	7%
PCE for Trucks	2
Volume (pcph)	954 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	218 vph
Truck %	0%
PCE for Trucks	2
Volume (pcph)	218 pcph

Mainline to Mainline

Volume (vph)	391 vph
Truck %	19%
PCE for Trucks	2
Volume (pcph)	465 pcph

465 pcph

W2 = 218 pcph

W1 = 954 pcph

0 pcph

V = 1638 pcph

V_w = 1172 pcph

R = 0.19

W1 = 954 pcph

W2 = 218 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Existing Plus 911 Unit Project AM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: AM

Results

Weave LOS = C

Total Volume LOS = A

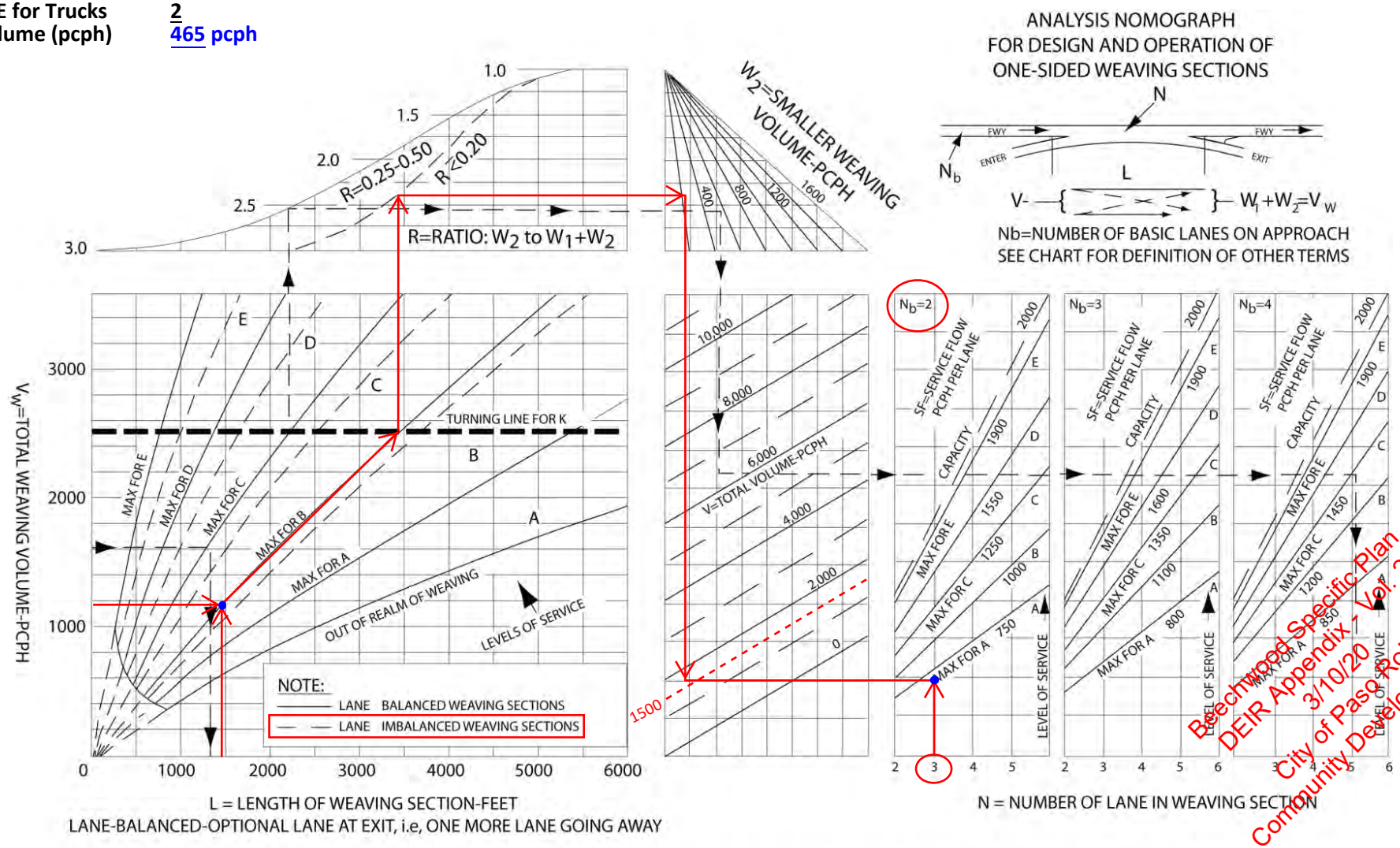

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1283	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	745
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1283	298
Peak Hour Factor (PHF)	0.93	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	1490	323
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.325
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1490	Ramp Junction Speed (S_J), mi/h	58.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1813	Average Density (D_R), pc/mi/ln	17.7
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1581	100
Peak Hour Factor (PHF)	0.93	0.82
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	1836	128
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.42	0.07

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.463
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1836	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	16.6
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1830	1276
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	2125	1431
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.81	0.76

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.369
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2125	Ramp Junction Speed (S), mi/h	57.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3556	Average Density (D), pc/mi/ln	30.9
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3106	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	1804
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.8
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3106	530
Peak Hour Factor (PHF)	0.93	0.89
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3607	632
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.82	0.34

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.508
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3607	Ramp Junction Speed (S_J), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	33.4
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	AM
Project Description	EX+911 AM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2576	92
Peak Hour Factor (PHF)	0.93	0.88
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2991	111
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.70	0.06

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.387
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2991	Ramp Junction Speed (S), mi/h	57.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3102	Average Density (D), pc/mi/ln	27.2
Level of Service (LOS)	C		

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Existing Plus 911-Unit Project PM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2714	114
Peak Hour Factor (PHF)	0.98	0.73
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2879	158
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.65	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.466
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2879	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	26.1
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2600	778
Peak Hour Factor (PHF)	0.98	0.92
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2758	854
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.82	0.45

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	31.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.443
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2758	Ramp Junction Speed (S), mi/h	55.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3612	Average Density (D), pc/mi/ln	32.5
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3378	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1792
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3378	1434
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	3722	1478
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.84	0.79

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	34.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.584
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3722	Ramp Junction Speed (S_J), mi/h	52.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	35.0
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1944	561
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2062	596
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.32

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.505
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2062	Ramp Junction Speed (S), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1383	338
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	1467	356
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.319
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1467	Ramp Junction Speed (S), mi/h	58.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1823	Average Density (D), pc/mi/ln	15.5
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1721	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	912
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1721	947
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	1825	1016
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.54

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.543
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1825	Ramp Junction Speed (S_R), mi/h	53.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	17.9
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	774	249
Peak Hour Factor (PHF)	0.86	0.86
Total Trucks, %	12.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.893	0.893
Flow Rate (v_i), pc/h	1008	324
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.30	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.309
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1008	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1332	Average Density (D), pc/mi/ln	11.3
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1023	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.86	Flow Rate (v_P), pc/h/ln	666
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1378	Heavy Vehicle Adjustment Factor (f_{HV})	0.826
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	906
Total Trucks, %	21.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1378	327
Peak Hour Factor (PHF)	0.92	0.94
Total Trucks, %	21.00	21.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.826	0.826
Flow Rate (v_i), pc/h	1813	421
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.41	0.22

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.489
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1813	Ramp Junction Speed (S_R), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	18.6
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	992 vph
Truck %	4%
PCE for Trucks	2
Volume (pcph)	1032 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	303 vph
Truck %	1%
PCE for Trucks	2
Volume (pcph)	306 pcph

Mainline to Mainline

Volume (vph)	748 vph
Truck %	21%
PCE for Trucks	2
Volume (pcph)	905 pcph

905 pcph

W2 = 306 pcph

W1 = 1032 pcph

0 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

V = 2243 pcph

V_w = 1338 pcph

R = 0.23

W1 = 1032 pcph

W2 = 306 pcph

Existing Plus 911 Unit Project PM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: PM

Results

Weave LOS = C

Total Volume LOS = B

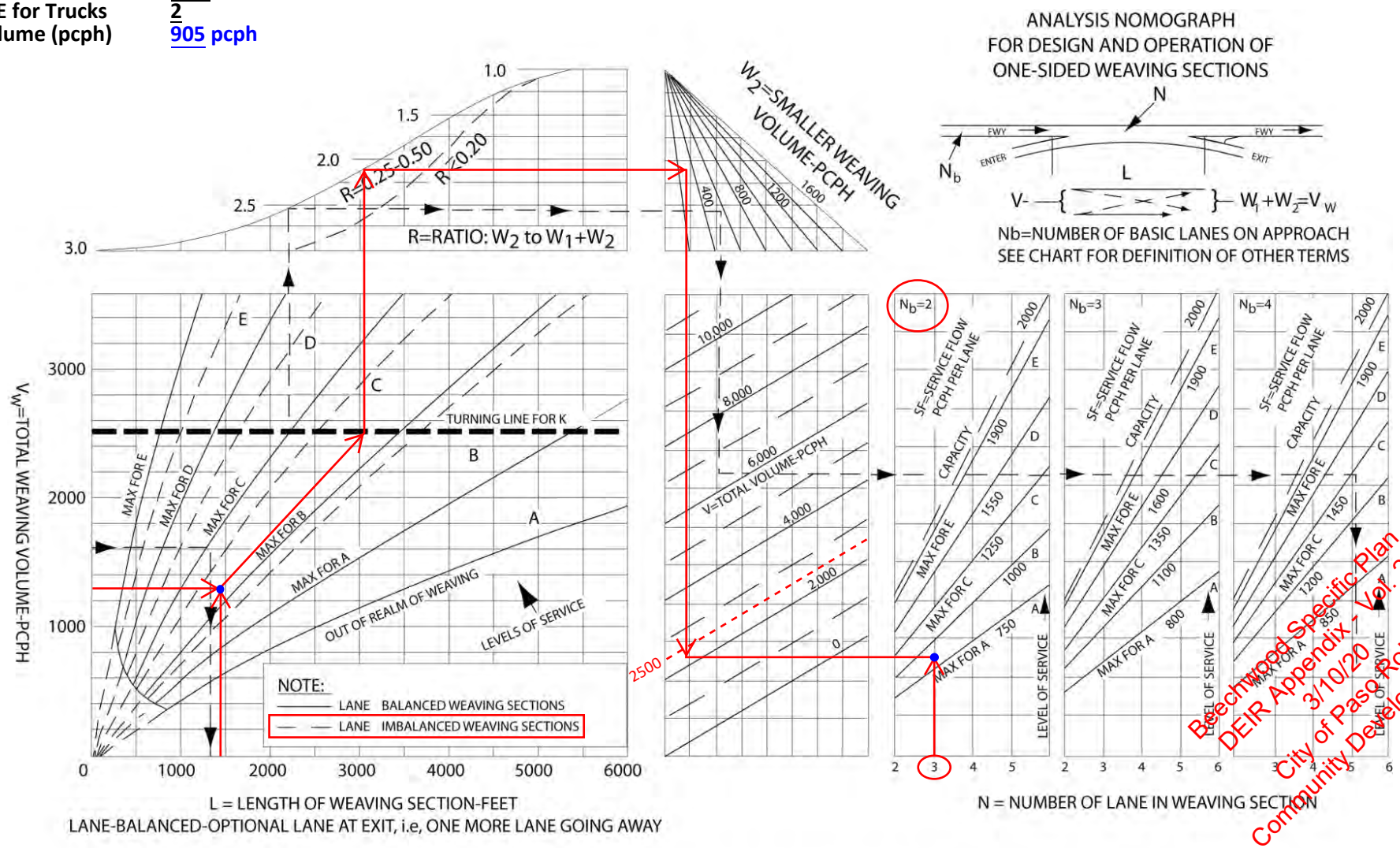

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1740	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	1003
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1740	205
Peak Hour Factor (PHF)	0.92	0.85
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2006	244
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.51	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.338
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2006	Ramp Junction Speed (S_J), mi/h	58.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2250	Average Density (D_R), pc/mi/ln	19.3
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1945	143
Peak Hour Factor (PHF)	0.92	0.77
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2242	188
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.51	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.468
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2242	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.4
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2152	960
Peak Hour Factor (PHF)	0.92	0.90
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2481	1077
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.81	0.57

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.370
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2481	Ramp Junction Speed (S), mi/h	57.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3558	Average Density (D), pc/mi/ln	31.0
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3112	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	1794
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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19 - EX+911 PM US 101 mainline north of SR 46W - SB.xuf

HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3112	538
Peak Hour Factor (PHF)	0.92	0.90
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3587	616
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.81	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.507
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3587	Ramp Junction Speed (S_J), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	33.2
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	2018
Jurisdiction		Time Period Analyzed	PM
Project Description	EX+911 PM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2574	146
Peak Hour Factor (PHF)	0.92	0.83
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	2967	181
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.71	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.391
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2967	Ramp Junction Speed (S), mi/h	56.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3148	Average Density (D), pc/mi/ln	27.7
Level of Service (LOS)	C		

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Near Term AM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2311	250
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2655	282
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.60	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.477
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2655	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.2
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2061	467
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2368	527
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.66	0.28

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.369
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2368	Ramp Junction Speed (S), mi/h	57.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2895	Average Density (D), pc/mi/ln	35.2
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2528	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1452
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.9
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2528	882
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.862	0.980
Flow Rate (v_i), pc/h	3120	957
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.71	0.51

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.538
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3120	Ramp Junction Speed (S_J), mi/h	53.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	29.3
Level of Service (LOS)	D		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1646	342
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1891	368
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.43	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.485
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1891	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	17.3
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1304	406
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1498	436
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.44	0.23

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.321
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1498	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1934	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1710	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	982
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1710	1017
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	1965	1136
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.45	0.60

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.554
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1965	Ramp Junction Speed (S_J), mi/h	52.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	18.6
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	693	311
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	18.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.847	0.847
Flow Rate (v_i), pc/h	870	391
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.29	0.21

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	12.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.308
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	870	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1261	Average Density (D), pc/mi/ln	10.7
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1004	Heavy Vehicle Adjustment Factor (f_{HV})	0.847
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	630
Total Trucks, %	18.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	929	Heavy Vehicle Adjustment Factor (f_{HV})	0.840
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	588
Total Trucks, %	19.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.8
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	929	284
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	19.00	19.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.840	0.840
Flow Rate (v_i), pc/h	1177	356
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.27	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.483
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1177	Ramp Junction Speed (S_J), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	10.8
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	1104 vph
Truck %	7%
PCE for Trucks	2
Volume (pcph)	1181 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	218 vph
Truck %	0%
PCE for Trucks	2
Volume (pcph)	218 pcph

Mainline to Mainline

Volume (vph)	427 vph
Truck %	19%
PCE for Trucks	2
Volume (pcph)	508 pcph

508 pcph

W2 = 218 pcph

W1 = 1181 pcph

0 pcph

V = 1907 pcph

V_w = 1399 pcph

R = 0.16

W1 = 1181 pcph

W2 = 218 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Near Term AM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: AM

Results

Weave LOS = C

Total Volume LOS = A

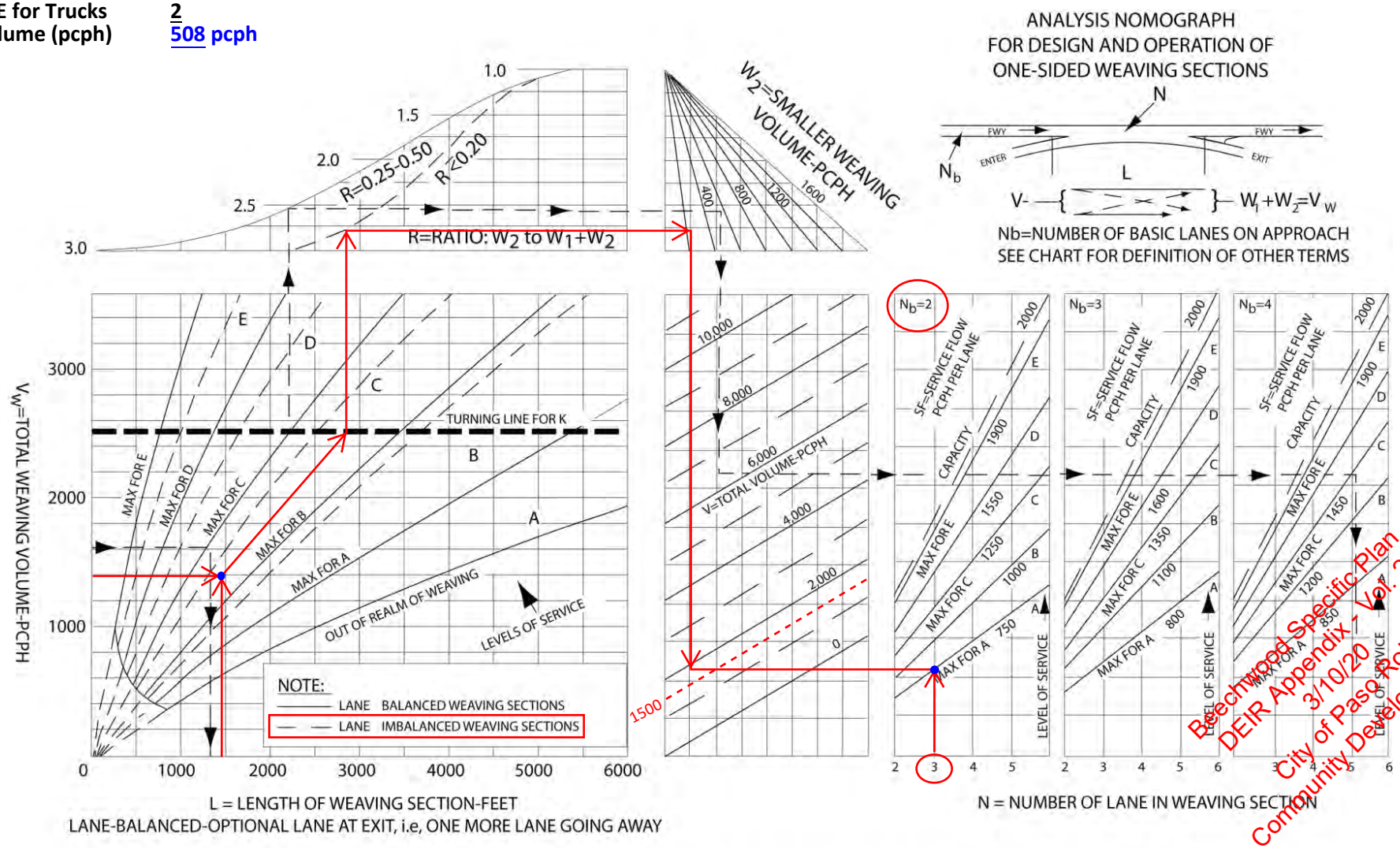

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1531	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	880
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	1531	298
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	1759	323
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.332
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1759	Ramp Junction Speed (S_J), mi/h	58.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2082	Average Density (D_R), pc/mi/ln	17.8
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1829	120
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	2101	134
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.48	0.07

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.463
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2101	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.0
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2089	1349
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	2400	1464
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.88	0.78

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.419
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2400	Ramp Junction Speed (S), mi/h	56.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3864	Average Density (D), pc/mi/ln	34.9
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3438	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1975
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.8
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3438	651
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3950	734
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.90	0.39

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	36.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.517
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3950	Ramp Junction Speed (S_5), mi/h	53.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	36.3
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT AM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2787	139
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3202	157
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.76	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.412
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3202	Ramp Junction Speed (S), mi/h	56.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3359	Average Density (D), pc/mi/ln	29.8
Level of Service (LOS)	D		

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Near Term PM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3073	232
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3260	249
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.74	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.474
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3260	Ramp Junction Speed (S), mi/h	54.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	29.7
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2841	864
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3013	928
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.89	0.49

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.499
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3013	Ramp Junction Speed (S_M), mi/h	54.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3941	Average Density (D), pc/mi/ln	38.3
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3705	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1965
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.2
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3705	1517
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	4083	1564
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.93	0.83

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	37.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.592
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4083	Ramp Junction Speed (S_5), mi/h	52.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	39.3
Level of Service (LOS)	E		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2188	578
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2321	615
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.507
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2321	Ramp Junction Speed (S), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1610	347
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	1708	365
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.325
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1708	Ramp Junction Speed (S), mi/h	58.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2073	Average Density (D), pc/mi/ln	19.0
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1957	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1038
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1957	1140
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	2076	1223
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.65

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.561
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2076	Ramp Junction Speed (S_J), mi/h	52.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	19.7
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	817	287
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	12.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.893	0.893
Flow Rate (v_i), pc/h	973	342
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.30	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.309
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	973	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1315	Average Density (D), pc/mi/ln	11.2
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1104	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	658
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1492	Heavy Vehicle Adjustment Factor (f_{HV})	0.826
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	961
Total Trucks, %	21.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.4
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1492	383
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	21.00	21.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.826	0.826
Flow Rate (v_i), pc/h	1922	493
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.44	0.26

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.496
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1922	Ramp Junction Speed (S_J), mi/h	54.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	19.4
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

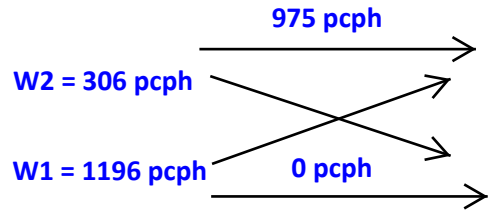
Volume (vph)	1150 vph
Truck %	4%
PCE for Trucks	2
Volume (pcph)	1196 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	303 vph
Truck %	1%
PCE for Trucks	2
Volume (pcph)	306 pcph

Mainline to Mainline

Volume (vph)	806 vph
Truck %	21%
PCE for Trucks	2
Volume (pcph)	975 pcph



V = 2477 pcph
V_w = 1502 pcph
R = 0.20
W1 = 1196 pcph
W2 = 306 pcph

L = 1475 feet
N = 3 lanes
N_b = 2 lanes
Lane Imbalanced

Near Term PM (US 101 Weave)
On Ramp: SR 46E
Off Ramp: Riverside Ave-17th St
Direction: South
Peak Hour: PM

Results

Weave LOS = C
Total Volume LOS = B

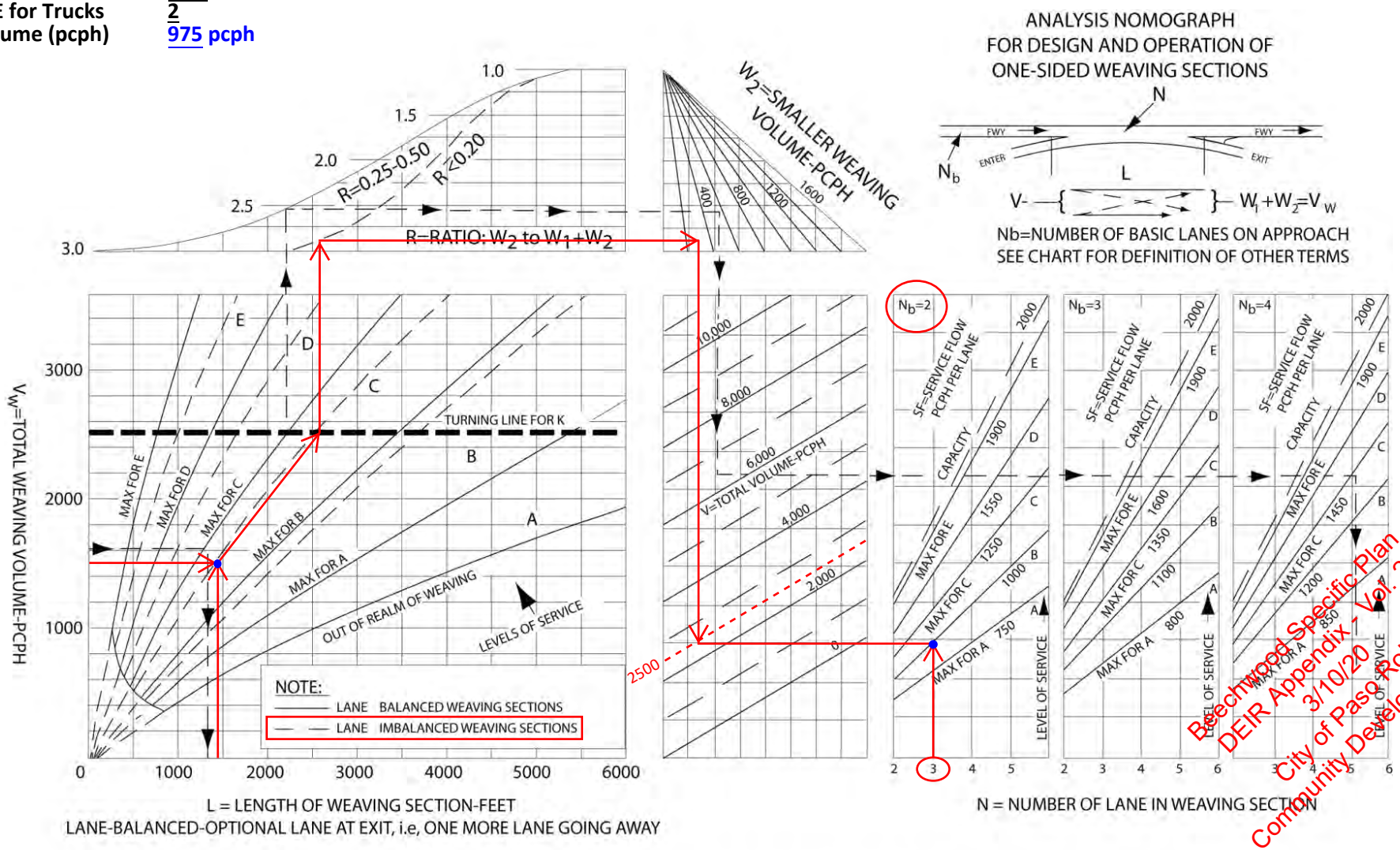


Figure 504.7A
Design Curve for Freeway and Collector Weaving

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1956	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1104
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1956	205
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2207	220
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.55	0.12

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.345
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2207	Ramp Junction Speed (S_J), mi/h	58.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2427	Average Density (D_R), pc/mi/ln	30.9
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2161	180
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2438	193
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.55	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	23.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.469
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2438	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	22.2
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2373	1033
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2677	1110
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.86	0.59

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.405
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2677	Ramp Junction Speed (S), mi/h	56.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3787	Average Density (D), pc/mi/ln	33.3
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3406	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1921
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3406	646
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3842	708
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.87	0.38

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	35.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.515
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3842	Ramp Junction Speed (S_J), mi/h	53.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	35.4
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT PM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2760	211
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3114	231
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.76	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.411
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3114	Ramp Junction Speed (S), mi/h	56.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3345	Average Density (D), pc/mi/ln	29.7
Level of Service (LOS)	D		

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Near Term Plus 674-Unit Project AM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2339	250
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2687	282
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.61	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.477
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2687	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.5
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2089	475
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2400	536
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.67	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.372
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2400	Ramp Junction Speed (S), mi/h	57.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2936	Average Density (D), pc/mi/ln	33.6
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	2564	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1473
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	2564	918
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.862	0.980
Flow Rate (v_i), pc/h	3164	997
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.72	0.53

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.541
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3164	Ramp Junction Speed (S_J), mi/h	53.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	29.7
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1646	342
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1891	368
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.43	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.485
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1891	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	17.3
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1304	418
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1498	449
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.44	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.322
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1498	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1947	Average Density (D), pc/mi/ln	18.6
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1722	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	989
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.6
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1722	1017
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	1978	1136
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.45	0.60

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.554
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1978	Ramp Junction Speed (S_J), mi/h	52.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	18.7
Level of Service (LOS)	B		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	705	311
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	18.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.847	0.847
Flow Rate (v_i), pc/h	885	391
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.29	0.21

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	12.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.308
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	885	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1276	Average Density (D), pc/mi/ln	10.8
Level of Service (LOS)	B		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1016	Heavy Vehicle Adjustment Factor (f_{HV})	0.847
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	638
Total Trucks, %	18.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.4
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	935	Heavy Vehicle Adjustment Factor (f_{HV})	0.840
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	592
Total Trucks, %	19.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.27
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.8
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	935	284
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	19.00	19.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.840	0.840
Flow Rate (v_i), pc/h	1184	356
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.27	0.19

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.483
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1184	Ramp Junction Speed (S_R), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	10.8
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	1104 vph
Truck %	7%
PCE for Trucks	2
Volume (pcph)	1181 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	218 vph
Truck %	0%
PCE for Trucks	2
Volume (pcph)	218 pcph

Mainline to Mainline

Volume (vph)	434 vph
Truck %	19%
PCE for Trucks	2
Volume (pcph)	516 pcph

516 pcph

W2 = 218 pcph

W1 = 1181 pcph

0 pcph

V = 1915 pcph

V_w = 1399 pcph

R = 0.16

W1 = 1181 pcph

W2 = 218 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Near Term Plus 674 Unit Project AM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: AM

Results

Weave LOS = C

Total Volume LOS = A

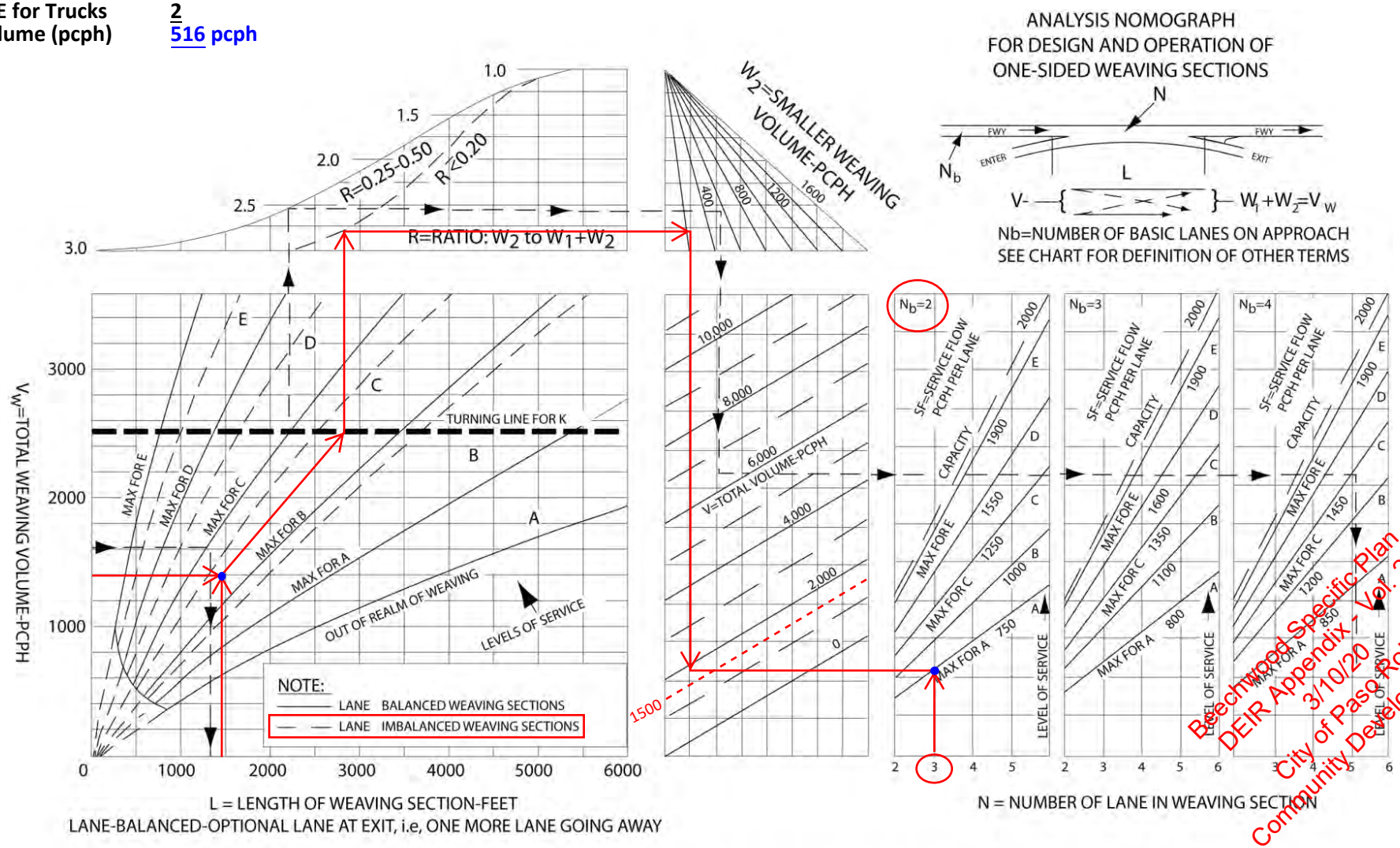

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1537	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	883
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1537	298
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	1766	323
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.333
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1766	Ramp Junction Speed (S_J), mi/h	58.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2089	Average Density (D_R), pc/mi/ln	17.9
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1835	126
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	2108	141
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.48	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.464
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2108	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	2089	1415
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	2400	1536
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.89	0.82

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.432
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2400	Ramp Junction Speed (S), mi/h	55.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3936	Average Density (D), pc/mi/ln	35.2
Level of Service (LOS)	C		

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Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3504	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	2013
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3504	667
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	4026	752
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.91	0.40

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	37.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.519
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4026	Ramp Junction Speed (S_R), mi/h	53.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	37.0
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+674 AM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2837	139
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3259	157
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.77	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.419
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3259	Ramp Junction Speed (S), mi/h	56.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3416	Average Density (D), pc/mi/ln	30.4
Level of Service (LOS)	D		

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Near Term Plus 674-Unit Project PM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3131	232
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3321	249
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.75	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.474
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3321	Ramp Junction Speed (S), mi/h	54.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	30.2
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2899	882
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3075	948
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.91	0.50

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	34.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.516
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3075	Ramp Junction Speed (S), mi/h	53.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4023	Average Density (D), pc/mi/ln	37.0
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3781	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	2006
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.6
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3781	1593
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	4166	1642
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.94	0.87

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	38.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.599
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	51.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4166	Ramp Junction Speed (S_J), mi/h	51.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	40.2
Level of Service (LOS)	E		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	2188	578
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2321	615
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.507
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2321	Ramp Junction Speed (S), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1610	356
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	1708	375
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.326
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1708	Ramp Junction Speed (S), mi/h	58.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2083	Average Density (D), pc/mi/ln	17.8
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1966	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1042
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.4
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data			
		Freeway	Ramp
Number of Lanes (N)		2	1
Free-Flow Speed (FFS), mi/h		70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft		1500	225
Terrain Type		Level	Level
Percent Grade, %		-	-
Segment Type / Ramp Side		Freeway	Right

Adjustment Factors			
Driver Population		Balanced Mix	Balanced Mix
Weather Type		Non-Severe Weather	Non-Severe Weather
Incident Type		No Incident	-
Final Speed Adjustment Factor (SAF)		0.950	0.950
Final Capacity Adjustment Factor (CAF)		0.939	0.939
Demand Adjustment Factor (DAF)		1.000	1.000

Demand and Capacity			
Demand Volume (V_i), veh/h		1966	1140
Peak Hour Factor (PHF)		0.98	0.96
Total Trucks, %		4.00	3.00
Single-Unit Trucks (SUT), %		-	-
Tractor-Trailers (TT), %		-	-
Heavy Vehicle Adjustment Factor (f_{HV})		0.962	0.971
Flow Rate (v_i), pc/h		2085	1223
Capacity (c), pc/h		4413	1878
Volume-to-Capacity Ratio (v/c)		0.47	0.65

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.561
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2085	Ramp Junction Speed (S_J), mi/h	52.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	19.7
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	826	287
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	12.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.893	0.893
Flow Rate (v_i), pc/h	984	342
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.30	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.309
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	984	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1326	Average Density (D), pc/mi/ln	11.3
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1113	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	663
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1505	Heavy Vehicle Adjustment Factor (f_{HV})	0.826
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	969
Total Trucks, %	21.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1505	383
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	21.00	21.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.826	0.826
Flow Rate (v_i), pc/h	1938	493
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.44	0.26

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.496
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1938	Ramp Junction Speed (S_J), mi/h	54.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	17.8
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	1150 vph
Truck %	4%
PCE for Trucks	2
Volume (pcph)	1196 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	303 vph
Truck %	1%
PCE for Trucks	2
Volume (pcph)	306 pcph

Mainline to Mainline

Volume (vph)	819 vph
Truck %	21%
PCE for Trucks	2
Volume (pcph)	991 pcph

991 pcph

W2 = 306 pcph

W1 = 1196 pcph

0 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

V = 2493 pcph

V_w = 1502 pcph

R = 0.20

W1 = 1196 pcph

W2 = 306 pcph

Near Term Plus 674 Unit Project PM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: PM

Results

Weave LOS = C

Total Volume LOS = B

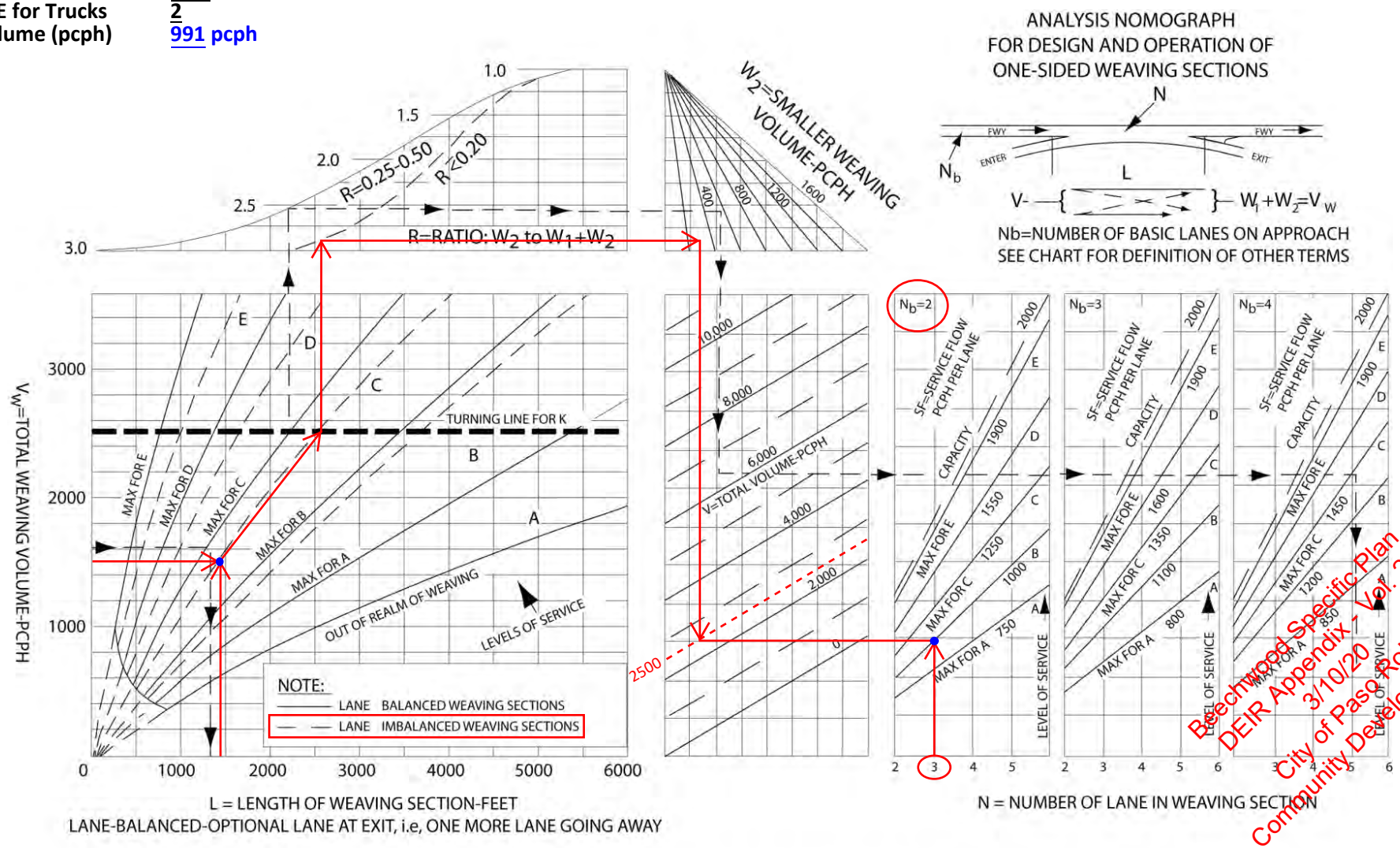

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1969	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1110
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1969	205
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2221	220
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.55	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.346
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2221	Ramp Junction Speed (S_J), mi/h	58.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2441	Average Density (D_R), pc/mi/ln	31.0
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2174	193
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2453	207
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.56	0.11

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	23.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.470
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2453	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	22.3
Level of Service (LOS)	C		

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17 - NT+674 PM US 101 Off Ramp at Riverside-Pine - SB.xuf

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2373	1086
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2677	1167
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.87	0.62

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.415
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2677	Ramp Junction Speed (S), mi/h	56.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3844	Average Density (D), pc/mi/ln	31.0
Level of Service (LOS)	C		

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18 - NT+674 PM US 101 On Ramp at Spring - SB.xuf

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3459	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1951
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3459	658
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3902	721
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.88	0.38

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	35.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.516
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3902	Ramp Junction Speed (S_J), mi/h	53.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	38.2
Level of Service (LOS)	E		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+674 PM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2801	211
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3160	231
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.77	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.416
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3160	Ramp Junction Speed (S), mi/h	56.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3391	Average Density (D), pc/mi/ln	30.1
Level of Service (LOS)	D		

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Near Term Plus 911-Unit Project AM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2343	250
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2692	282
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.61	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.477
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2692	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.6
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2093	477
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2405	538
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.67	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.372
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2405	Ramp Junction Speed (S), mi/h	57.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2943	Average Density (D), pc/mi/ln	35.6
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2570	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1476
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2570	924
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.862	0.980
Flow Rate (v_i), pc/h	3172	1003
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.72	0.53

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.542
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3172	Ramp Junction Speed (S_J), mi/h	53.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	29.8
Level of Service (LOS)	D		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1646	342
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1891	368
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.43	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.485
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1891	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	17.3
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1304	421
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1498	452
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.44	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	18.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.322
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1498	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1950	Average Density (D), pc/mi/ln	18.6
Level of Service (LOS)	B		

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Project Information

Analyst	CCTC	Date	
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Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1725	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	991
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.6
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1725	1017
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	1982	1136
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.45	0.60

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.554
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1982	Ramp Junction Speed (S_J), mi/h	52.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	18.7
Level of Service (LOS)	B		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	708	311
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	18.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.847	0.847
Flow Rate (v_i), pc/h	889	391
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.29	0.21

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	12.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.308
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	889	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1280	Average Density (D), pc/mi/ln	10.8
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1019	Heavy Vehicle Adjustment Factor (f_{HV})	0.847
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	640
Total Trucks, %	18.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information

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Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	936	Heavy Vehicle Adjustment Factor (f_{HV})	0.840
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	592
Total Trucks, %	19.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.27
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.8
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	936	284
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	19.00	19.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.840	0.840
Flow Rate (v_i), pc/h	1185	356
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.27	0.19

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.483
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1185	Ramp Junction Speed (S_R), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	10.8
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	1104 vph
Truck %	7%
PCE for Trucks	2
Volume (pcph)	1181 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	218 vph
Truck %	0%
PCE for Trucks	2
Volume (pcph)	218 pcph

Mainline to Mainline

Volume (vph)	434 vph
Truck %	19%
PCE for Trucks	2
Volume (pcph)	516 pcph

516 pcph

W2 = 218 pcph

W1 = 1181 pcph

0 pcph

V = 1916 pcph

V_w = 1399 pcph

R = 0.16

W1 = 1181 pcph

W2 = 218 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Near Term Plus 911 Unit Project AM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: AM

Results

Weave LOS = C

Total Volume LOS = B

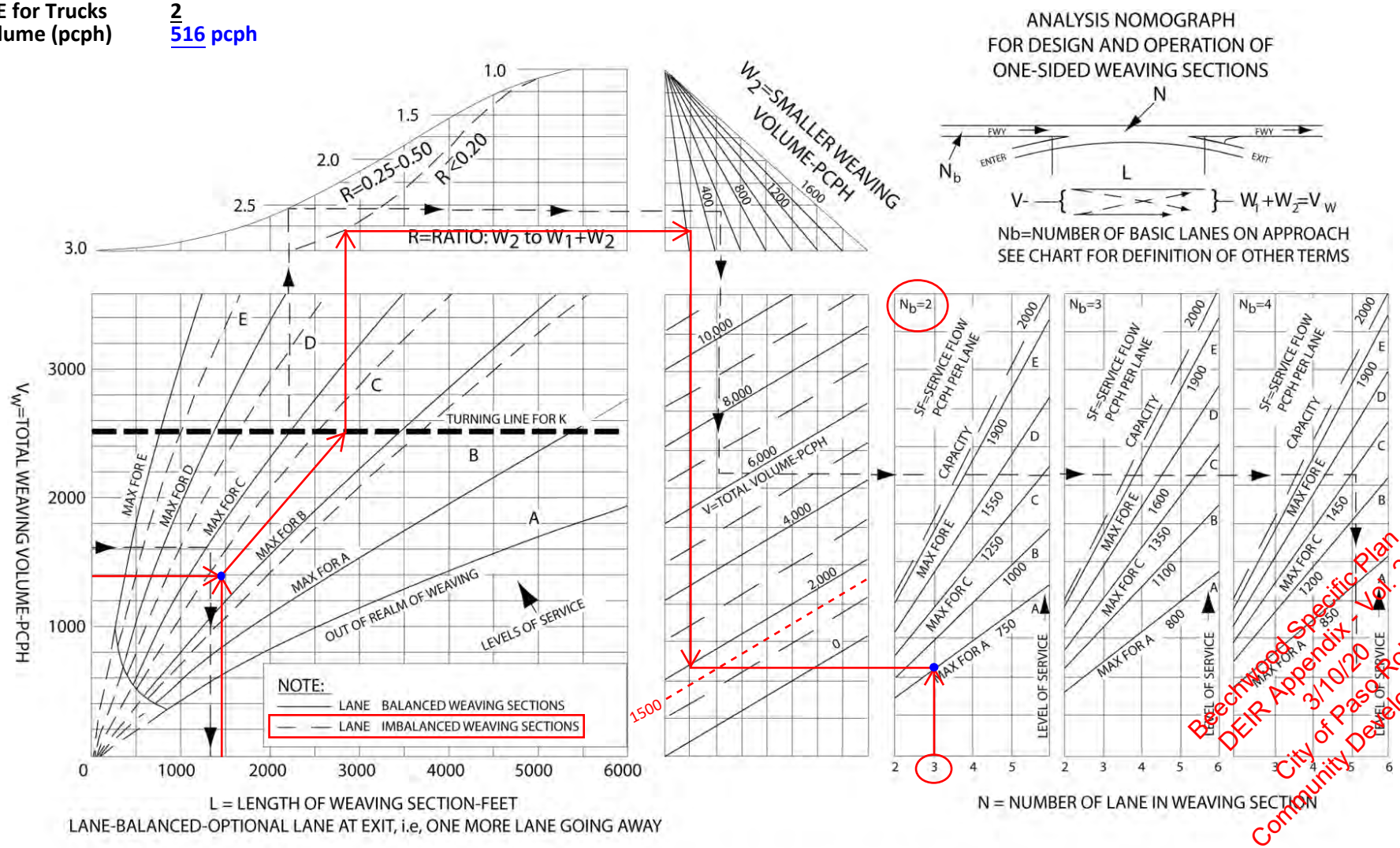

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1538	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	884
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1538	298
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	1767	323
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.333
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1767	Ramp Junction Speed (S_J), mi/h	58.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2090	Average Density (D_R), pc/mi/ln	17.9
Level of Service (LOS)	B		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1836	127
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	2109	142
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.48	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.464
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2109	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2089	1435
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	2400	1558
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.90	0.83

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.437
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2400	Ramp Junction Speed (S), mi/h	55.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3958	Average Density (D), pc/mi/ln	35.5
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3524	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	2024
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3524	671
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	4049	757
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.92	0.40

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	37.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.520
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4049	Ramp Junction Speed (S_R), mi/h	53.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	37.6
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	NT+911 AM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2853	139
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3278	157
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.78	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.421
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3278	Ramp Junction Speed (S), mi/h	56.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3435	Average Density (D), pc/mi/ln	30.6
Level of Service (LOS)	D		

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Near Term Plus 911-Unit Project PM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3147	232
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3338	249
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.76	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.474
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3338	Ramp Junction Speed (S), mi/h	54.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	30.4
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2915	887
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3092	953
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.92	0.51

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	34.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.521
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3092	Ramp Junction Speed (S), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4045	Average Density (D), pc/mi/ln	37.6
Level of Service (LOS)	D		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3802	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	2016
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.0
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3802	1614
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	4190	1664
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.95	0.89

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	38.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.601
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	51.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4190	Ramp Junction Speed (S_J), mi/h	51.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	40.3
Level of Service (LOS)	E		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	2188	578
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2321	615
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.507
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2321	Ramp Junction Speed (S), mi/h	54.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1610	359
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	1708	378
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.326
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1708	Ramp Junction Speed (S), mi/h	58.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2086	Average Density (D), pc/mi/ln	17.8
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1969	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1044
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.4
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1969	1140
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	2089	1223
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.47	0.65

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.561
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2089	Ramp Junction Speed (S_J), mi/h	52.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	19.8
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	829	287
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	12.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.893	0.893
Flow Rate (v_i), pc/h	988	342
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.30	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.309
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	988	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1330	Average Density (D), pc/mi/ln	11.3
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1116	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	664
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1509	Heavy Vehicle Adjustment Factor (f_{HV})	0.826
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	972
Total Trucks, %	21.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1509	383
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	21.00	21.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.826	0.826
Flow Rate (v_i), pc/h	1943	493
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.44	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.496
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1943	Ramp Junction Speed (S_R), mi/h	54.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	19.6
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	1150 vph
Truck %	4%
PCE for Trucks	2
Volume (pcph)	1196 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	303 vph
Truck %	1%
PCE for Trucks	2
Volume (pcph)	306 pcph

Mainline to Mainline

Volume (vph)	823 vph
Truck %	21%
PCE for Trucks	2
Volume (pcph)	996 pcph

W2 = 306 pcph → 996 pcph

W1 = 1196 pcph → 0 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

V = 2498 pcph

V_w = 1502 pcph

R = 0.20

W1 = 1196 pcph

W2 = 306 pcph

Near Term Plus 911 Unit Project PM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: PM

Results

Weave LOS = C

Total Volume LOS = B

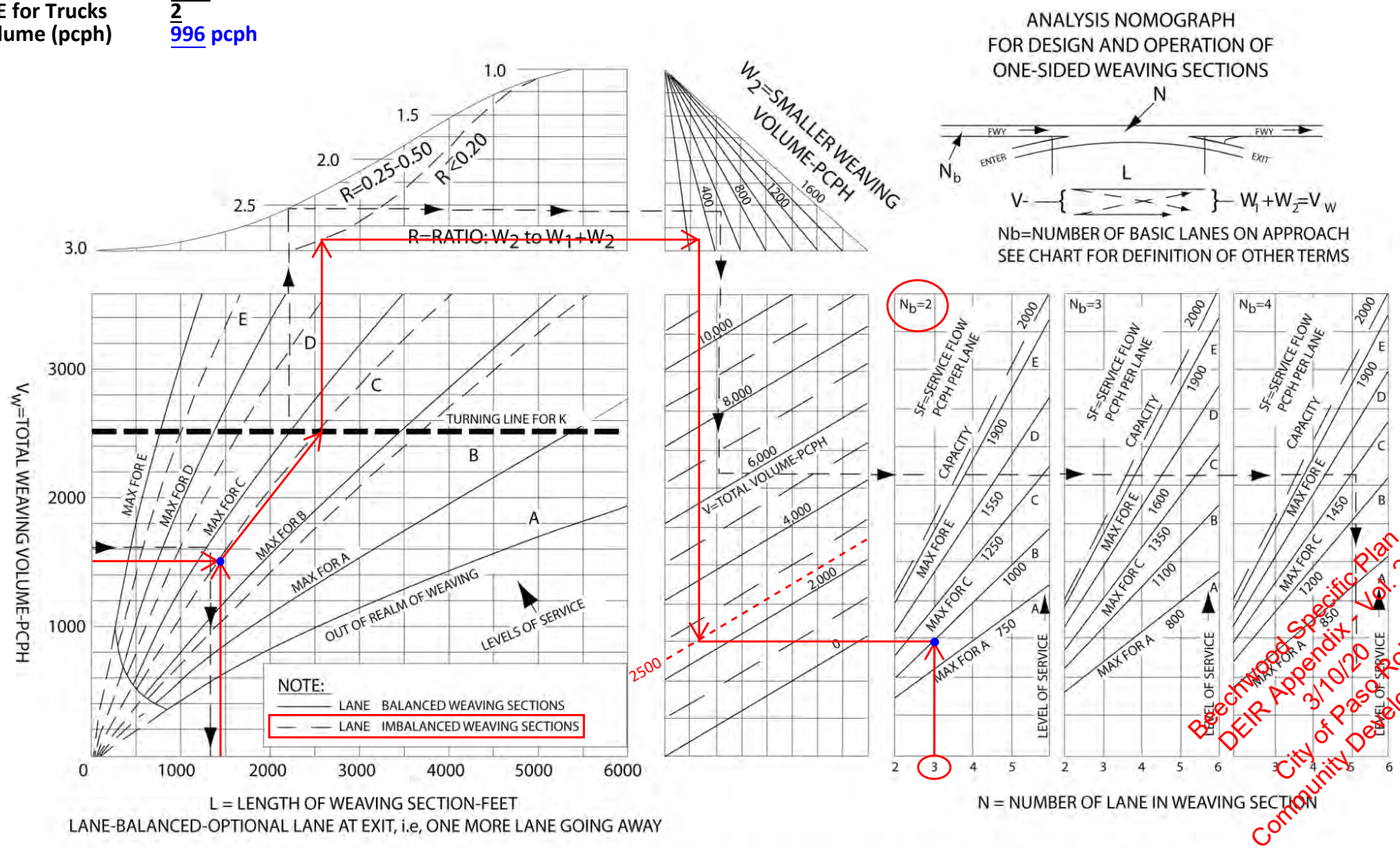

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1973	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1113
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1973	205
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2226	220
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.55	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.346
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2226	Ramp Junction Speed (S_J), mi/h	58.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2446	Average Density (D_R), pc/mi/ln	31.0
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2178	197
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2457	212
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.56	0.11

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	23.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.470
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2457	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	22.3
Level of Service (LOS)	C		

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17 - NT+911 PM US 101 Off Ramp at Riverside-Pine - SB.xuf

HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2373	1099
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2677	1181
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.87	0.63

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.417
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2677	Ramp Junction Speed (S), mi/h	56.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3858	Average Density (D), pc/mi/ln	34.3
Level of Service (LOS)	C		

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18 - NT+911 PM US 101 On Ramp at Spring - SB.xuf

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3472	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1958
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.3
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3472	661
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3917	724
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.89	0.39

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	36.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.517
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3917	Ramp Junction Speed (S_J), mi/h	53.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	36.0
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	NT+911 PM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2811	211
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3171	231
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.77	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.417
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3171	Ramp Junction Speed (S), mi/h	56.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3402	Average Density (D), pc/mi/ln	30.2
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2608	300
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2996	338
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.68	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.482
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2996	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.4
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2308	579
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2652	653
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.75	0.35

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.404
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2652	Ramp Junction Speed (S), mi/h	56.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3305	Average Density (D), pc/mi/ln	39.2
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2887	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1658
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.1
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2887	933
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.862	0.980
Flow Rate (v_i), pc/h	3563	1013
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.81	0.54

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.543
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3563	Ramp Junction Speed (S_J), mi/h	53.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	33.1
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1954	423
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	2245	455
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.51	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.492
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2245	Ramp Junction Speed (S), mi/h	54.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1531	478
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1759	514
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.52	0.27

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.332
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1759	Ramp Junction Speed (S_M), mi/h	58.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2273	Average Density (D_R), pc/mi/ln	19.5
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2009	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1154
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.0
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2009	1164
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	2308	1301
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.52	0.69

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.568
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2308	Ramp Junction Speed (S_5), mi/h	52.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	31.9
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	845	356
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	18.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.847	0.847
Flow Rate (v_i), pc/h	1061	447
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.34	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	14.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.312
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1061	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1508	Average Density (D), pc/mi/ln	12.8
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1201	Heavy Vehicle Adjustment Factor (f_{HV})	0.847
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	754
Total Trucks, %	18.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.1
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1120	Heavy Vehicle Adjustment Factor (f_{HV})	0.840
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	709
Total Trucks, %	19.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1120	332
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	19.00	19.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.840	0.840
Flow Rate (v_i), pc/h	1418	416
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.32	0.22

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	15.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.489
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1418	Ramp Junction Speed (S_J), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	13.0
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	1167 vph
Truck %	7%
PCE for Trucks	2
Volume (pcph)	1249 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	285 vph
Truck %	0%
PCE for Trucks	2
Volume (pcph)	285 pcph

Mainline to Mainline

Volume (vph)	503 vph
Truck %	19%
PCE for Trucks	2
Volume (pcph)	599 pcph

599 pcph

W2 = 285 pcph

W1 = 1249 pcph

0 pcph

V = 2132 pcph

V_w = 1534 pcph

R = 0.19

W1 = 1249 pcph

W2 = 285 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Cumulative AM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: AM

Results

Weave LOS = C

Total Volume LOS = B

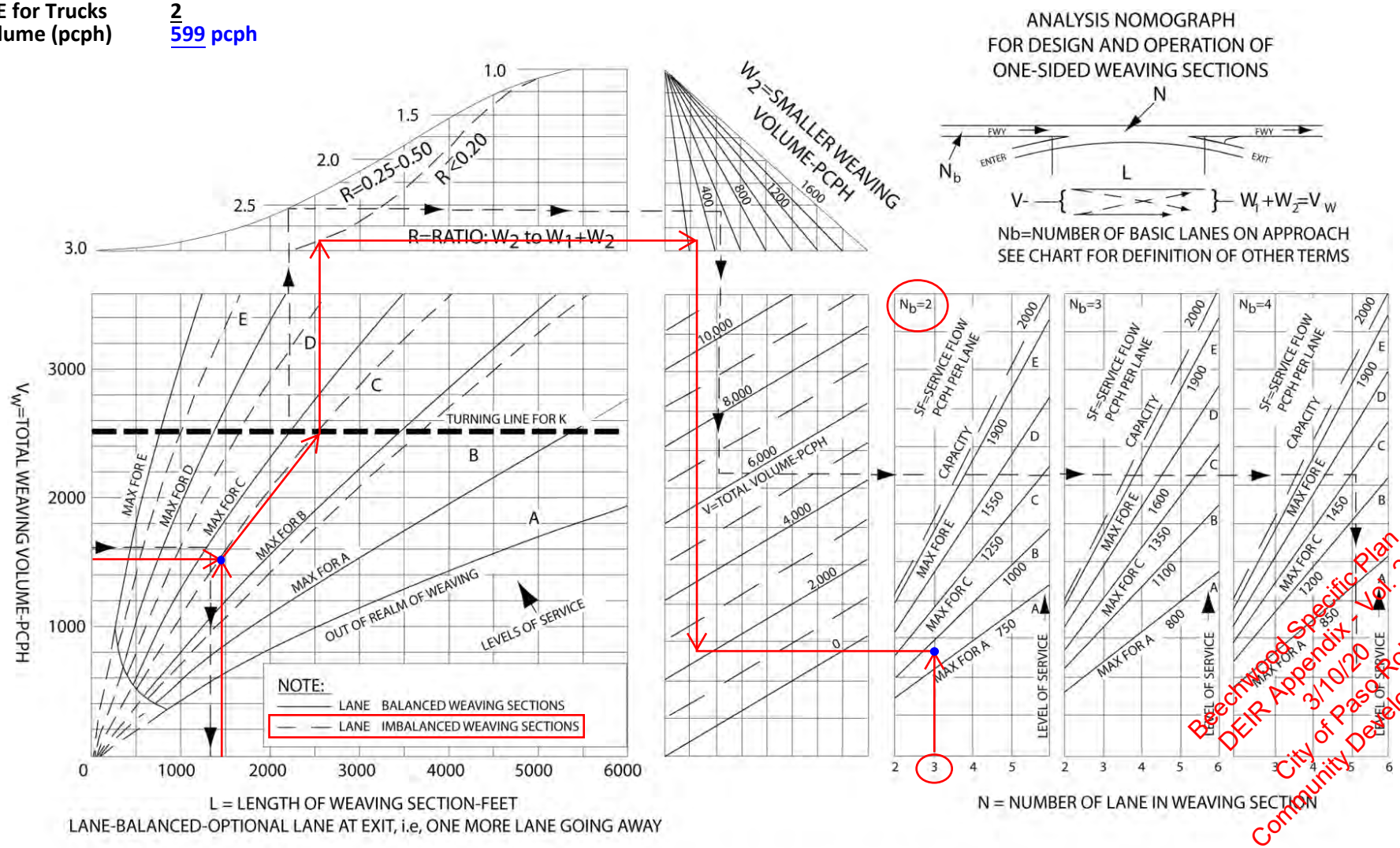

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1670	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	960
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.3
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1670	390
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	1919	423
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.23

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.342
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1919	Ramp Junction Speed (S_J), mi/h	58.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2342	Average Density (D_R), pc/mi/ln	30.2
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2060	200
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	2367	223
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.471
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2367	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2249	1374
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	2584	1492
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.92	0.79

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.462
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2584	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4076	Average Density (D), pc/mi/ln	38.9
Level of Service (LOS)	D		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3623	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	2081
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3623	706
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	4162	796
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.94	0.42

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	38.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.523
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4162	Ramp Junction Speed (S_J), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	38.8
Level of Service (LOS)	E		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM AM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2917	200
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3351	226
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.81	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	31.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.440
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3351	Ramp Junction Speed (S), mi/h	55.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3577	Average Density (D), pc/mi/ln	32.1
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3406	300
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3613	322
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.82	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.480
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3613	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	33.0
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3106	1025
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3295	1101
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	1.00	0.59

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	37.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.614
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	51.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3295	Ramp Junction Speed (S), mi/h	51.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4396	Average Density (D), pc/mi/ln	42.0
Level of Service (LOS)	E		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4131	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	2191
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.0
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	4131	1618
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	4552	1668
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	1.03	0.89

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	-
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (So), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4552	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2513	734
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2666	780
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.60	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.522
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2666	Ramp Junction Speed (S), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.8
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1779	457
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	1887	481
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.336
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1887	Ramp Junction Speed (S), mi/h	58.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2368	Average Density (D), pc/mi/ln	30.3
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2236	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1186
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2236	1239
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	2372	1329
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.71

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.571
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2372	Ramp Junction Speed (S_J), mi/h	52.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	22.6
Level of Service (LOS)	C		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	997	335
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	12.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.893	0.893
Flow Rate (v_i), pc/h	1188	399
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.36	0.21

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	15.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.313
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1188	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1587	Average Density (D), pc/mi/ln	13.5
Level of Service (LOS)	B		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1332	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	794
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1796	Heavy Vehicle Adjustment Factor (f_{HV})	0.826
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1156
Total Trucks, %	21.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.3
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1796	443
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	21.00	21.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.826	0.826
Flow Rate (v_i), pc/h	2313	571
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.52	0.30

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.503
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2313	Ramp Junction Speed (S_J), mi/h	54.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	31.3
Level of Service (LOS)	C		

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On-ramp to Mainline (W1)

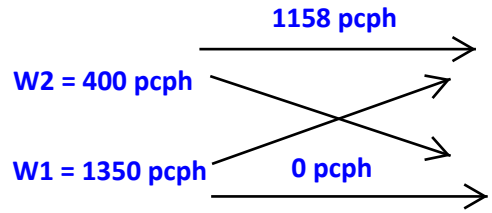
Volume (vph)	1298 vph
Truck %	4%
PCE for Trucks	2
Volume (pcph)	1350 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	396 vph
Truck %	1%
PCE for Trucks	2
Volume (pcph)	400 pcph

Mainline to Mainline

Volume (vph)	957 vph
Truck %	21%
PCE for Trucks	2
Volume (pcph)	1158 pcph



V = 2908 pcph
V_w = 1750 pcph
R = 0.23
W1 = 1350 pcph
W2 = 400 pcph

L = 1475 feet
N = 3 lanes
N_b = 2 lanes
Lane Imbalanced

Cumulative PM (US 101 Weave)
On Ramp: SR 46E
Off Ramp: Riverside Ave-17th St
Direction: South
Peak Hour: PM

Results

Weave LOS = D
Total Volume LOS = C

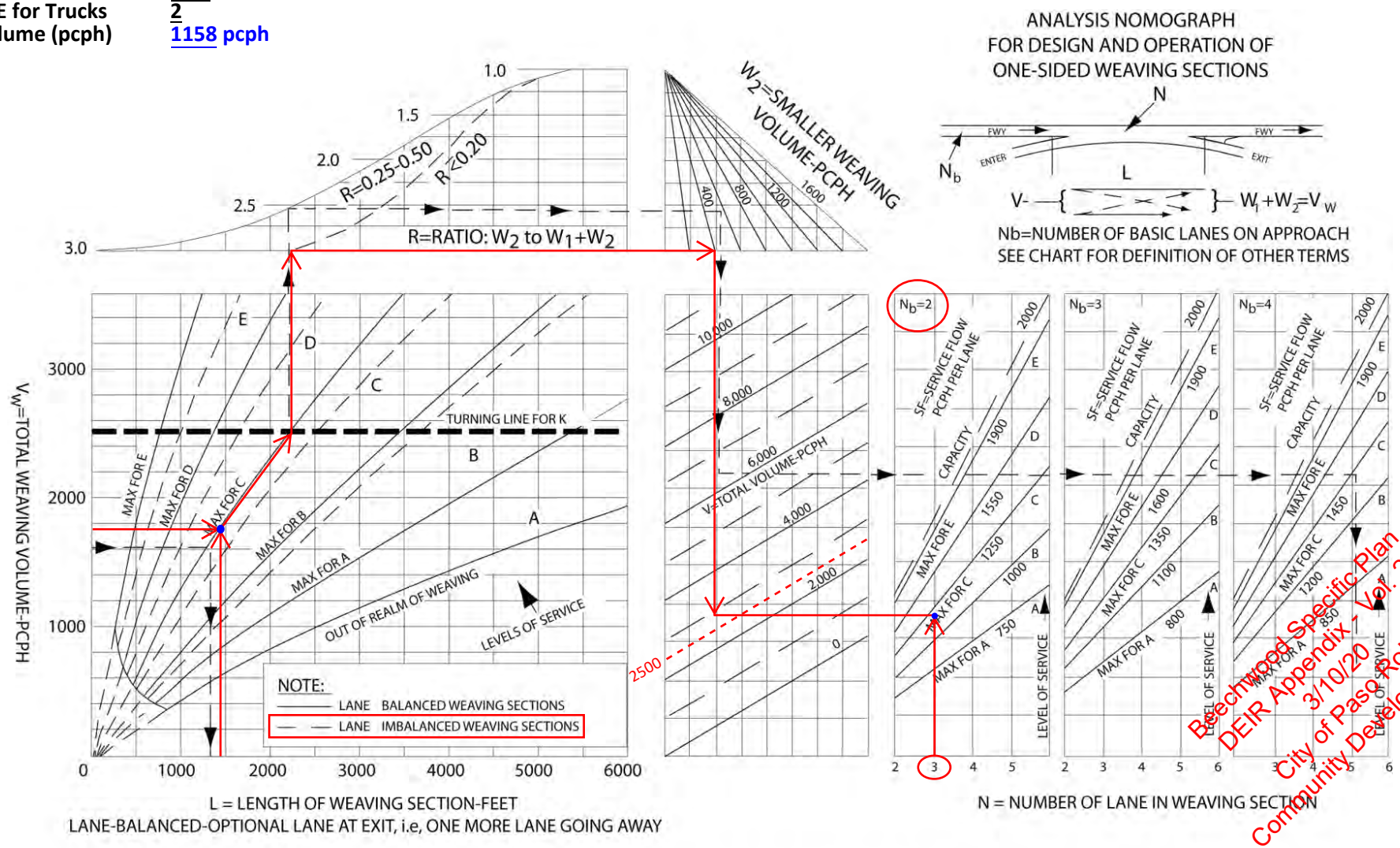


Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2255	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1272
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2255	268
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2544	288
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.64	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.367
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2544	Ramp Junction Speed (S_J), mi/h	57.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2832	Average Density (D_R), pc/mi/ln	31.6
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2523	324
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2846	348
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.64	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.483
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2846	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	26.0
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2599	1127
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2932	1211
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.94	0.64

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.478
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2932	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4143	Average Density (D), pc/mi/ln	37.8
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3726	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	2102
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3726	707
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	4203	775
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.95	0.41

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	38.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.521
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4203	Ramp Junction Speed (S_J), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	39.5
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM PM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3019	300
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3406	329
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.85	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	32.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.463
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3406	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3735	Average Density (D), pc/mi/ln	33.8
Level of Service (LOS)	D		

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Cumulative Plus 674-Unit Project AM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2629	300
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3020	338
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.68	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.482
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3020	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.6
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2329	590
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2676	666
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.76	0.35

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.408
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2676	Ramp Junction Speed (S), mi/h	56.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3342	Average Density (D), pc/mi/ln	29.6
Level of Service (LOS)	D		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2919	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1676
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2919	965
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.862	0.980
Flow Rate (v_i), pc/h	3602	1048
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.82	0.56

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.546
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3602	Ramp Junction Speed (S_J), mi/h	53.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	33.5
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1954	423
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	2245	455
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.51	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.492
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2245	Ramp Junction Speed (S), mi/h	54.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1531	486
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1759	522
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.52	0.28

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.333
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1759	Ramp Junction Speed (S), mi/h	58.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2281	Average Density (D), pc/mi/ln	19.6
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2017	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1158
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.1
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2017	1164
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	2317	1301
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.69

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.568
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2317	Ramp Junction Speed (S_R), mi/h	52.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	22.2
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	853	360
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	18.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.847	0.847
Flow Rate (v_i), pc/h	1071	452
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.35	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	14.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.312
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1071	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1523	Average Density (D), pc/mi/ln	12.9
Level of Service (LOS)	B		

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9 - CM+674 AM US 101 On Ramp at SR 46E - NB.xuf

HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1213	Heavy Vehicle Adjustment Factor (f_{HV})	0.847
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	762
Total Trucks, %	18.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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10 - CM+674 AM US 101 mainline north of SR 46E - NB.xuf

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1126	Heavy Vehicle Adjustment Factor (f_{HV})	0.840
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	713
Total Trucks, %	19.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.7
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1126	334
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	19.00	19.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.840	0.840
Flow Rate (v_i), pc/h	1426	419
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.32	0.22

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	15.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.489
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1426	Ramp Junction Speed (S_J), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	15.1
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	1167 vph
Truck %	7%
PCE for Trucks	2
Volume (pcph)	1249 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	285 vph
Truck %	0%
PCE for Trucks	2
Volume (pcph)	285 pcph

Mainline to Mainline

Volume (vph)	507 vph
Truck %	19%
PCE for Trucks	2
Volume (pcph)	603 pcph

603 pcph →

W2 = 285 pcph →

W1 = 1249 pcph →

0 pcph →

V = 2137 pcph

V_w = 1534 pcph

R = 0.19

W1 = 1249 pcph

W2 = 285 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Cumulative Plus 674 Unit Project AM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: AM

Results

Weave LOS = C

Total Volume LOS = B

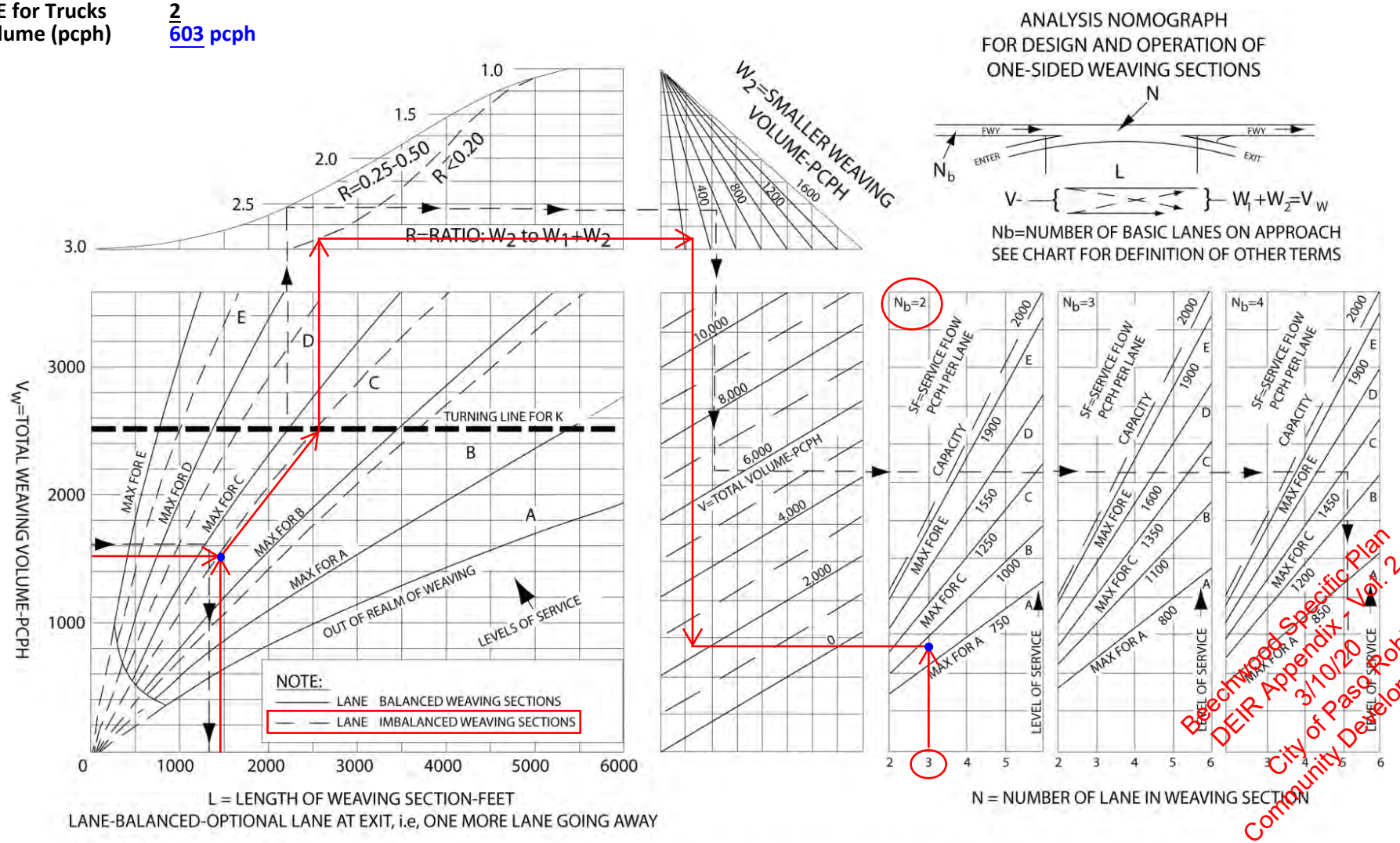

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1674	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	962
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.4
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1674	390
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	1923	423
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.23

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.342
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1923	Ramp Junction Speed (S_J), mi/h	58.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2346	Average Density (D_R), pc/mi/ln	30.2
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	2064	204
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	2371	228
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.472
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2371	Ramp Junction Speed (S), mi/h	54.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.6
Level of Service (LOS)	C		

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17 - CM+674 AM US 101 Off Ramp at Riverside-Pine - SB.xuf

HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	2249	1432
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	2584	1554
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.94	0.83

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.477
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2584	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4138	Average Density (D), pc/mi/ln	37.8
Level of Service (LOS)	D		

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18 - CM+674 AM US 101 On Ramp at Spring - SB.xuf

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3681	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	2114
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3681	725
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	4229	818
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.96	0.44

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	38.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.525
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4229	Ramp Junction Speed (S_J), mi/h	53.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	39.0
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+674 AM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2956	200
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3396	226
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.82	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	31.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.446
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3396	Ramp Junction Speed (S), mi/h	55.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3622	Average Density (D), pc/mi/ln	32.6
Level of Service (LOS)	D		

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Cumulative Plus 674-Unit Project PM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3451	300
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3661	322
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.83	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.480
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3661	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	33.5
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3151	1047
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3342	1125
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	1.01	0.60

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	-
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3342	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4467	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	4198	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	2226
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	49.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4198	1685
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	4626	1737
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	1.05	0.92

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	-
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4626	Ramp Junction Speed (S_J), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	-
Level of Service (LOS)	F		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2513	734
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2666	780
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.60	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.522
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2666	Ramp Junction Speed (S), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.8
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1779	463
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	1887	487
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.336
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1887	Ramp Junction Speed (S), mi/h	58.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2374	Average Density (D), pc/mi/ln	30.3
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	2242	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1189
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	2242	1239
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	2378	1329
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.71

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.571
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2378	Ramp Junction Speed (S_R), mi/h	52.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	22.7
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1003	338
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	12.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.893	0.893
Flow Rate (v_i), pc/h	1195	403
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.36	0.21

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	15.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.313
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1195	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1598	Average Density (D), pc/mi/ln	13.6
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1341	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	799
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1809	Heavy Vehicle Adjustment Factor (f_{HV})	0.826
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1165
Total Trucks, %	21.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.4
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1809	447
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	21.00	21.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.826	0.826
Flow Rate (v_i), pc/h	2330	576
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.31

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.503
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2330	Ramp Junction Speed (S_J), mi/h	54.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	31.5
Level of Service (LOS)	C		

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On-ramp to Mainline (W1)

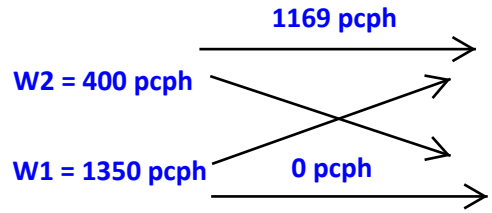
Volume (vph)	1298 vph
Truck %	4%
PCE for Trucks	2
Volume (pcph)	1350 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	396 vph
Truck %	1%
PCE for Trucks	2
Volume (pcph)	400 pcph

Mainline to Mainline

Volume (vph)	966 vph
Truck %	21%
PCE for Trucks	2
Volume (pcph)	1169 pcph



V = 2919 pcph
V_w = 1750 pcph
R = 0.23
W1 = 1350 pcph
W2 = 400 pcph

L = 1475 feet
N = 3 lanes
N_b = 2 lanes
Lane Imbalanced

Cumulative Plus 674 Project PM (US 101 Weave)
On Ramp: SR 46E
Off Ramp: Riverside Ave-17th St
Direction: South
Peak Hour: PM

Results

Weave LOS = D
Total Volume LOS = C

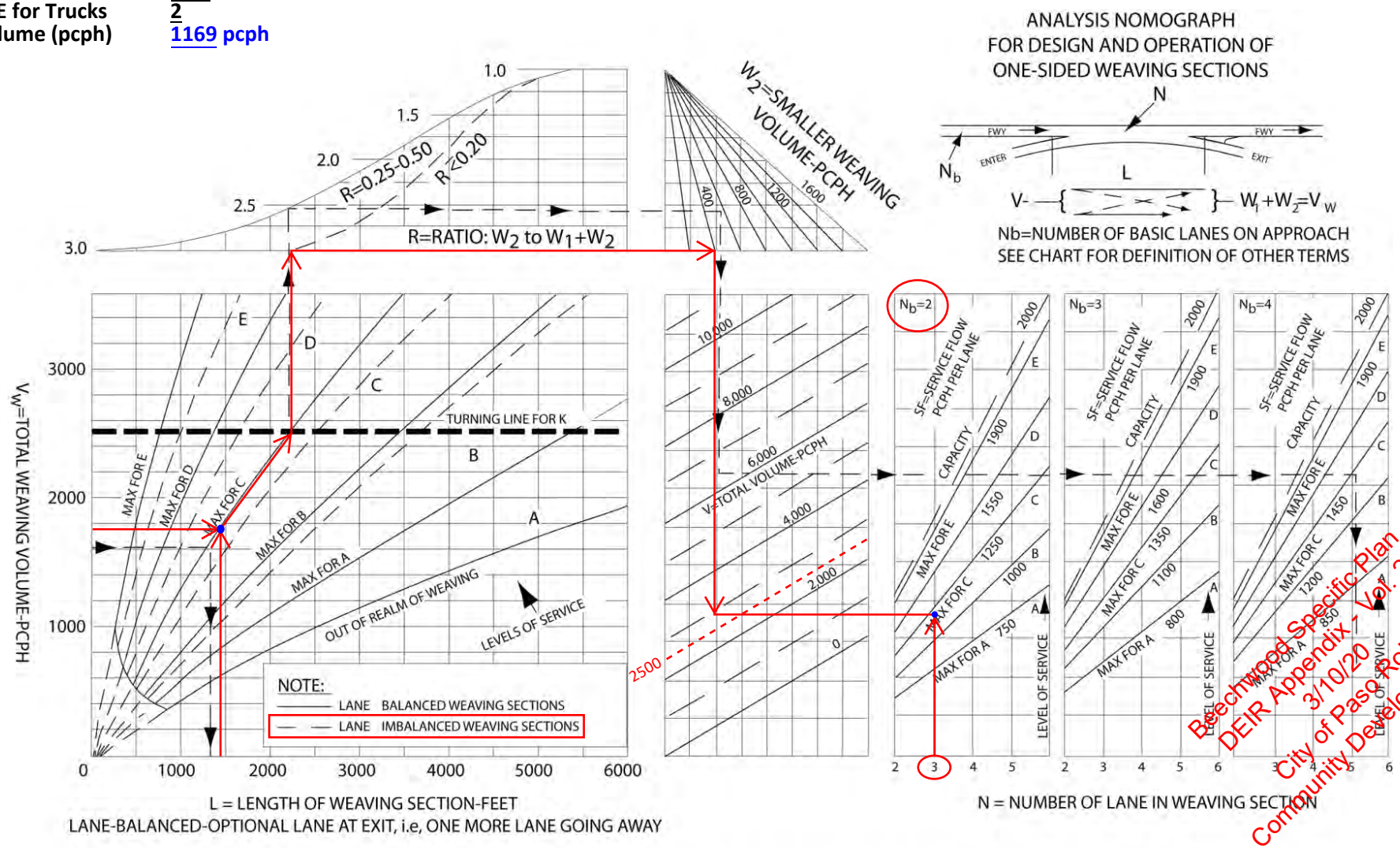


Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2264	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1277
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2264	268
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2554	288
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.64	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.368
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2554	Ramp Junction Speed (S_J), mi/h	57.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2842	Average Density (D_R), pc/mi/ln	31.0
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2532	333
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2856	358
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.65	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.484
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2856	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	26.2
Level of Service (LOS)	C		

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17 - CM+674 PM US 101 Off Ramp at Riverside-Pine - SB.xuf

HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2599	1174
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2932	1262
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.95	0.67

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.491
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2932	Ramp Junction Speed (S), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4194	Average Density (D), pc/mi/ln	38.5
Level of Service (LOS)	D		

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18 - CM+674 PM US 101 On Ramp at Spring - SB.xuf

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3773	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	2128
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3773	723
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	4256	792
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.96	0.42

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	39.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.523
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4256	Ramp Junction Speed (S_J), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	39.0
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+674 PM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3050	300
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3441	329
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.85	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	32.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.469
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3441	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3770	Average Density (D), pc/mi/ln	34.3
Level of Service (LOS)	D		

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Cumulative Plus 911-Unit Project AM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2633	300
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3025	338
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.69	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.482
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3025	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.7
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2333	591
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	2680	667
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.76	0.36

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.409
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2680	Ramp Junction Speed (S), mi/h	56.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3347	Average Density (D), pc/mi/ln	29.6
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2924	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1680
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2924	970
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.862	0.980
Flow Rate (v_i), pc/h	3609	1053
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.82	0.56

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.546
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3609	Ramp Junction Speed (S_J), mi/h	53.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	33.5
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1954	423
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	2245	455
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.51	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.492
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2245	Ramp Junction Speed (S), mi/h	54.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1531	488
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	1759	524
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.52	0.28

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.333
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1759	Ramp Junction Speed (S), mi/h	58.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2283	Average Density (D), pc/mi/ln	19.6
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	2019	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1160
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.1
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	2019	1164
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	2320	1301
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.69

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.568
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2320	Ramp Junction Speed (S_5), mi/h	52.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	22.2
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	855	361
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	18.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.847	0.847
Flow Rate (v_i), pc/h	1074	453
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.35	0.24

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	14.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.312
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1074	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1527	Average Density (D), pc/mi/ln	13.0
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1216	Heavy Vehicle Adjustment Factor (f_{HV})	0.847
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	764
Total Trucks, %	18.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1127	Heavy Vehicle Adjustment Factor (f_{HV})	0.840
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	714
Total Trucks, %	19.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.7
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1127	334
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	19.00	19.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.840	0.840
Flow Rate (v_i), pc/h	1427	419
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.32	0.22

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	15.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.489
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1427	Ramp Junction Speed (S_R), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	15.1
Level of Service (LOS)	B		

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On-ramp to Mainline (W1)

Volume (vph)	1167 vph
Truck %	7%
PCE for Trucks	2
Volume (pcph)	1249 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	285 vph
Truck %	0%
PCE for Trucks	2
Volume (pcph)	285 pcph

Mainline to Mainline

Volume (vph)	508 vph
Truck %	19%
PCE for Trucks	2
Volume (pcph)	605 pcph

605 pcph

W2 = 285 pcph

W1 = 1249 pcph

0 pcph

V = 2138 pcph

V_w = 1534 pcph

R = 0.19

W1 = 1249 pcph

W2 = 285 pcph

L = 1475 feet

N = 3 lanes

N_b = 2 lanes

Lane Imbalanced

Cumulative Plus 911 Unit Project AM (US 101 Weave)

On Ramp: SR 46E

Off Ramp: Riverside Ave-17th St

Direction: South

Peak Hour: AM

Results

Weave LOS = C

Total Volume LOS = B

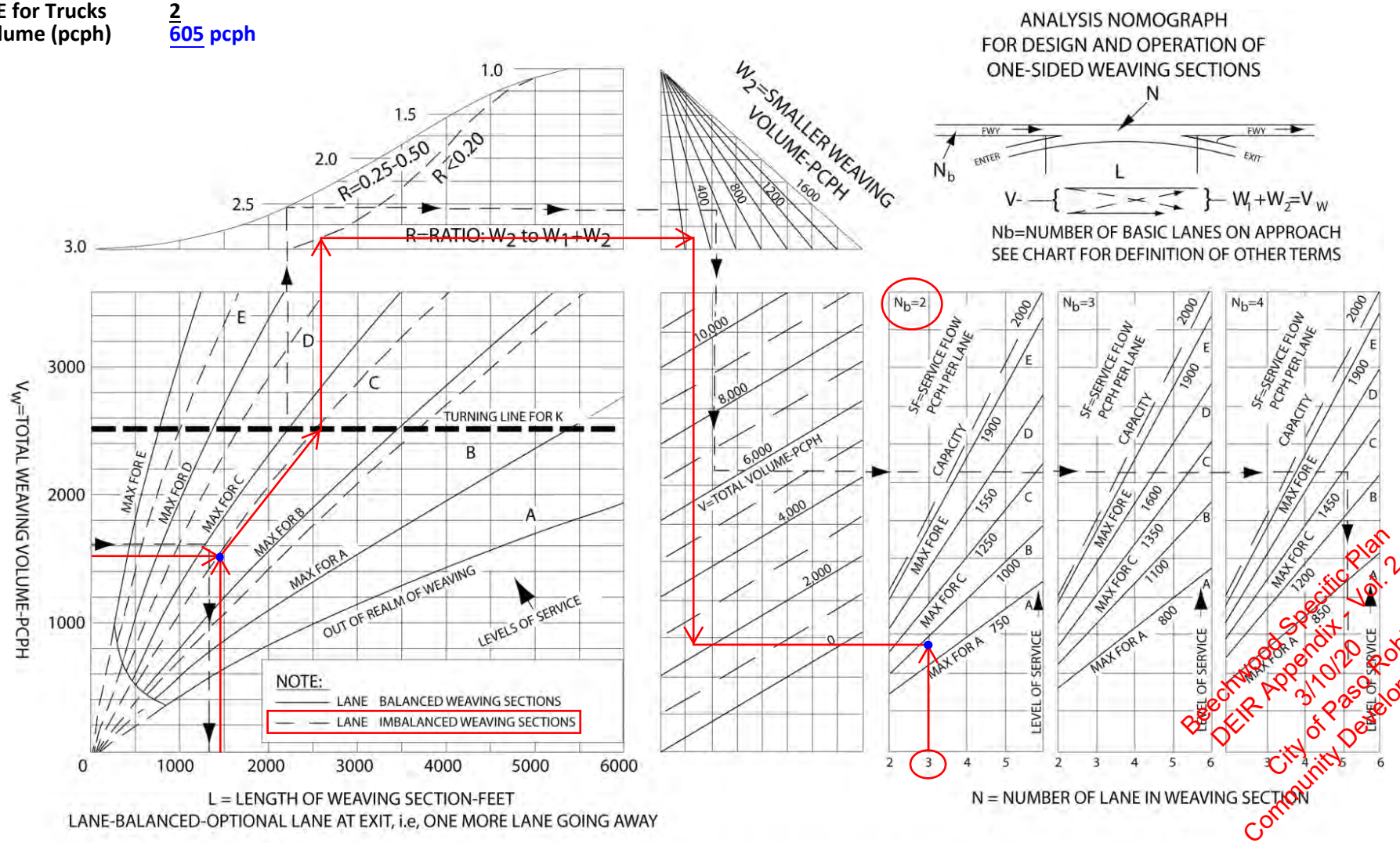

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1675	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	962
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.4
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1675	390
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	1924	423
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.23

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.342
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1924	Ramp Junction Speed (S_J), mi/h	58.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2347	Average Density (D_R), pc/mi/ln	30.2
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	2065	205
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.952
Flow Rate (v_i), pc/h	2372	229
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.472
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2372	Ramp Junction Speed (S), mi/h	54.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.6
Level of Service (LOS)	C		

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17 - CM+911 AM US 101 Off Ramp at Riverside-Pine - SB.xuf

HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	2249	1450
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.980
Flow Rate (v_i), pc/h	2584	1574
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.94	0.84

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.482
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2584	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4158	Average Density (D), pc/mi/ln	38.0
Level of Service (LOS)	D		

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18 - CM+911 AM US 101 On Ramp at Spring - SB.xuf

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3699	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	2125
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.4
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3699	731
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	4250	825
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.96	0.44

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	38.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.526
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4250	Ramp Junction Speed (S_J), mi/h	53.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	39.6
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	AM
Project Description	CM+911 AM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2968	200
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Flow Rate (v_i), pc/h	3410	226
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.82	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	31.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.448
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3410	Ramp Junction Speed (S), mi/h	55.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3636	Average Density (D), pc/mi/ln	32.8
Level of Service (LOS)	D		

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Cumulative Plus 911-Unit Project PM

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Off Ramp @ SR 46W - NB (#1)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	235
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3463	300
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3673	322
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.83	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.480
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3673	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	33.6
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 On Ramp @ SR 46W - NB (#2)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	345
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3163	1054
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	3355	1133
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	1.02	0.60

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	-
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3355	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4488	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Mainline north of SR 46W - NB (#3)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	4217	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	2236
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Off Ramp @ Spring - NB (#4)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	195
Terrain Type	Rolling	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4217	1704
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.990
Flow Rate (v_i), pc/h	4647	1756
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	1.05	0.94

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	-
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4647	Ramp Junction Speed (S_J), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	-
Level of Service (LOS)	F		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Off Ramp @ Paso Robles - NB (#5)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	270
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	2513	734
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	2666	780
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.60	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.522
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2666	Ramp Junction Speed (S), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.8
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 On Ramp @ Paso Robles - NB (#6)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right
Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000
Demand and Capacity		
Demand Volume (V_i), veh/h	1779	465
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.990
Flow Rate (v_i), pc/h	1887	489
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.336
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1887	Ramp Junction Speed (S), mi/h	58.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2376	Average Density (D), pc/mi/ln	30.3
Level of Service (LOS)	C		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Mainline south of SR 46E - NB (#7)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	2244	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	1190
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Off Ramp @ SR 46E - NB (#8)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	2244	1239
Peak Hour Factor (PHF)	0.98	0.96
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	2380	1329
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.54	0.71

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.571
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2380	Ramp Junction Speed (S_5), mi/h	52.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	22.7
Level of Service (LOS)	C		

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Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 On Ramp @ SR 46E - NB (#9)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	405
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1005	339
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	12.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.893	0.893
Flow Rate (v_i), pc/h	1197	404
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.36	0.22

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	15.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.313
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	1197	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1601	Average Density (D), pc/mi/ln	13.6
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Mainline north of SR 46E - NB (#10)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	71.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1344	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	800
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2232
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Mainline north of SR 46E - SB (#11)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	1813	Heavy Vehicle Adjustment Factor (f_{HV})	0.826
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1168
Total Trucks, %	21.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Off Ramp @ SR 46E - SB (#12)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	155
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1813	449
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	21.00	21.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.826	0.826
Flow Rate (v_i), pc/h	2335	578
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.53	0.31

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.503
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2335	Ramp Junction Speed (S_R), mi/h	54.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	31.5
Level of Service (LOS)	C		

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On-ramp to Mainline (W1)

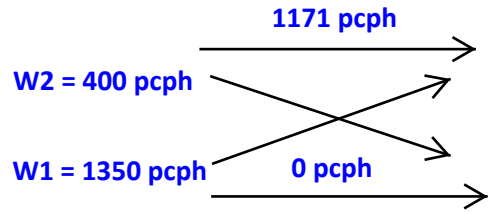
Volume (vph)	1298 vph
Truck %	4%
PCE for Trucks	2
Volume (pcph)	1350 pcph

Mainline to Off-Ramp (W2)

Volume (vph)	396 vph
Truck %	1%
PCE for Trucks	2
Volume (pcph)	400 pcph

Mainline to Mainline

Volume (vph)	968 vph
Truck %	21%
PCE for Trucks	2
Volume (pcph)	1171 pcph



V = 2921 pcph
V_w = 1750 pcph
R = 0.23
W1 = 1350 pcph
W2 = 400 pcph

L = 1475 feet
N = 3 lanes
N_b = 2 lanes
Lane Imbalanced

Cumulative Plus 911 Project PM (US 101 Weave)
On Ramp: SR 46E
Off Ramp: Riverside Ave-17th St
Direction: South
Peak Hour: PM

Results

Weave LOS = D
Total Volume LOS = C

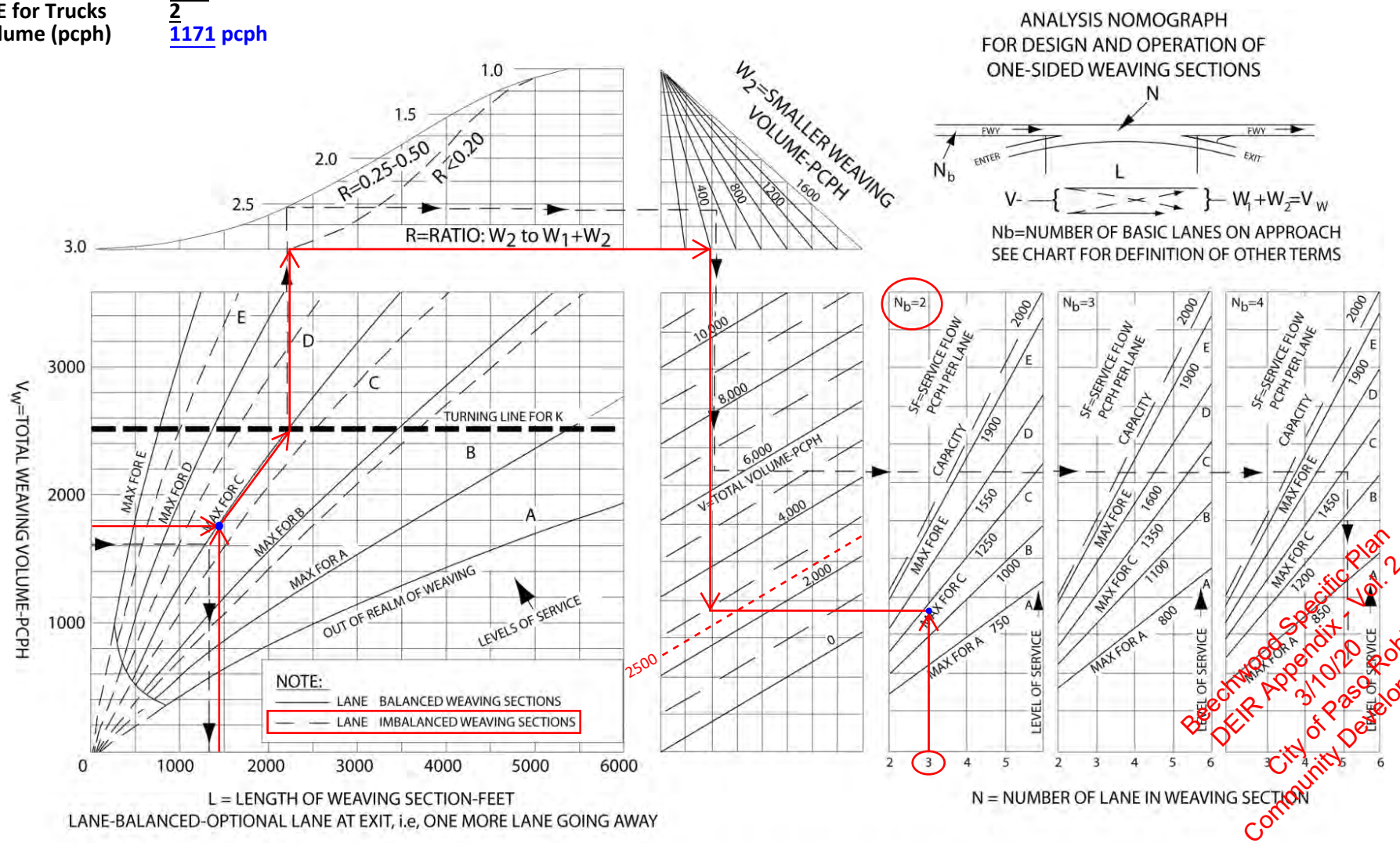


Figure 504.7A
Design Curve for Freeway and Collector Weaving

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HCS7 Basic Freeway Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Mainline south of SR 46E - SB (#15)		

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2266	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1278
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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15 - CM+911 PM US 101 mainline south of SR 46E - SB.xuf

HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 On Ramp @ Riverside-17th - SB (#16)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2266	268
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2556	288
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.64	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.368
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2556	Ramp Junction Speed (S_J), mi/h	57.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2844	Average Density (D_R), pc/mi/ln	31.0
Level of Service (LOS)	C		

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16 - CM+911 PM US 101 On Ramp at Riverside-17th - SB.xuf

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HCS7 Freeway Diverge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Off Ramp @ Riverside/Pine - SB (#17)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	190
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2534	335
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2859	360
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.65	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.484
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2859	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	26.2
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 On Ramp @ Spring - SB (#18)		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2599	1185
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.990
Flow Rate (v_i), pc/h	2932	1273
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.95	0.68

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.494
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2932	Ramp Junction Speed (S), mi/h	54.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4205	Average Density (D), pc/mi/ln	38.6
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Mainline north of SR 46W - SB (#19)		

Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3784	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	2134
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2369
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.8
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 Off Ramp @ SR 46W - SB (#20)		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	210
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3784	726
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	4269	795
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.97	0.42

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	39.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.523
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	4269	Ramp Junction Speed (S_J), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D_R), pc/mi/ln	39.1
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information			
Analyst	CCTC	Date	
Agency		Analysis Year	
Jurisdiction		Time Period Analyzed	PM
Project Description	CM+911 PM US 101 On Ramp @ SR 46W - SB (#21)		

Geometric Data		
	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	315
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	Balanced Mix	Balanced Mix
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	0.950	0.950
Final Capacity Adjustment Factor (CAF)	0.939	0.939
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3058	300
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	3450	329
Capacity (c), pc/h	4413	1878
Volume-to-Capacity Ratio (v/c)	0.86	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	32.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.471
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3450	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3779	Average Density (D), pc/mi/ln	34.4
Level of Service (LOS)	D		

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Appendix D: Warrant Analysis Sheets

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Existing

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Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing (AM)

Intersection Information			
Major Street (N/S Road)	Golden Hill Rd	Minor Street (E/W Road)	Union Rd
Analyzed with	2 or more approach lanes	Analyzed with	2 or more approach lanes
Total Approach Volume	1819 vehicles	Total Approach Volume	1560 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	100 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

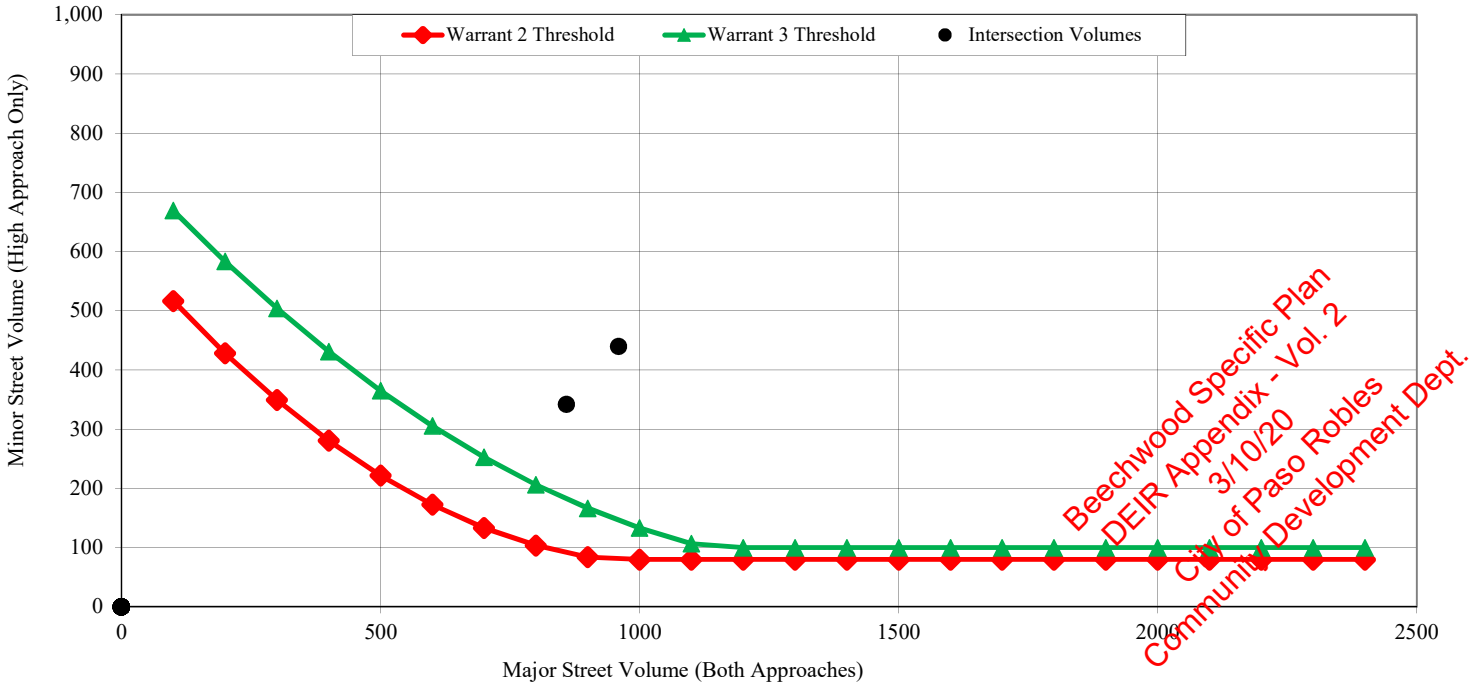
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	140	70	112 (Cond. A) & 56 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1559 total, 408 minor, 7.1 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	150	
Criteria - Minor Street High Side Delay (veh-hrs)	5	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1399 vehicles	Total Approach Volume	406 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

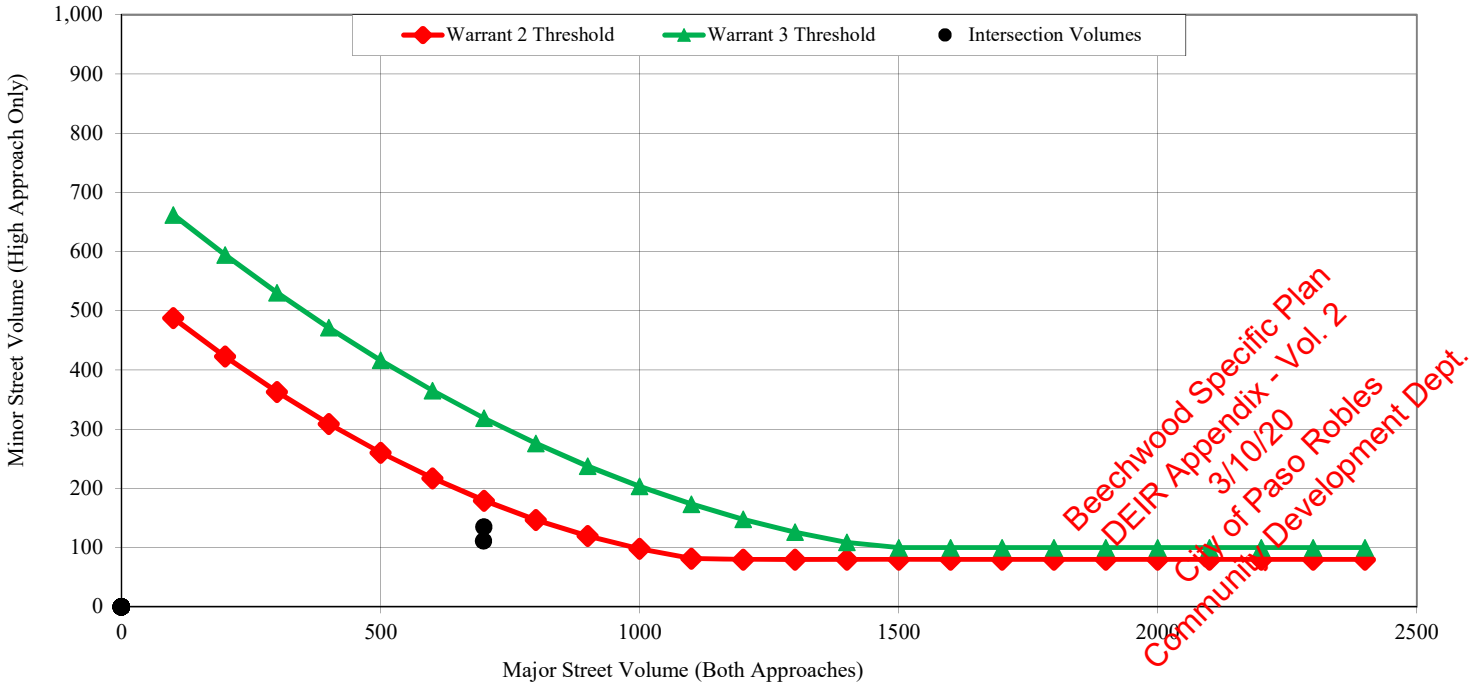
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	0 hours	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	0 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	952 total, 135 minor, 1.5 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing Plus 554 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1744 vehicles	Total Approach Volume	410 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

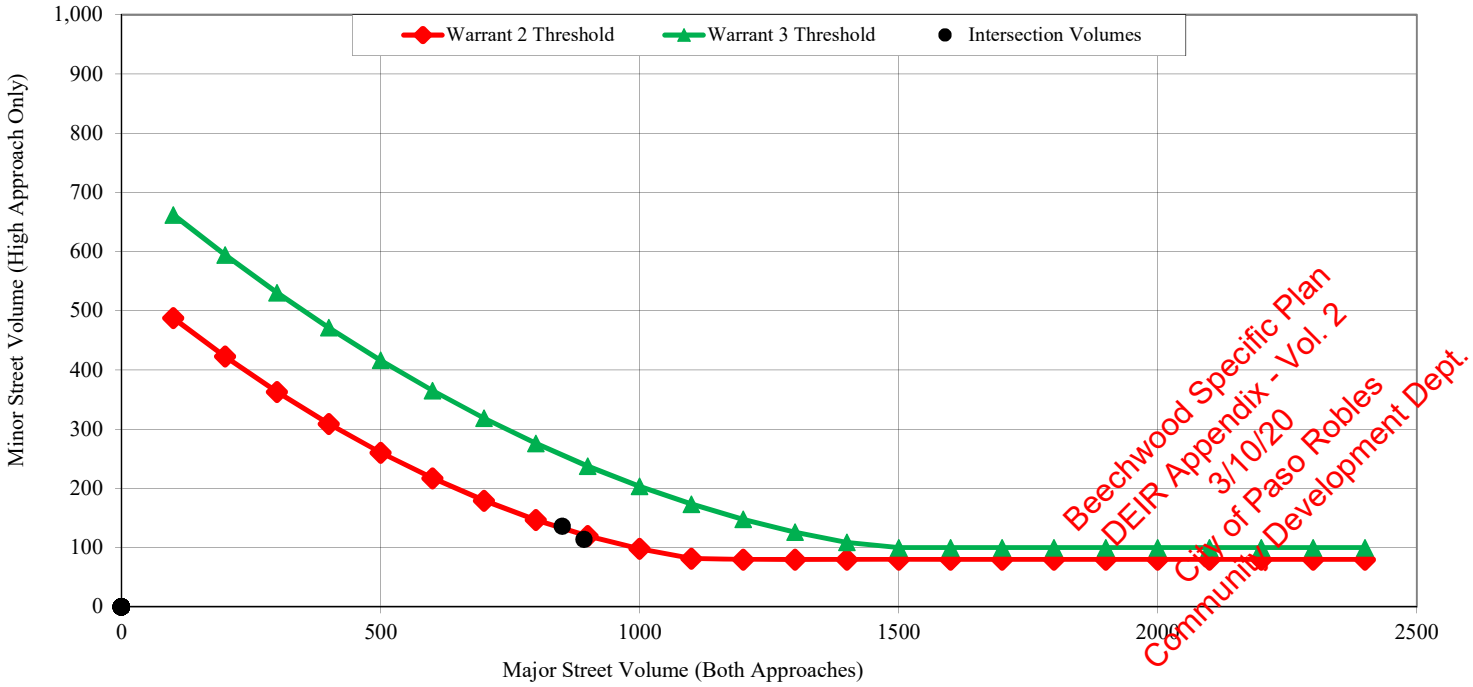
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1104 total, 136 minor, 3.4 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing Plus 674 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1928 vehicles	Total Approach Volume	412 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

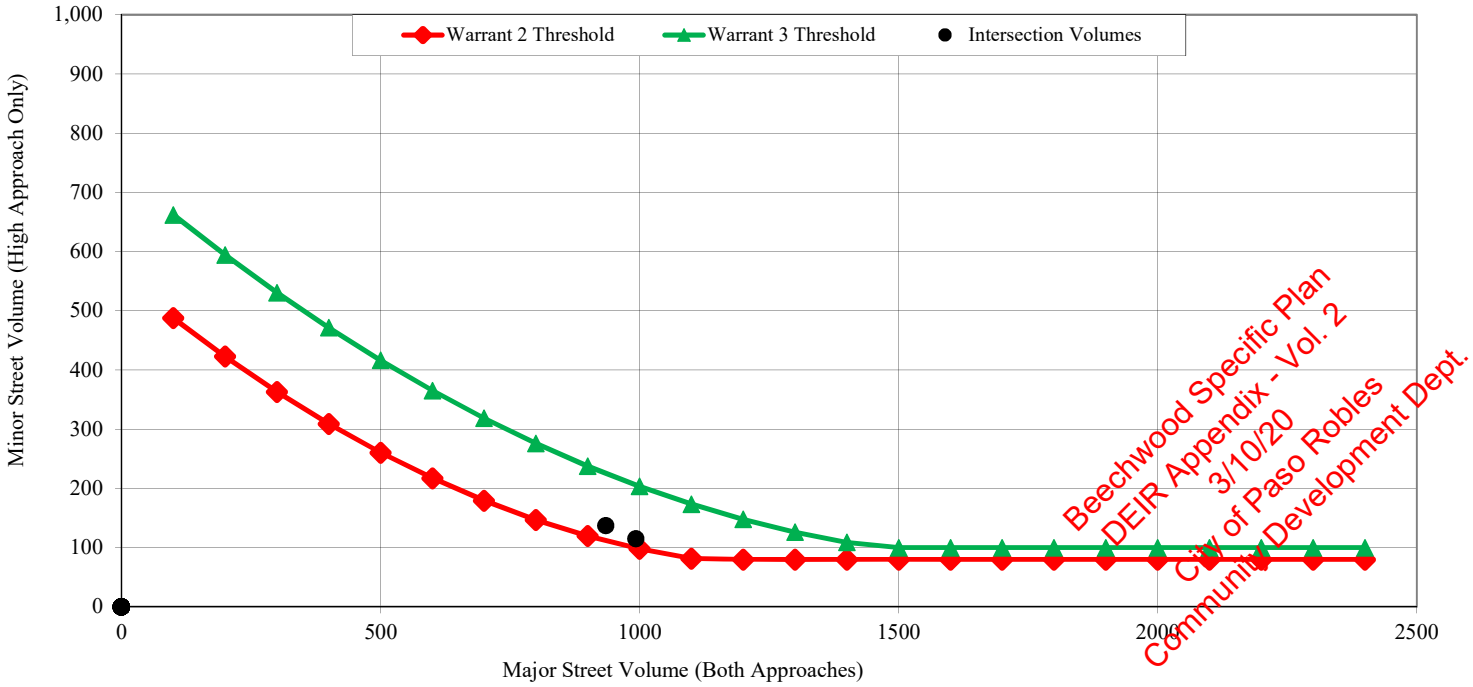
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Not Satisfied**
Required values reached for	1189 total, 137 minor, 5.5 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing Plus 674 Unit Project (PM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1928 vehicles	Total Approach Volume	412 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

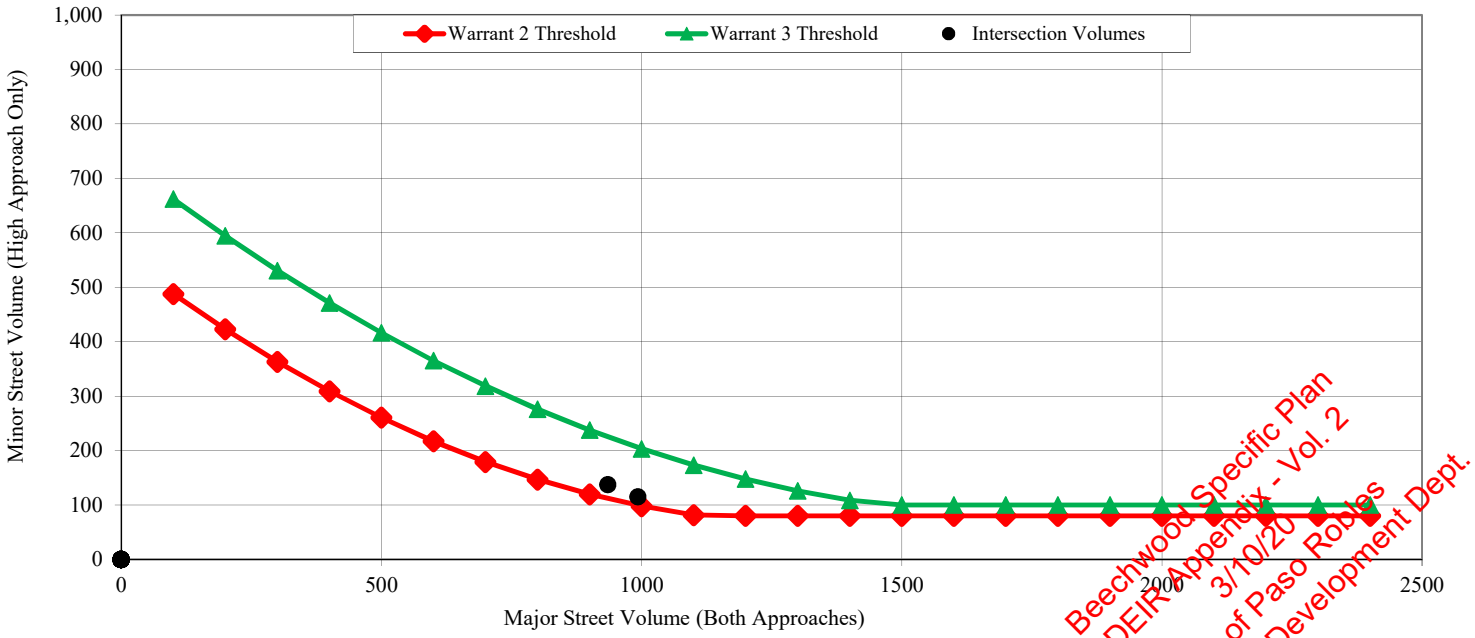
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1151 total, 115 minor, 1.2 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Beechwood Specific Plan
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Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing Plus 911 Unit Project (PM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2067 vehicles	Total Approach Volume	414 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

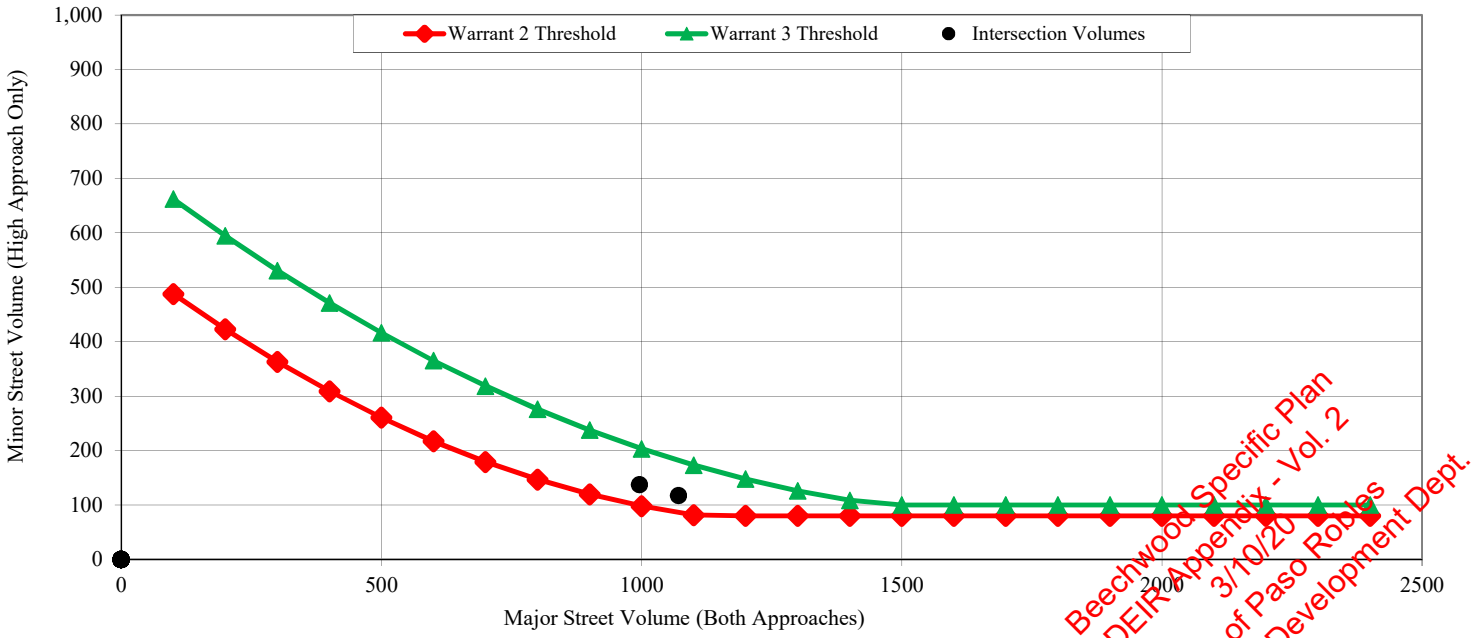
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1231 total, 117 minor, 1.5 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



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Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing Plus 911 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Meadowlark Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1735 vehicles	Total Approach Volume	825 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

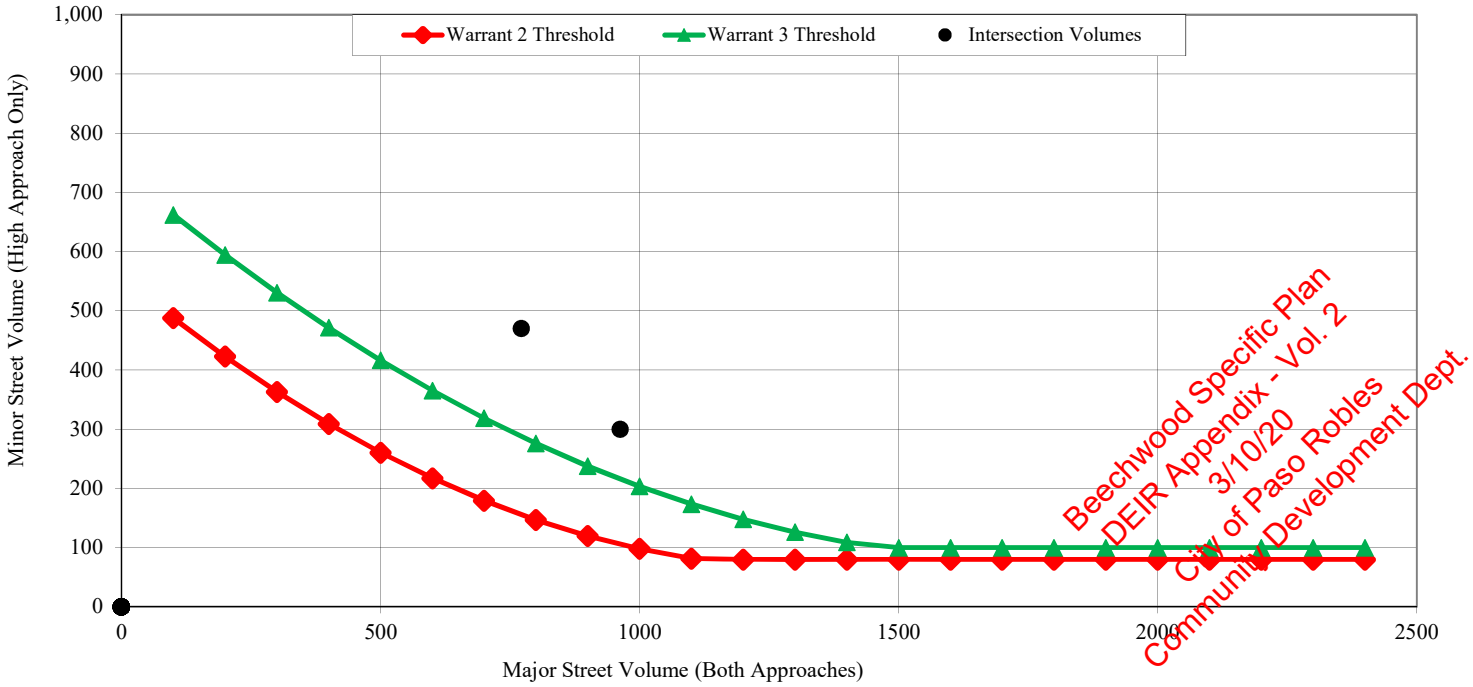
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1278 total, 470 minor, 8.2 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing Plus 674 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Riverbank Ln
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2379 vehicles	Total Approach Volume	129 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

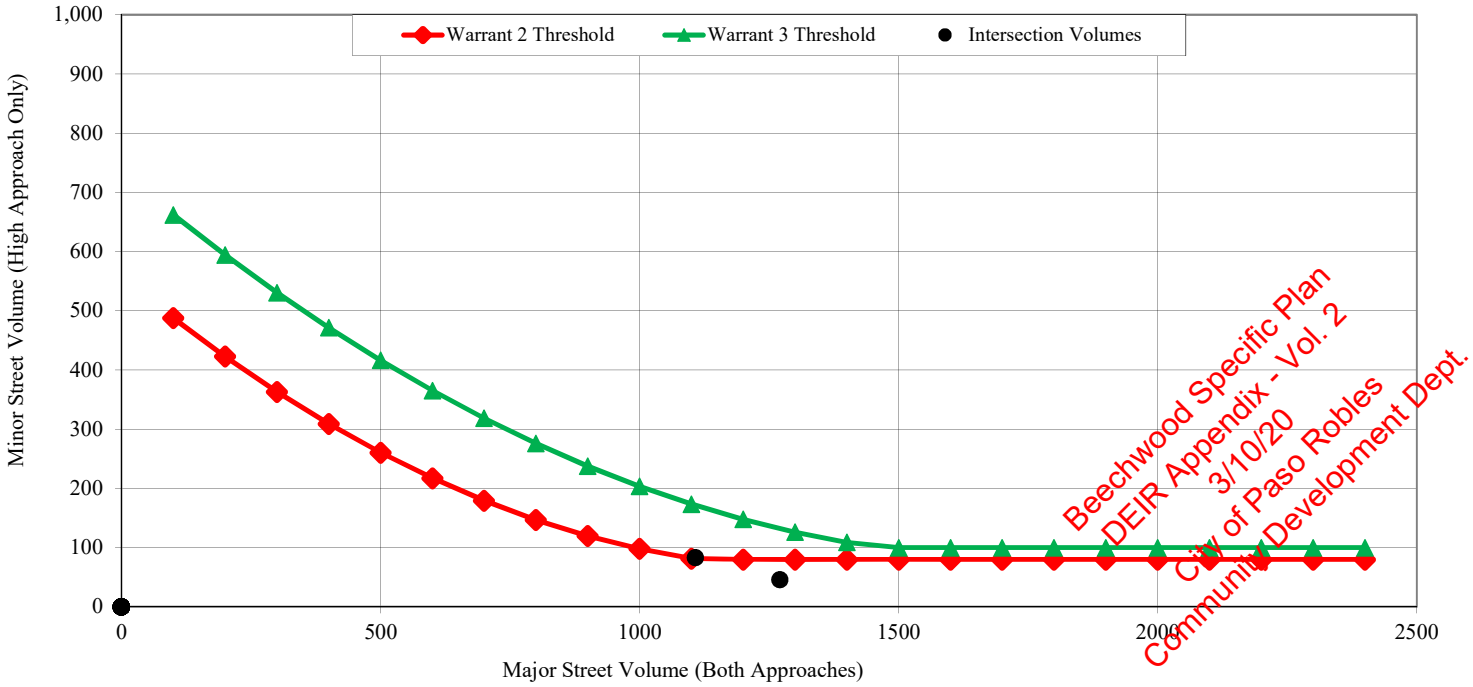
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	1 hour	0 (Cond. A) & 1 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1191 total, 83 minor, 1.2 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing Plus 911 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Riverbank Ln
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2491 vehicles	Total Approach Volume	129 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

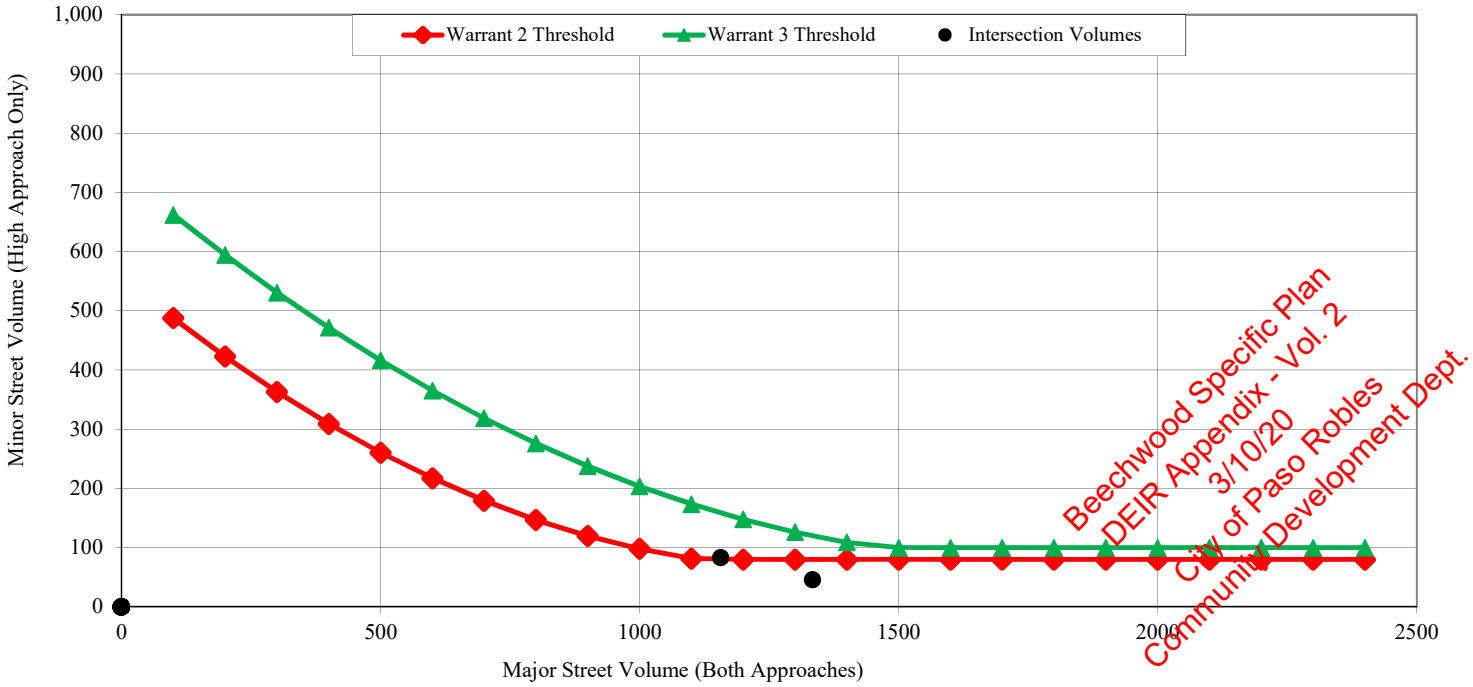
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	1 hour	0 (Cond. A) & 1 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1240 total, 83 minor, 1.4 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Existing Plus 674 Unit Project (PM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Charolais Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1191 vehicles	Total Approach Volume	1016 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

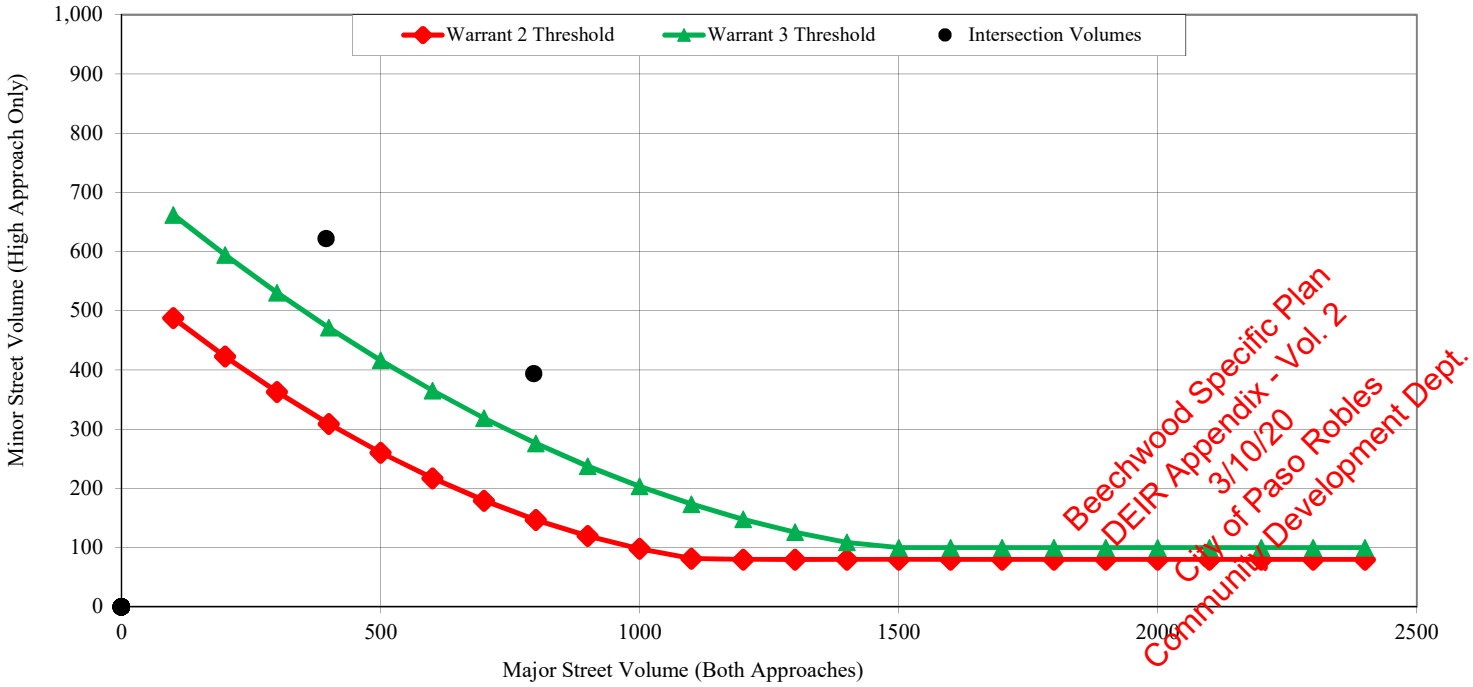
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	1 hour	1 hour	1 (Cond. A) & 1 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1190 total, 394 minor, 6.4 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Near Term

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Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1660 vehicles	Total Approach Volume	429 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

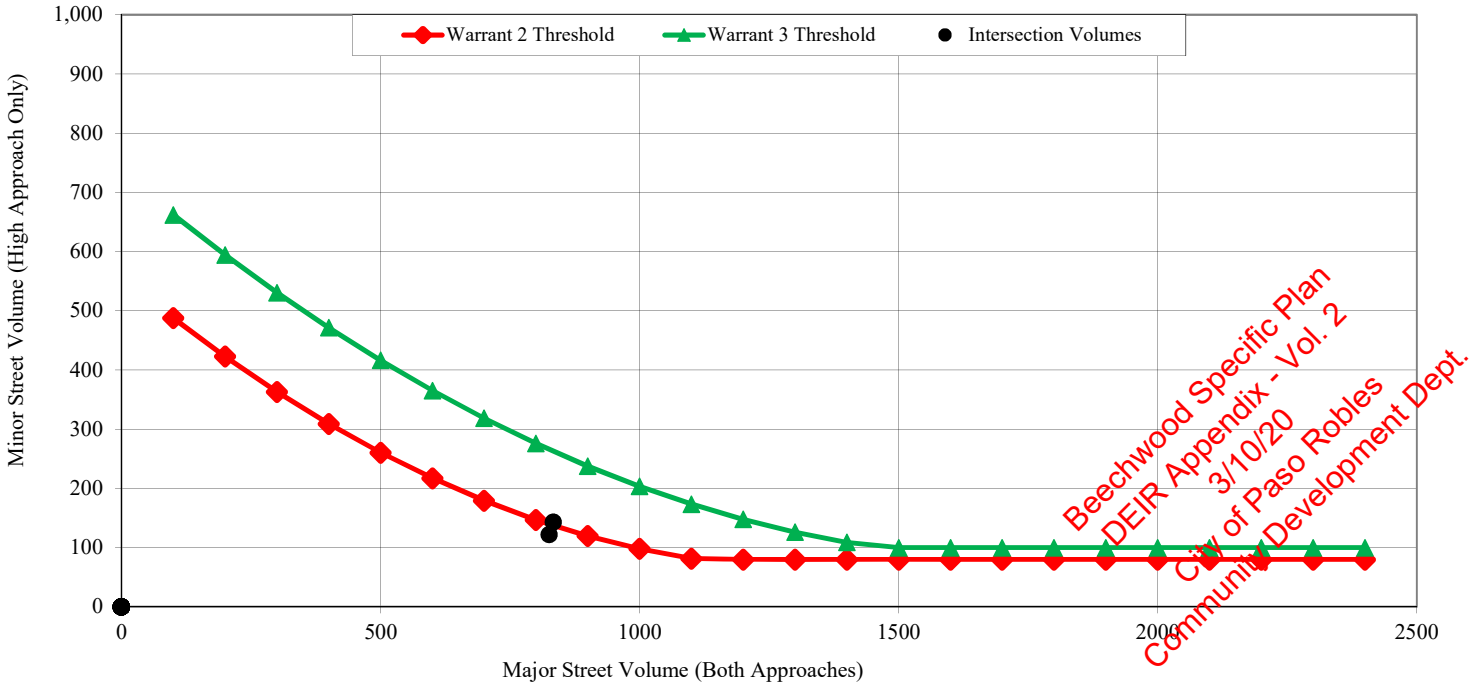
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1098 total, 143 minor, 2 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term Plus 554 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2005 vehicles	Total Approach Volume	433 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

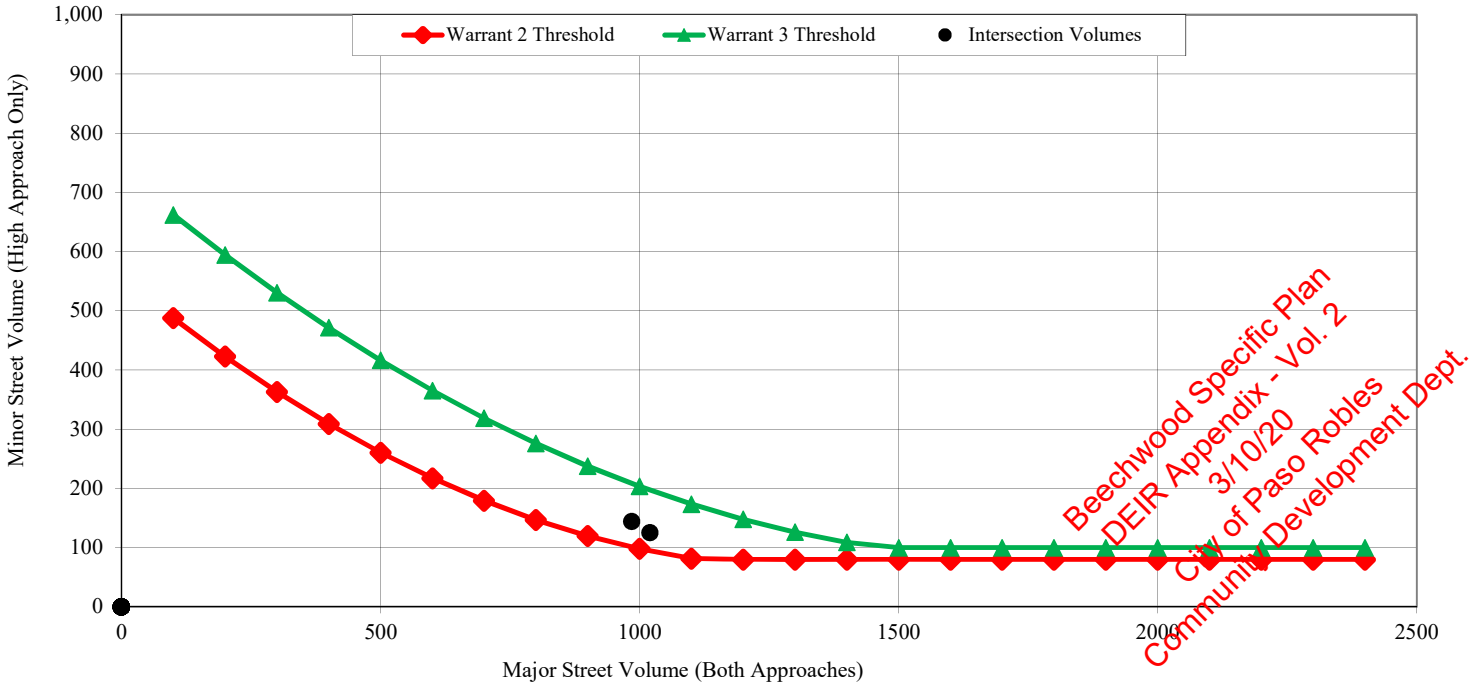
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Not Satisfied**
Required values reached for	1250 total, 144 minor, 4 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term Plus 674 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2189 vehicles	Total Approach Volume	435 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

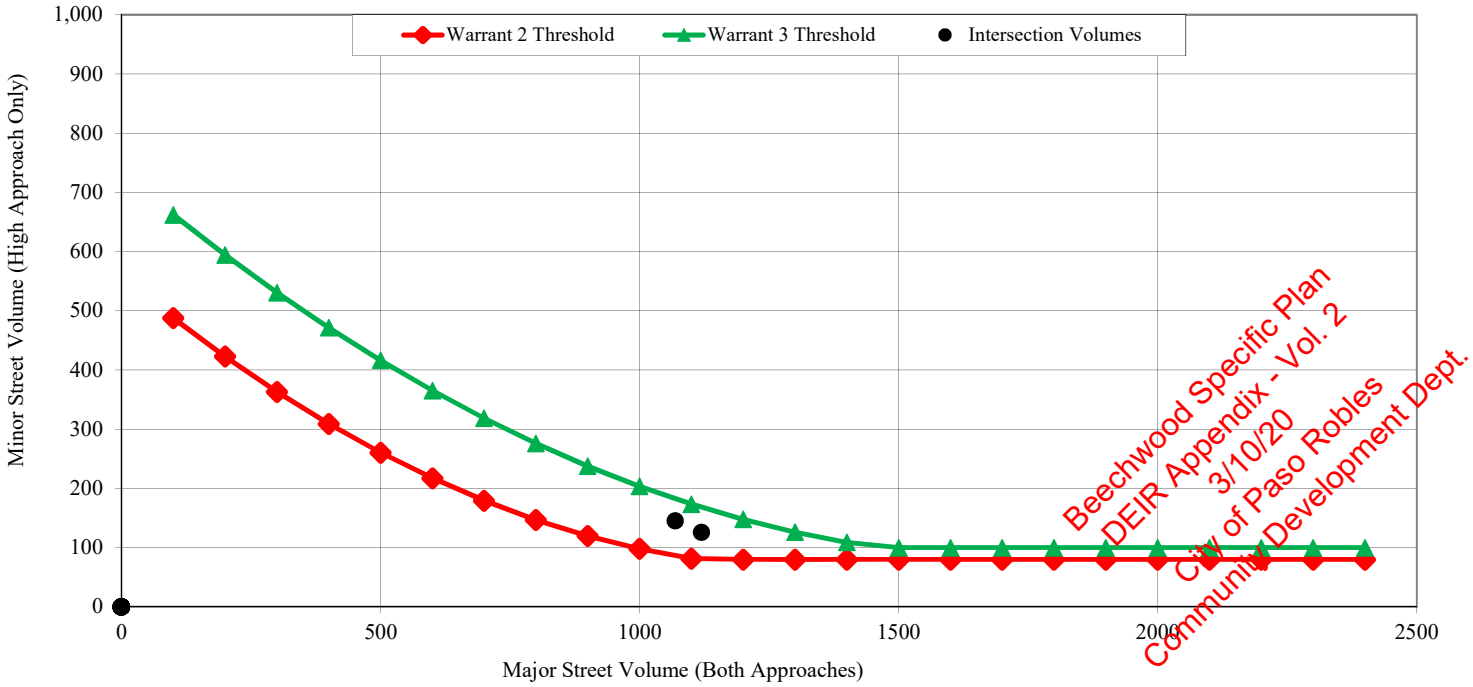
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Not Satisfied**
Required values reached for	1335 total, 145 minor, 6.4 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term Plus 674 Unit Project (PM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2189 vehicles	Total Approach Volume	435 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

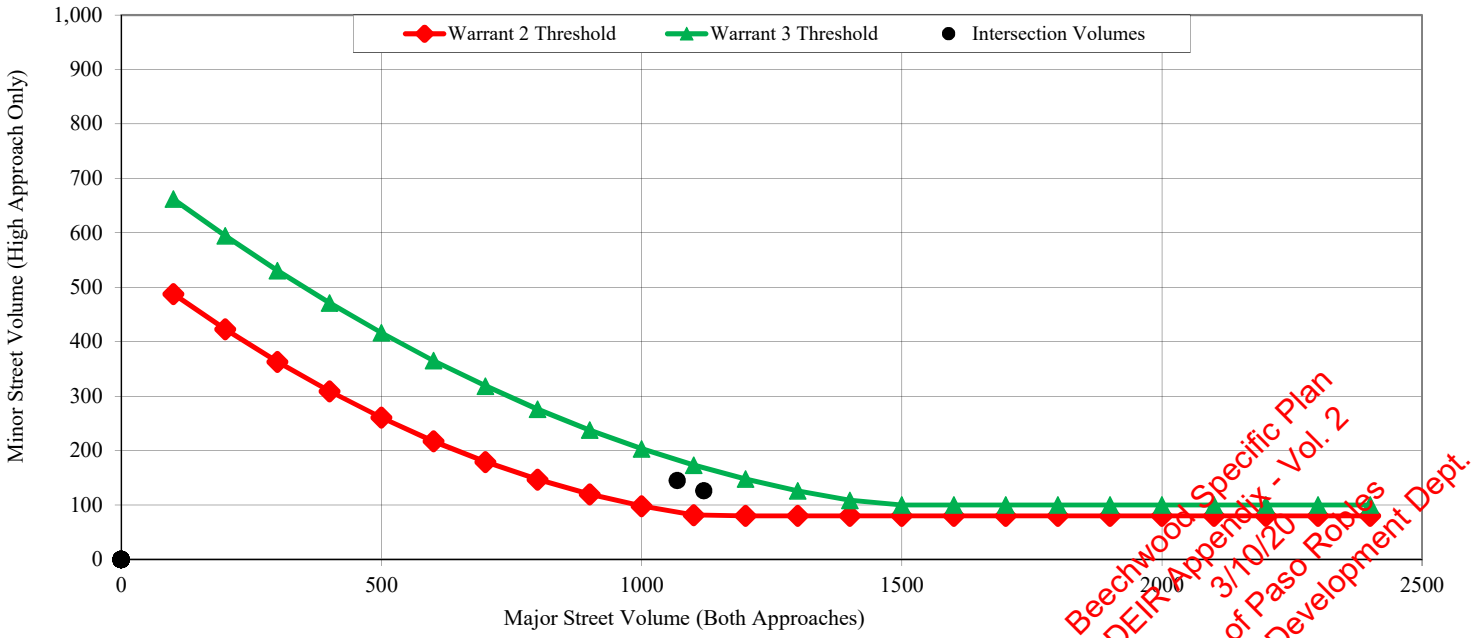
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1289 total, 126 minor, 2.1 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



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Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term Plus 911 Unit Project (PM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2328 vehicles	Total Approach Volume	437 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

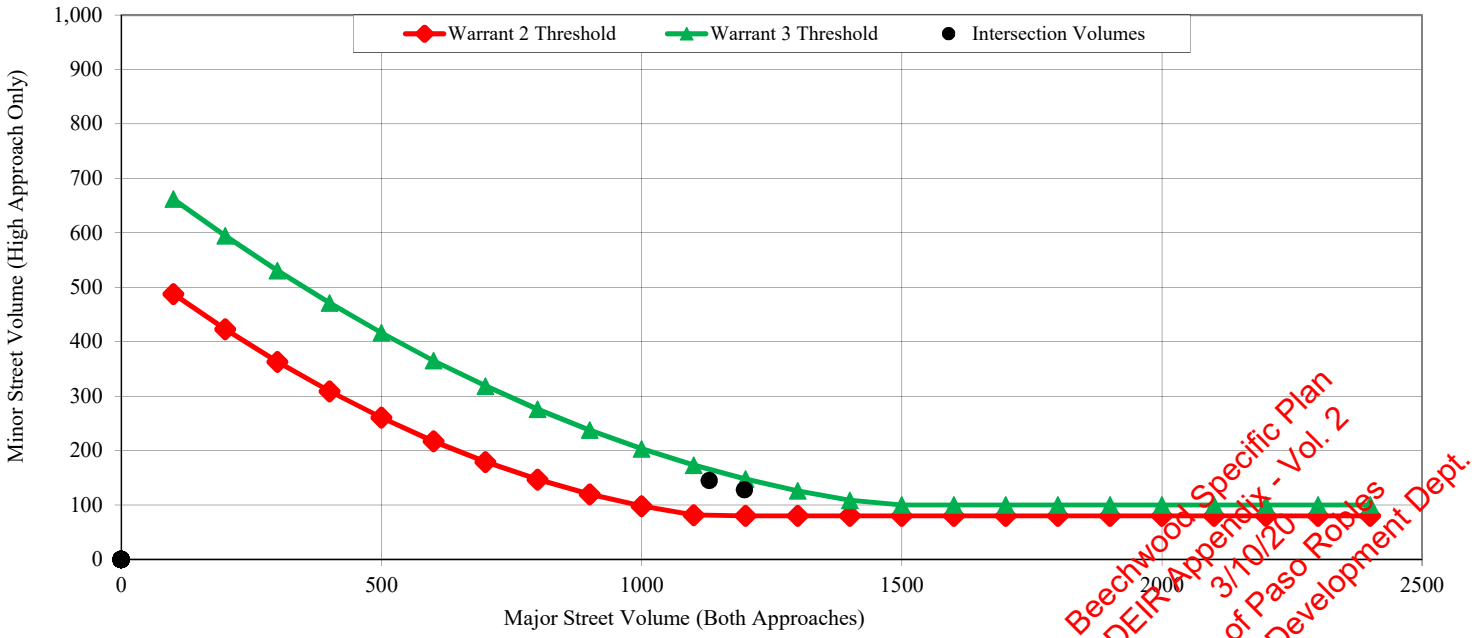
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1369 total, 128 minor, 2.9 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



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Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term Plus 554 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Meadowlark Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1706 vehicles	Total Approach Volume	882 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

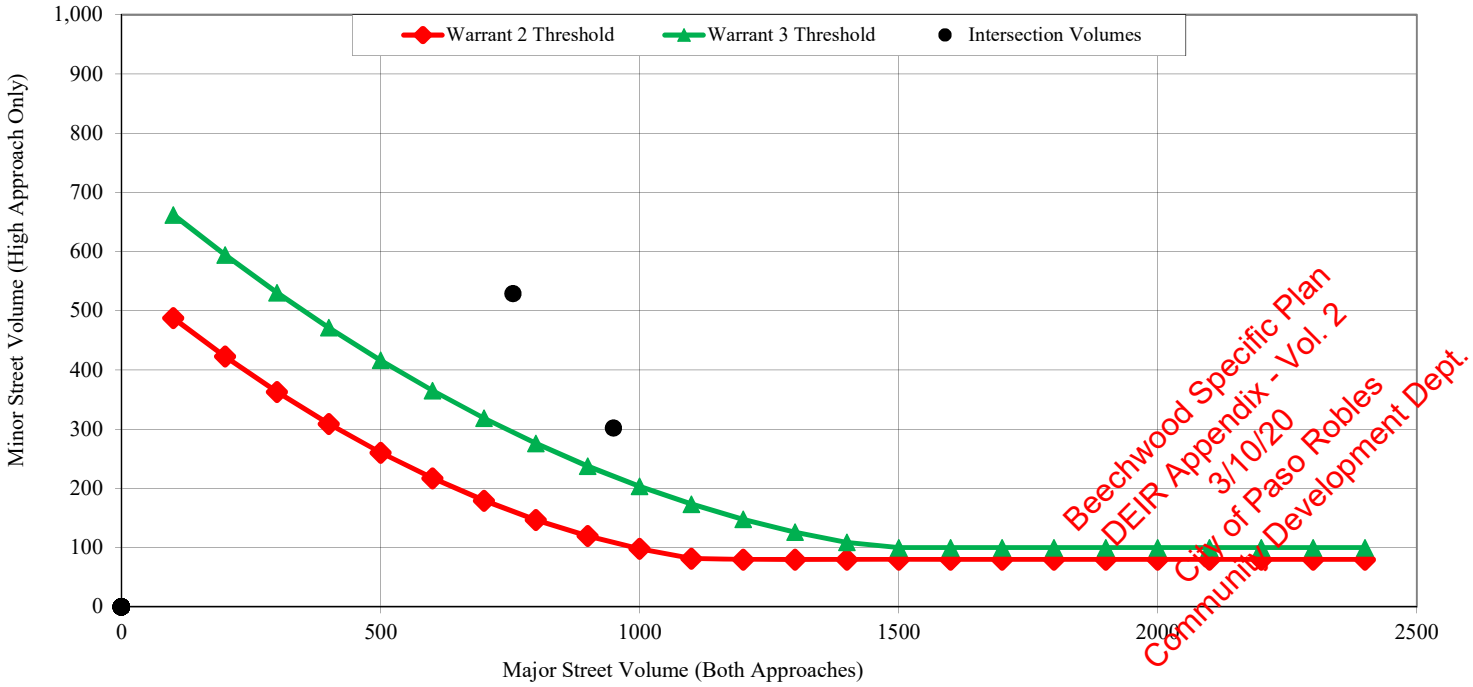
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1320 total, 529 minor, 9.3 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term Plus 674 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Meadowlark Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1873 vehicles	Total Approach Volume	980 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

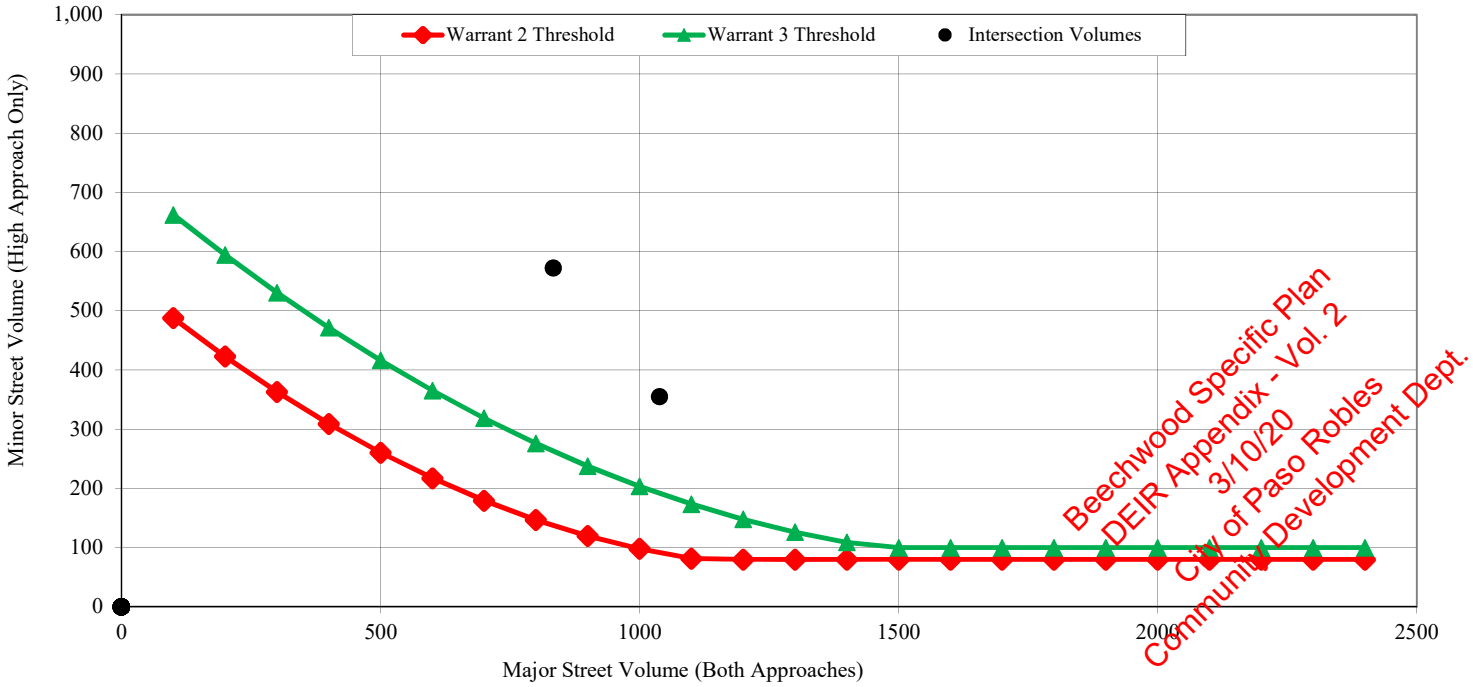
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1442 total, 572 minor, 15.1 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term Plus 911 Unit Project (PM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Charolais Rd
Analyzed with	2 or more approach lanes	Analyzed with	2 or more approach lanes
Total Approach Volume	1717 vehicles	Total Approach Volume	917 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

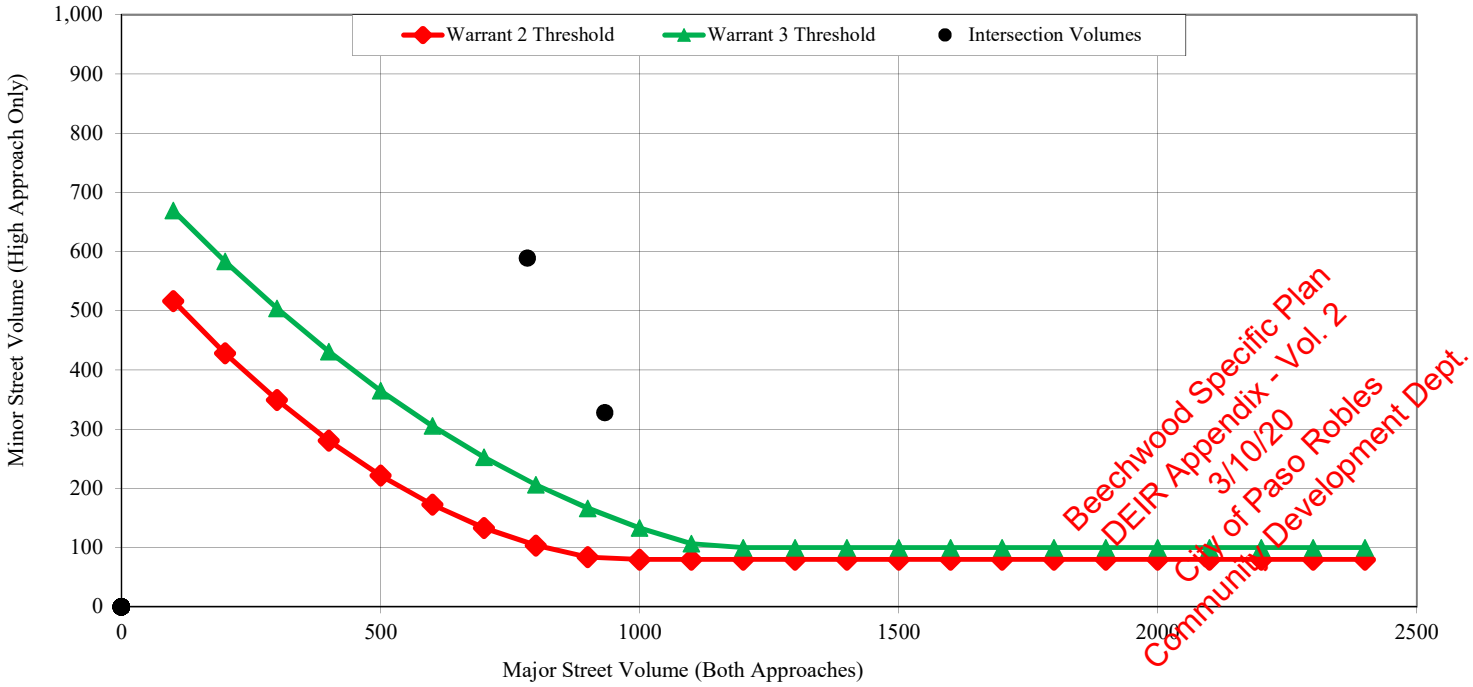
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	140	70	112 (Cond. A) & 56 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1373 total, 589 minor, 6.7 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	150	
Criteria - Minor Street High Side Delay (veh-hrs)	5	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term (AM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Riverbank Ln
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2367 vehicles	Total Approach Volume	140 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

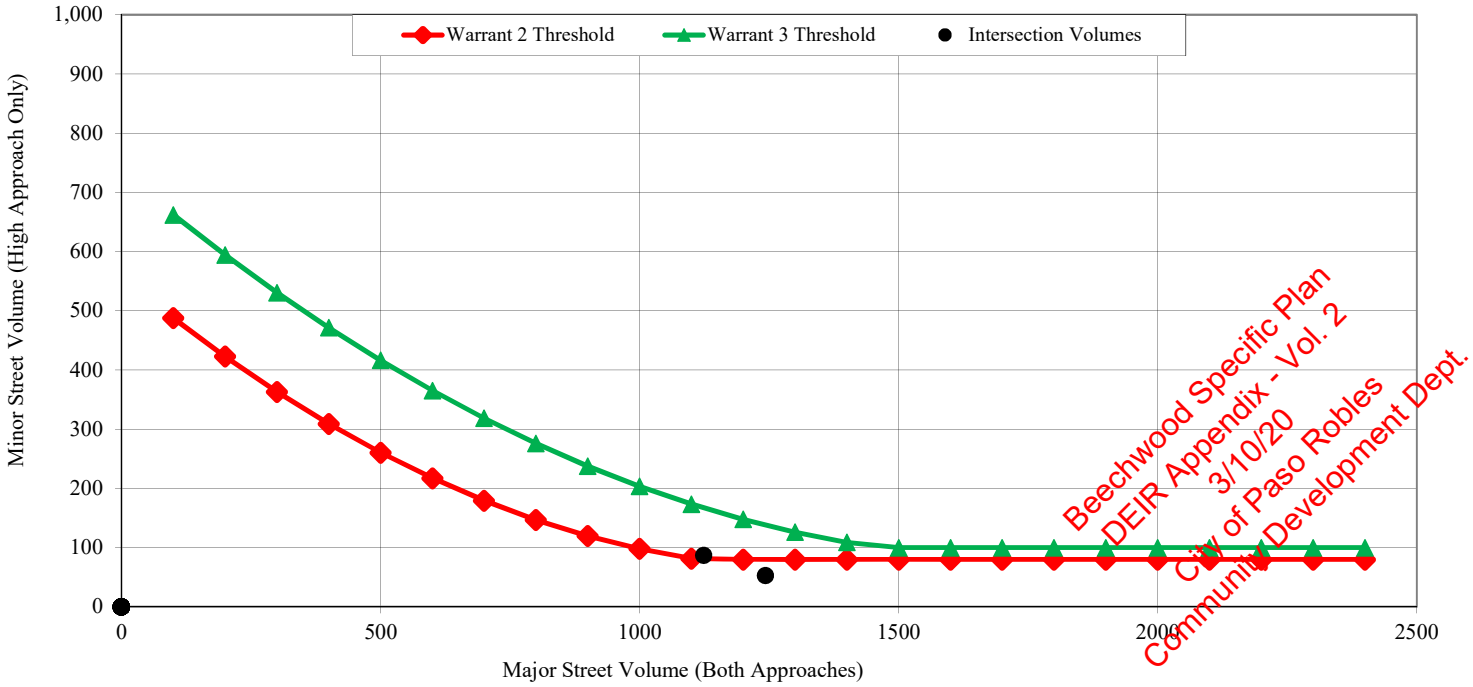
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	1 hour	0 (Cond. A) & 1 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1211 total, 87 minor, 0.9 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term Plus 674 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Riverbank Ln
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2794 vehicles	Total Approach Volume	140 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

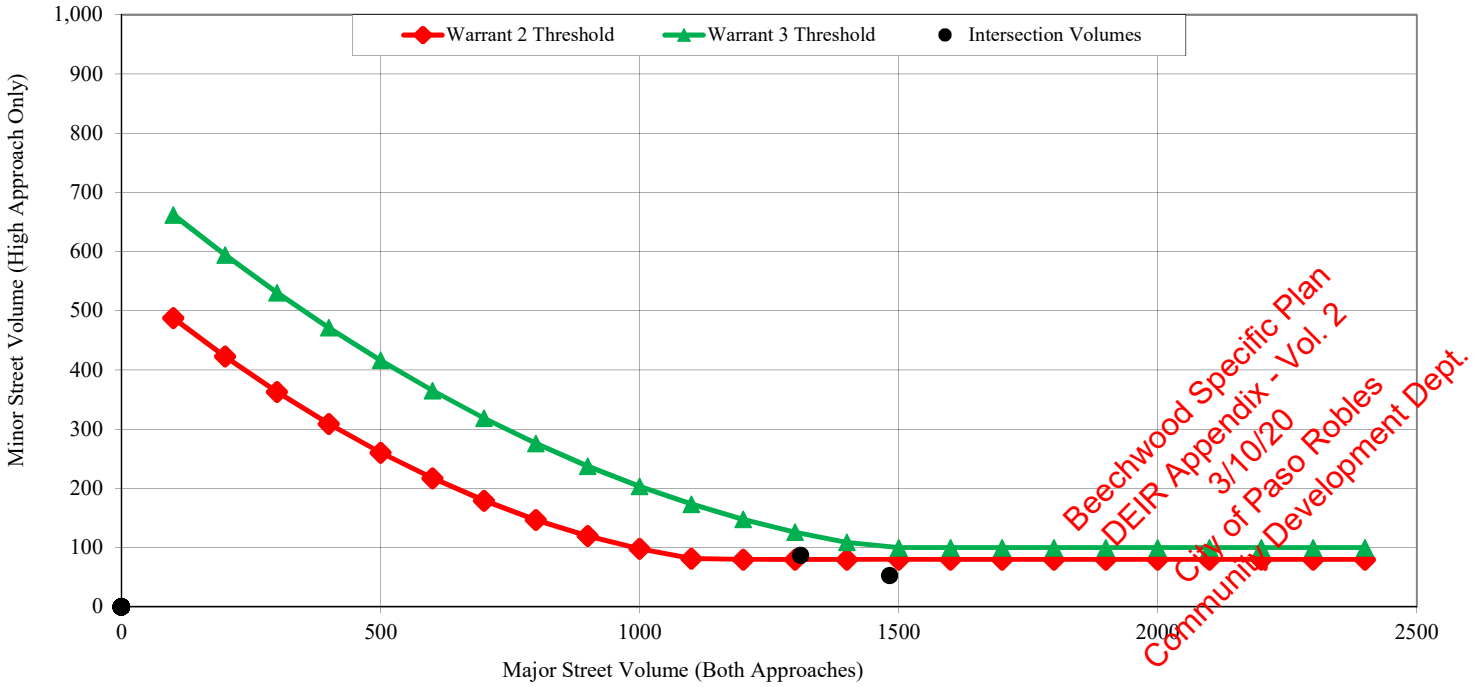
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	1 hour	0 (Cond. A) & 1 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1398 total, 87 minor, 1.5 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term Plus 911 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Riverbank Ln
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2906 vehicles	Total Approach Volume	140 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

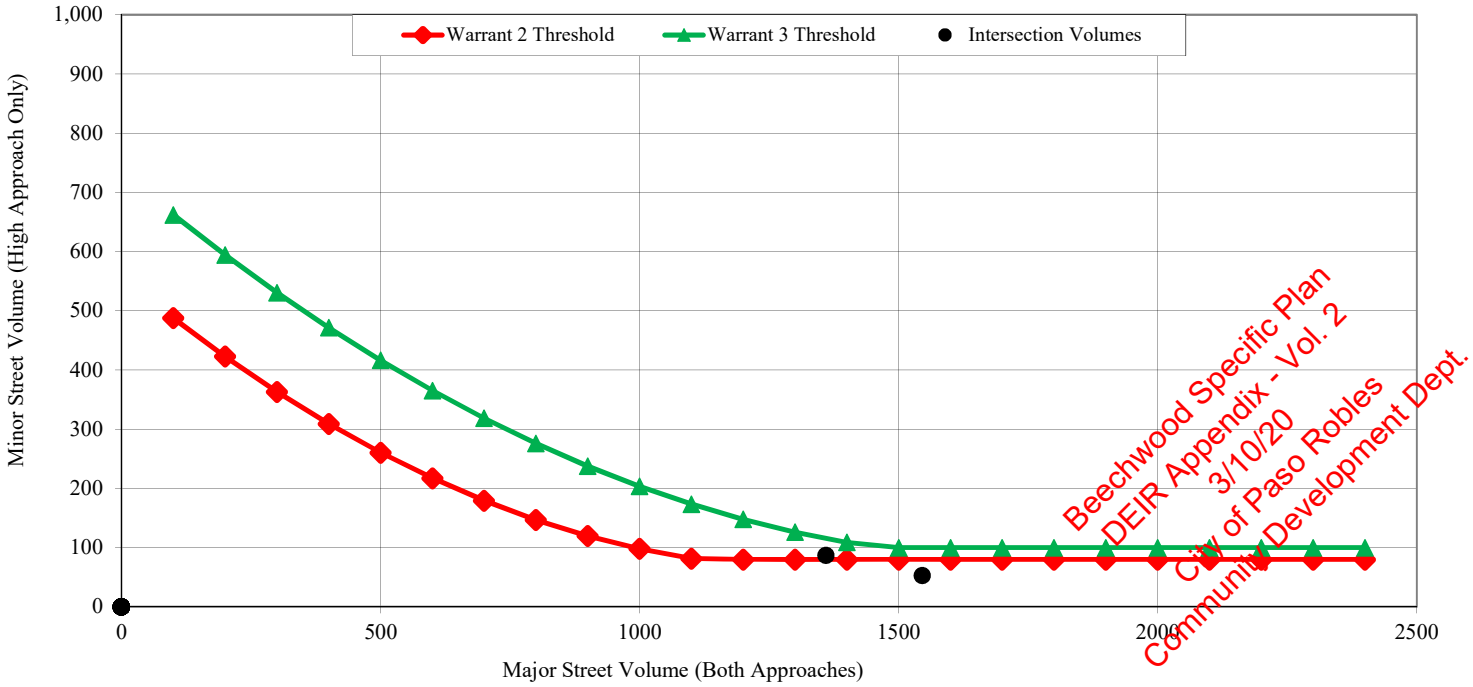
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	1 hour	0 (Cond. A) & 1 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1447 total, 87 minor, 1.7 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Near Term (PM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Charolais Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1111 vehicles	Total Approach Volume	917 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

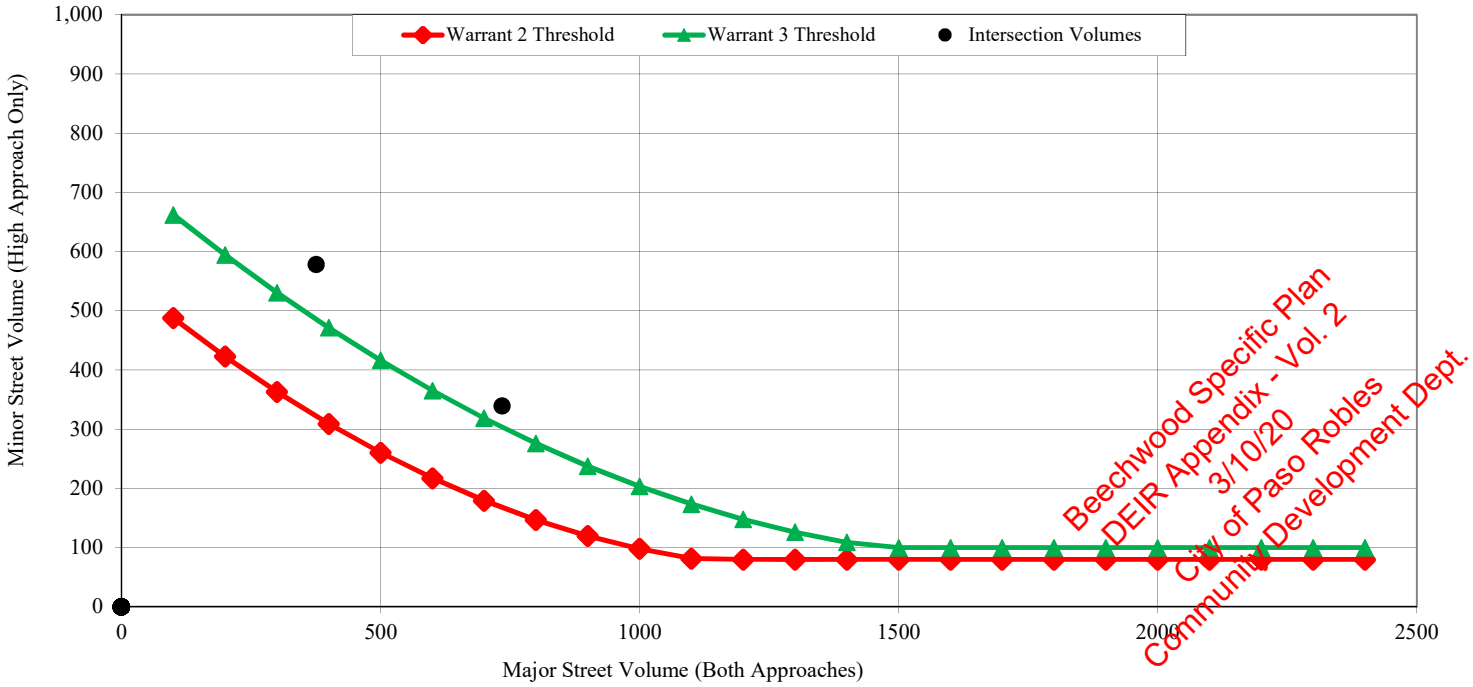
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	1 hour	0 hours	1 (Cond. A) & 1 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1074 total, 339 minor, 8.1 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Cumulative

Beechwood Specific Plan
DEIR Appendix - Vol. 2
3/10/20
City of Paso Robles
Community Development Dept.

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1773 vehicles	Total Approach Volume	542 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

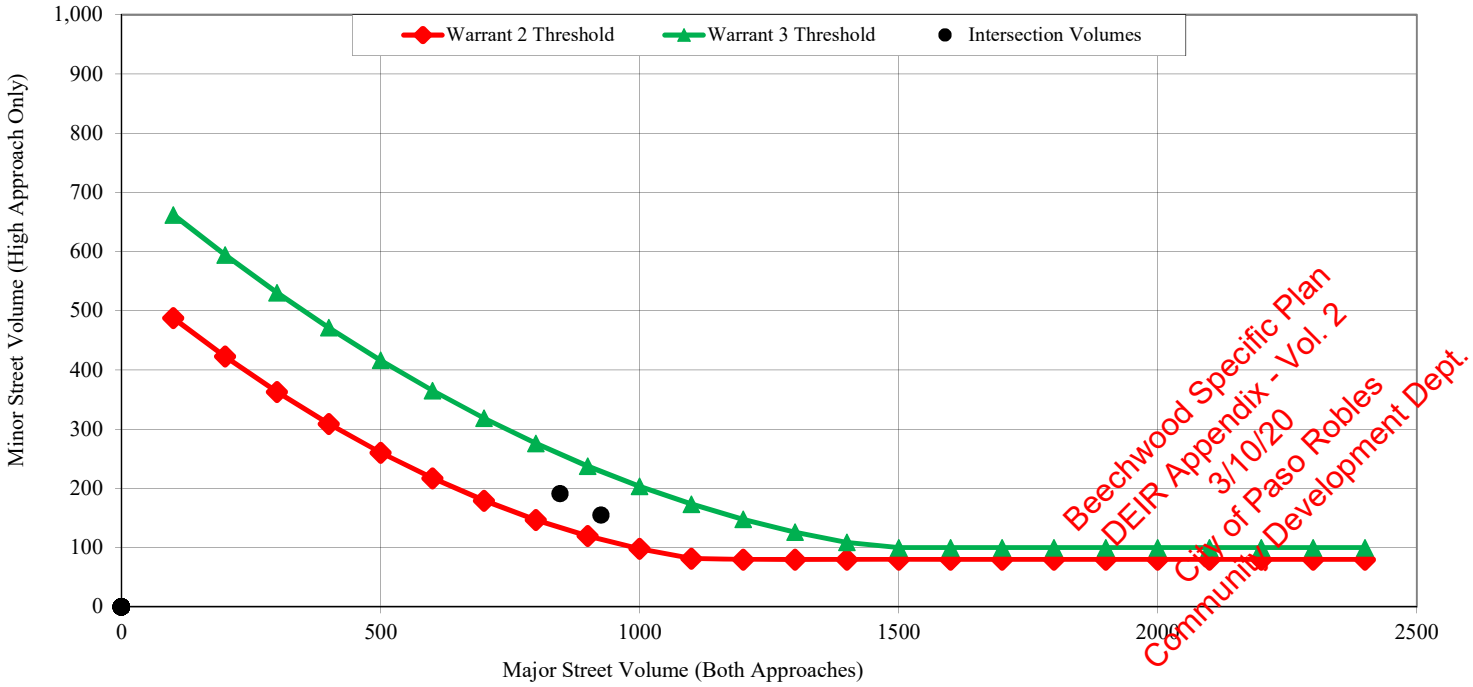
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Not Satisfied**
Required values reached for	1172 total, 191 minor, 5.5 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative (PM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1773 vehicles	Total Approach Volume	542 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

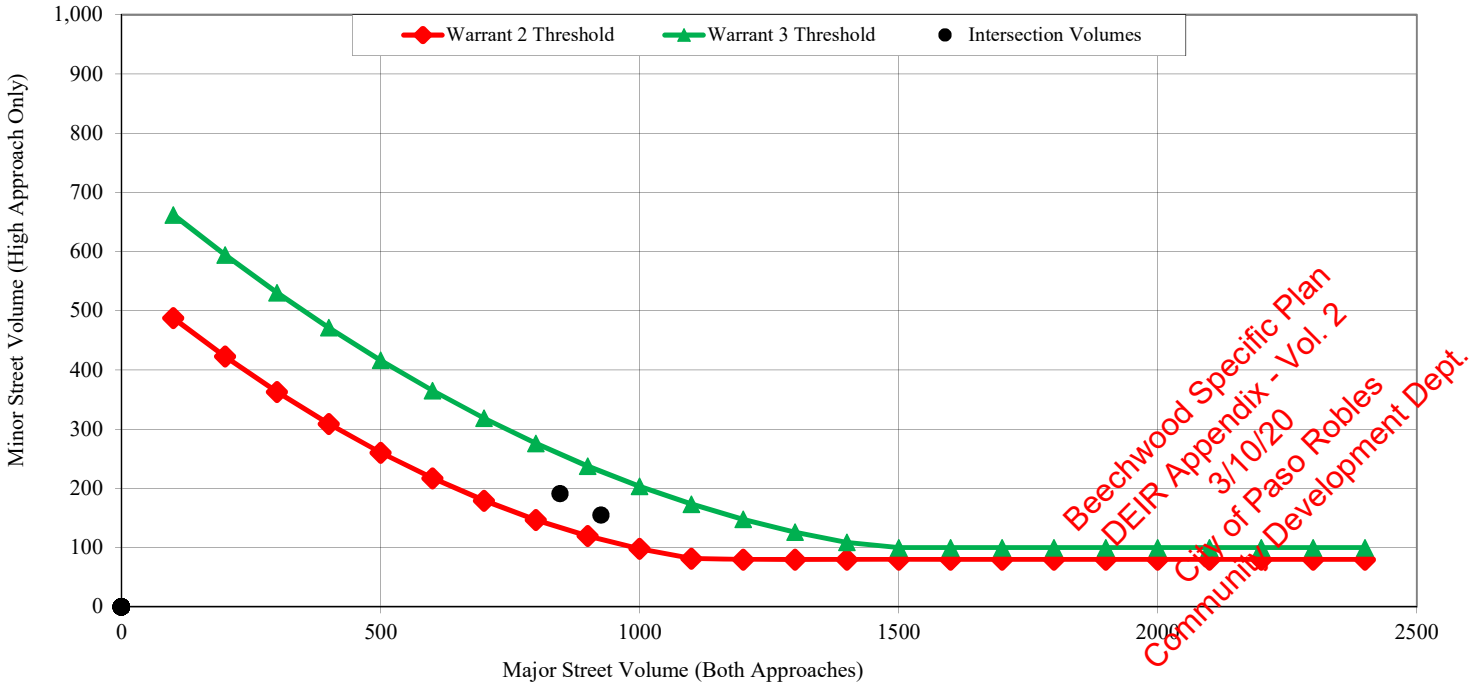
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1143 total, 155 minor, 1.8 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative Plus 674 Unit Project (PM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Stoney Creek Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2227 vehicles	Total Approach Volume	548 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

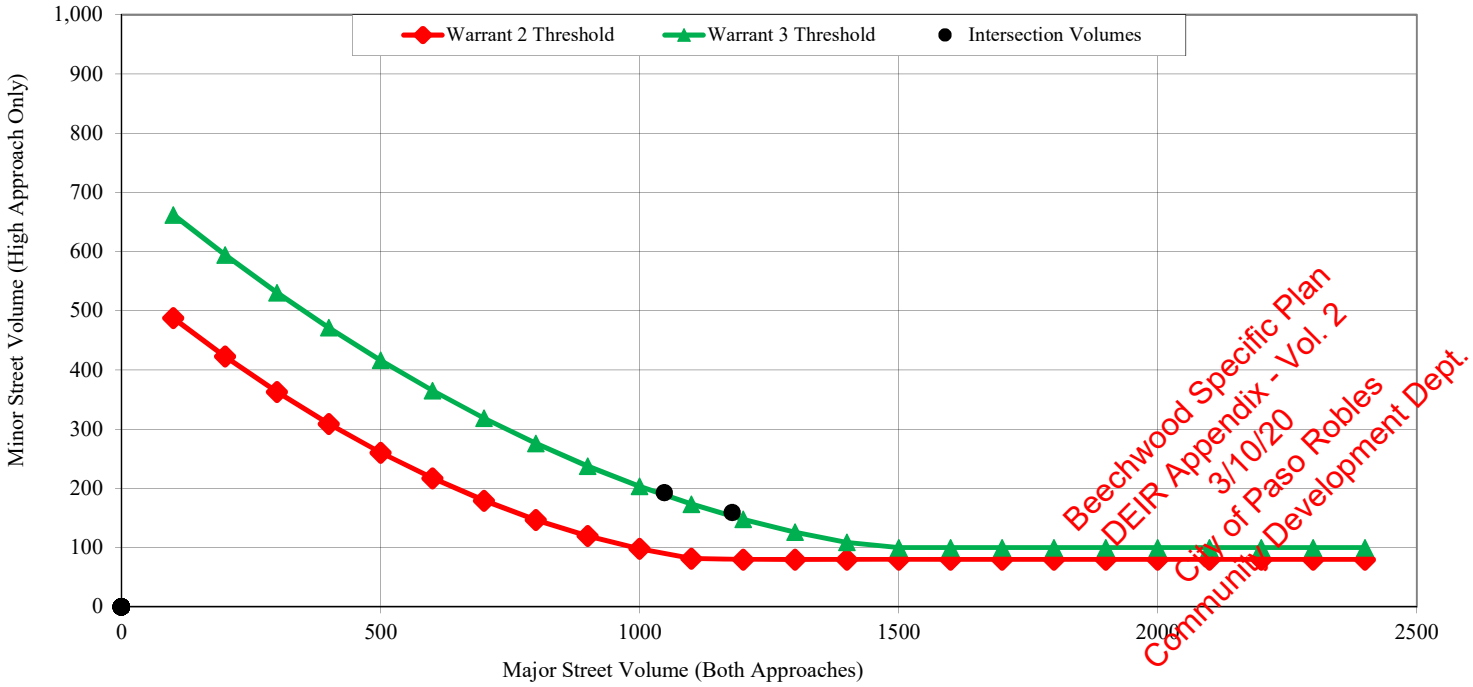
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1400 total, 159 minor, 5.3 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative Plus 554 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Meadowlark Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1778 vehicles	Total Approach Volume	878 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

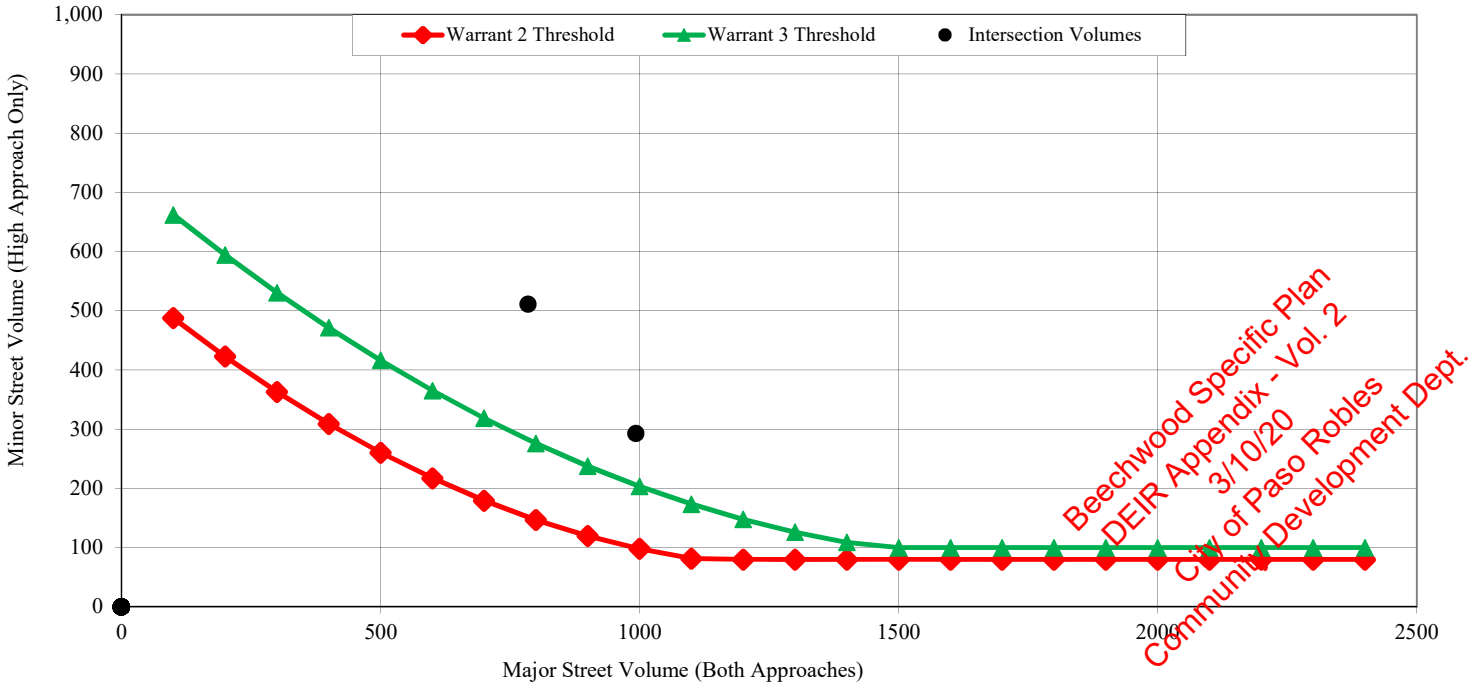
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1337 total, 511 minor, 5.1 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative Plus 674 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Meadowlark Rd
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1922 vehicles	Total Approach Volume	958 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

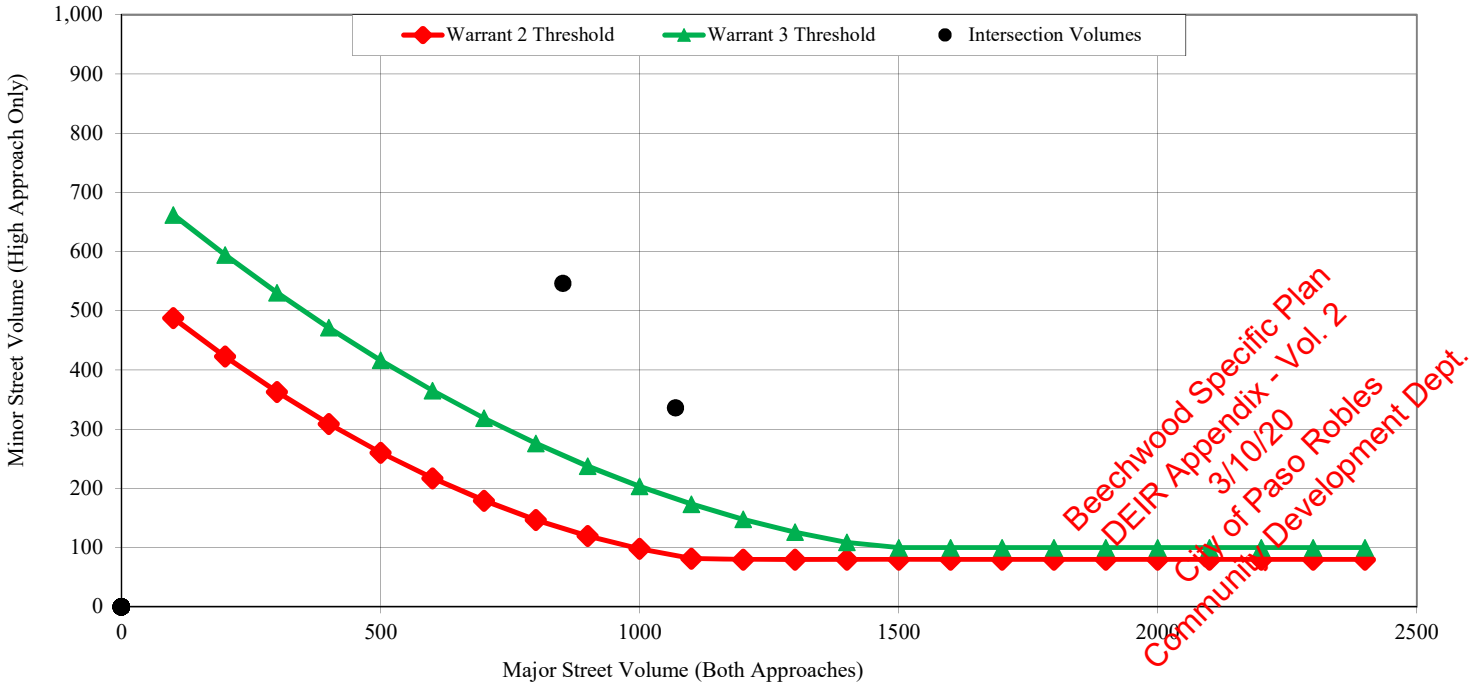
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1440 total, 546 minor, 12.6 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative Plus 911 Unit Project (PM)

Intersection Information			
Major Street (N/S Road)	Creston Rd	Minor Street (E/W Road)	Charolais Rd
Analyzed with	2 or more approach lanes	Analyzed with	2 or more approach lanes
Total Approach Volume	1778 vehicles	Total Approach Volume	912 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

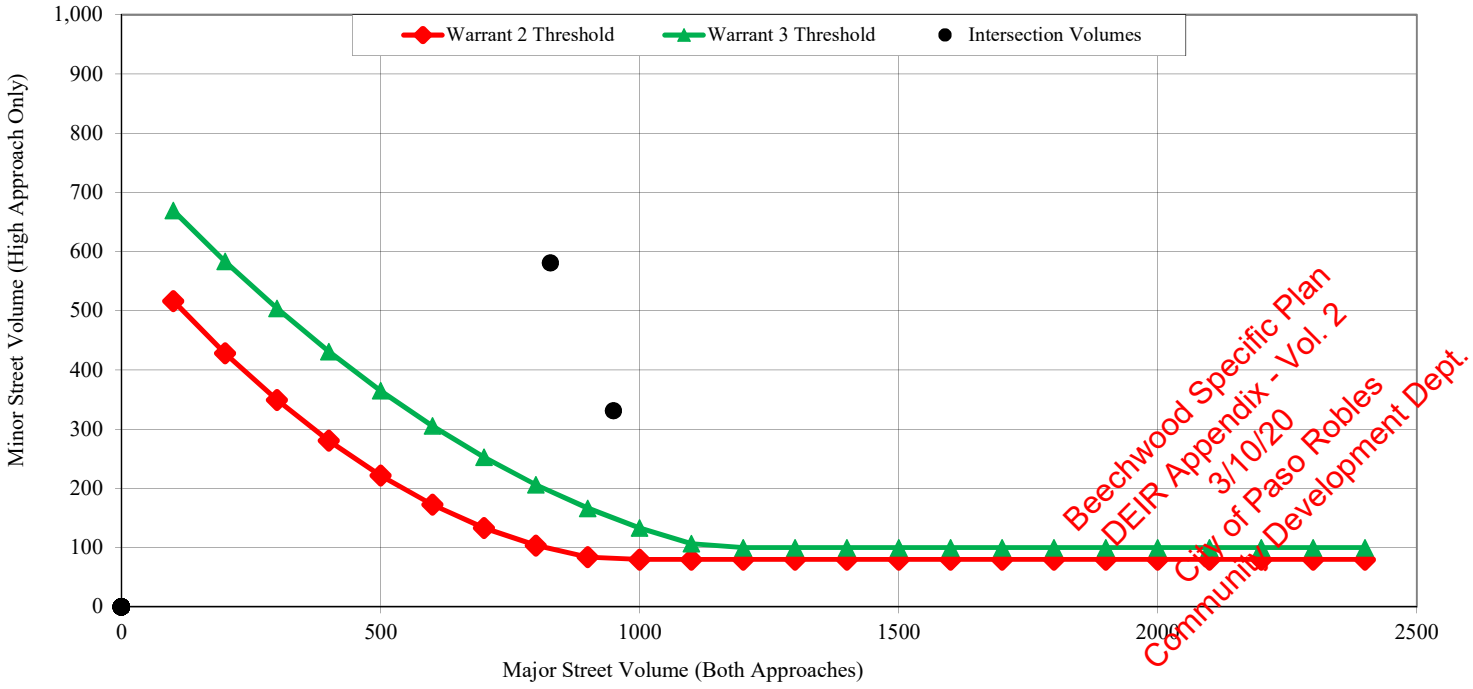
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	140	70	112 (Cond. A) & 56 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Satisfied**
Required values reached for	1409 total, 581 minor, 6.7 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	150	
Criteria - Minor Street High Side Delay (veh-hrs)	5	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative (PM)

Intersection Information			
Major Street (N/S Road)	Riverside	Minor Street (E/W Road)	US 101 SB Ramp
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	453 vehicles	Total Approach Volume	335 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

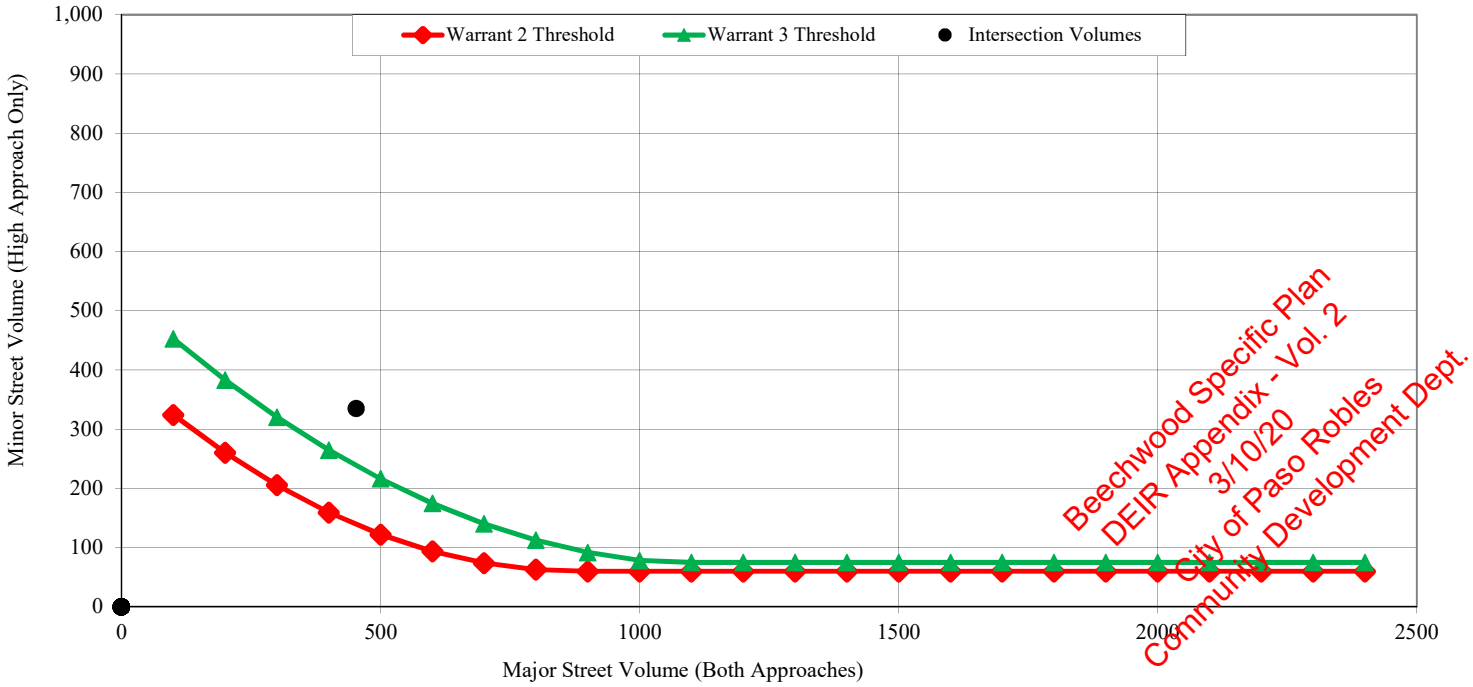
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	1 hour	0 hours	1 (Cond. A) & 1 (Cond. B)
Criteria - Major Street (veh/hr)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Satisfied**
Required values reached for	788 total, 335 minor, 2.7 delay	1 hour
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative (AM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Riverbank Ln
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2516 vehicles	Total Approach Volume	171 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

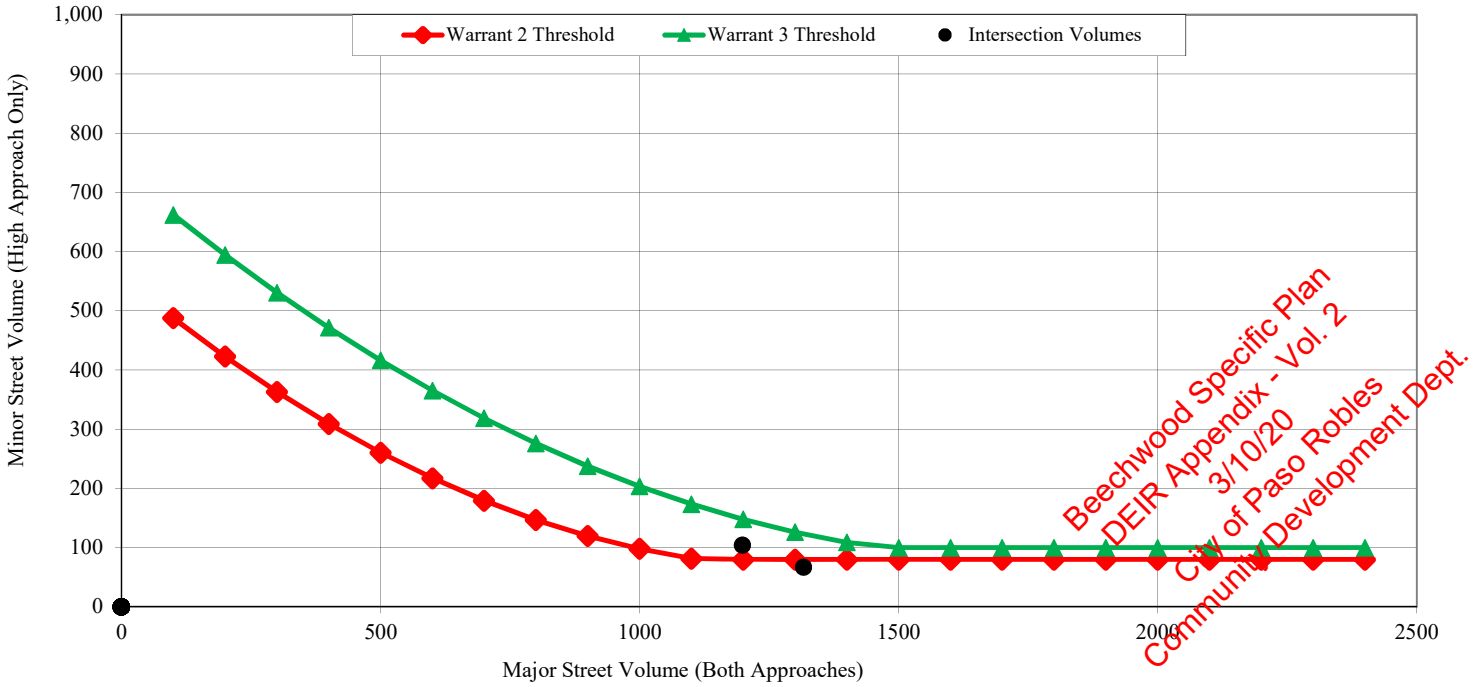
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	1 hour	0 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1303 total, 104 minor, 1.4 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative Plus 674 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Riverbank Ln
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2869 vehicles	Total Approach Volume	171 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

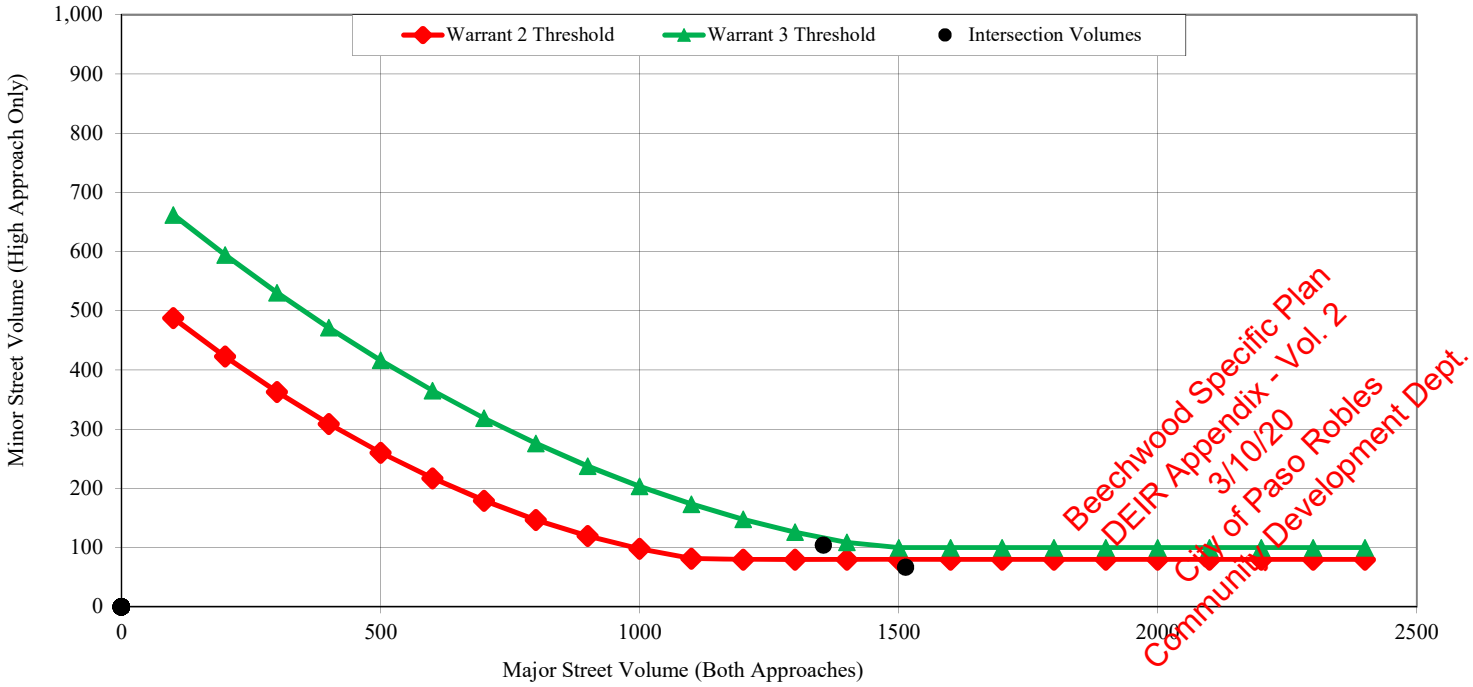
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	1 hour	0 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1459 total, 104 minor, 2.3 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Beechwood SP
Project/File #	2019_114
Scenario	Cumulative Plus 911 Unit Project (AM)

Intersection Information			
Major Street (N/S Road)	S River Rd	Minor Street (E/W Road)	Riverbank Ln
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2961 vehicles	Total Approach Volume	171 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

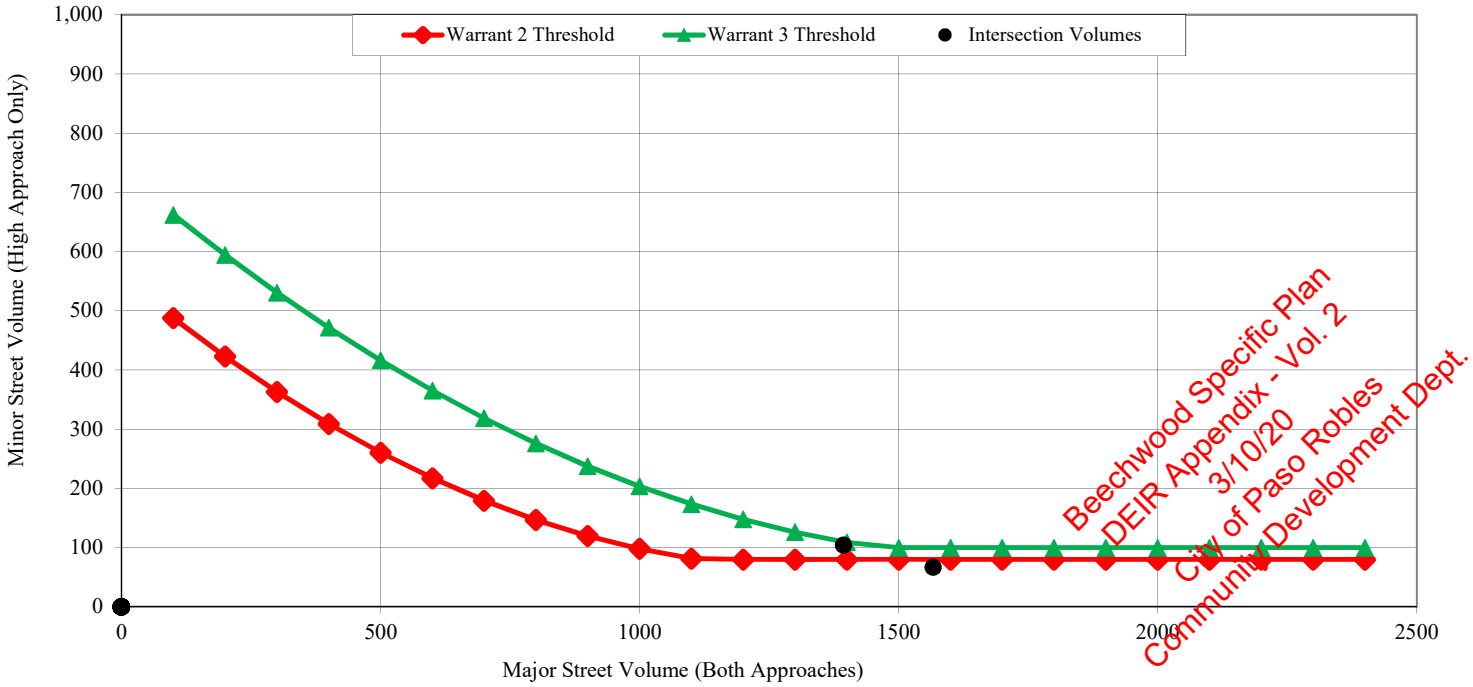
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	1 hour	0 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1498 total, 104 minor, 2.7 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Appendix E: Agency Comment/Response

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Community Development Dept.

Central Coast Transportation Consulting
Traffic Engineering & Transportation Planning

COMMENT/RESPONSE SUMMARY

Date: December 12, 2018

From: Joe Fernandez, Travis Low, and Vanessa See

Project: Beechwood SP TIS MOA and Olsen-Chandler SP TIS SOW – Caltrans Comment Response (received October 2, 2018)

Document: Beechwood Specific Plan TIS Assumptions Memo

ID	Comment	Response/Action
CT-001	This project represents a portion of what had been previously presented as a larger development, the Chandler portion of the project reached north to Union Road. This project should evaluate all the same intersections as the larger project would be required to study to allow for trip redistribution evaluation and impacts when the rest of the larger area is developed.	The traffic study will be prepared in conjunction with the study for the Olsen-Chandler project. Cumulative Plus Project and Near Term Plus Project conditions will include both projects.
CT-002	The Beechwood and Olsen-Chandler projects should study the same locations with the same requirements.	The Beechwood traffic study will be prepared in conjunction with the study for the Olsen-Chandler project. There will be some difference in local intersections studied but the same Caltrans facilities will be studied.
CT-003	The intersections should be counted for 24 hours.	Hourly count data on US 101 north of Main Street shows that on midweek school days during the previous school year, the peak hours in both directions most frequently occurred between 7-9 AM and 4-6 PM. On the counted day (Wed. 6/6/18) the peak hours in both directions also occurred during these times and the peak hour volumes were all within 2% of the average. Hourly count data on SR 46E west of McMillan Canyon Road shows that on midweekdays from July through September 2018, the PM peak hour in both directions most frequently occurred between 4-6 PM and had a substantially larger volume on average than the AM peak hour. Tables have been provided as Attachment 1. This data indicates that 7-9 AM and 4-6 PM intersection counts are sufficient.

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CT-004	The following intersections need to be added: • SR 46 E/Buena Vista Drive • SR 46 E/Airport Road • SR 46 E/Mill Road	These intersections will be added to the study.
CT-005	The US 101 Segments need to be studied using ADT volumes to match the data collect on the local roads and roadway segments.	Please provide Caltrans ADT thresholds.
CT-006	The following US 101 segments need to be added: • US 101 NB at SR 46 W (on and off ramps) • US 101 SB at SR 46 W (on and off ramps)	These segments will be added to the study using data from the on-going SR 46W/US 101 PA&ED update.
CT-007	Given the projects location, all new trips should be considered Primary Trips to and from the State Right-Of-Way. For the local internal network, the methodology for Pass-by and Diverted-Link trips needs to be developed and reviewed. The ITE Trip Generation Handbook 3rd Edition documentation (Calculations, site map with driveway locations, the +/- trip distribution map, etc.) should be required.	Pass-by and diverted link trips will be estimated consistent with the City's TIS guidelines and industry standard practice
CT-008	This Memo does not appear to include the Union Road flyover improvements or the SR 46 West roundabout interchange improvements, please include if and/or which scenarios (near term, cumulative) those improvements will be considered in for analysis.	The Union Road and SR 46W improvements will be included in the Cumulative scenarios but not Near Term scenarios.
CT-009	Caltrans requests that the Synchro and/or Sidra models use HCS 6 analysis methodology and the made available to Caltrans for review.	The HCM 6 methodology will be used unless unique intersection configurations or signal phasing require a different method. The models will be made available to Caltrans for review.
CT-010	Page 2, 3, 5 Table 2, 11 – The 17th Street/Riverside Ave at SB HWY 101 is missing from the tables and portions of the analysis. Update all figures and tables throughout the document and updated the analysis as necessary.	The Riverside Ave/17th St ramps are included in the freeway analysis. The project is not expected to add a significant amount of traffic to these ramps.
CT-011	Page 7 Table 3 – The table states "Storage Length", but the lengths provided are the total length of the pocket. The total length of the pocket includes deceleration length and storage length. The storage length in the table needs to be corrected.	Deceleration lengths per the HDM will be subtracted from total pocket lengths for approaches on SR 46 E only. For all other pockets, no adjustment will be made since partial deceleration in the through lane, if necessary, is consistent with driver expectation.

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CT-012	Page 8 – Provide more clarification on how the truck percentages for HWY 101 were calculated and distributed, include the calculations. Clarify where the Niblick Road Bridge counts were taken and why this location was chosen. Do the counts support an even average being distributed along the corridor for PHF and truck percentages? Does the PHF fluctuate along the corridor in those three segments?	The ramp data supports consistent truck percentages and PHFs along the corridor except as follows: higher NB and SB truck percentages north of SR 46 E, lower NB PHF north of SR 46 E. Adjustments will be made for those locations based on the ramp data. The Niblick Road Bridge count were collected where the bridge crosses over HWY 101.
CT-013	Clarify in the Memorandum that the Leisch weaving methodology will be used in the analysis.	The Leisch weaving methodology will be used instead of the HCM method.
CT-014	Page 9-10 – Trip Generation Rates applied the Fitted Curve Equation. Each of these locations qualify for the Fitted Curve Equation. The consultant used the "Peak Hour of Adjacent Street Traffic" for the calculations, "Peak Hour Generator" should be used to determine the trips generated for the project. The 24 hour counts provided in the appendices provide data that roadways approaching and intersections adjacent to SR46E and HWY 101 have peak hours that are not between 7-9am and 4-6pm. Traffic counts for HWY 101 and SR46E were only completed between the hours of 7-9am and 4-6pm, so there is deficit in the data collected. This deficit could also affect the existing peak hour factor calculations for the ramps (as described on page 8) and the information provided in Table 5 on page 9.	See response to CT-003. Where peaks on local facilities occur outside of the typical peak period the difference is minimal, and the project's peak trip generation is expected to coincide with the peak hours collected.
CT-015	Page 11 – This project area is so large it might be beneficial to add the major attractors for reference such as schools and existing major retail centers. This would allow reviewers to better understand where trips may end or originate.	Major attractors will be added to the Project Trip Distribution figure.
CT-016	Page 12 – Explain why the no project scenario will not include any dwelling units on the project site, that paragraph is unclear. Clarify if the no project scenario will or will not include the Shopping Center.	The no project scenarios will not reflect any land use changes on the project site, e.g. the existing condition.
CT-017	Existing Peak Hour Factors cannot be carried forward for future analysis. The Peak Hour Factor (PHF) of 0.92 (or the recommended default value from the HCM for the roadway) will be used for "Near-Term" and "Cumulative" forecasts.	For Near Term and Cumulative conditions, a PHF of 0.92 (or the recommended default value from the HCM for the roadway) will be used unless the existing PHF exceeds 0.92 under existing conditions, in which case the higher PHF will be used.

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CT-018	The intersection turning movement counts provide PHF values for each leg of the intersection, the synchro sheets use the intersection average. To provide the best model, the more specific PHF values should be used in Synchro.	The intersection average was used per HCM 6 Chapter 19: "If peak hour factors are used, a single peak hour factor for the entire intersection is generally preferred because it will decrease the likelihood of creating demand scenarios with conflicting volumes that are disproportionate to the actual volumes during the 15-min analysis period."
CT-019	Truck Percentages should be rounded up, not down for the Synchro model.	Truck percentages will be rounded up, not down.
CT-020	The Bicycle counts taken at location #4 - 13th Street and Riverside Avenue were taken on the day of the AIDs Life Cycle Event. This needs to be noted and perhaps new counts taken.	Note will be added. The PM bicycle counts, as well as the AM bicycle counts on the unaffected approaches, show that typical bicycle demand at the intersection is not large enough to have a significant effect on the analysis results.

Document: Olsen-Chandler Specific Plan TIS Scope of Work

ID	Comment	Response/Action
CT-021	Task 3 is proposed as the Project Trip Generation and Distribution. This task includes the Memorandum of Assumptions, as well as the Trip Generation and Distribution. This should be Task #1. It is difficult to determine which intersections need to be studied without knowing the type of land uses and development proposed, where the proposed trips will be going on the roadway network and what intersections will be impacted.	Trip Generation and Distribution will be performed first, before finalizing study intersections.
CT-022	This scope represents a portion of what has been previously presented as a larger development, where the Chandler portion reached north to Union Road. This project should evaluate all the same intersections as the larger project will be required to study to allow for trip redistribution evaluation and impacts when the rest of the larger area is developed.	See response to CT-001.
CT-023	The Beechwood and Olsen-Chandler projects should study the same locations with the same requirements. Please update Beechwood as necessary to match all study requirements.	The same Caltrans facilities will be studied, see response to CT-002. The Beechwood study requirements will be updated to match Olsen-Chandler.

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CT-024	Given the projects location, all new trips should be considered Primary Trips to and from the State Right-Of-Way. For the local internal network, the methodology for Pass-by and Diverted-Link trips needs to be developed and reviewed. The ITE Trip Generation Handbook 3rd Edition documentation (Calculations, site map with driveway locations, the +/- trip distribution map, etc.) should be required.	See response to CT-007.
CT-025	It is anticipated that the Beechwood and Olsen-Chandler Traffic Impact Studies will be coordinated.	Agreed, see response to CT-002.
CT-026	[Task 1- Data Collection] Please, include a map with all the study area intersections marked.	A study intersection map will be provided.
CT-027	[Task 1- Data Collection] The intersections should be counted for 24 hours. The traffic counts provided by the Beechwood Traffic Impact Memorandum showed intersections in this area have A.M. and P.M. peak hours that do not fall between the typical A.M. and P.M. commuter peak hours. Clarify the hours of data collection.	See response to CT-004.
CT-028	[Task 1- Data Collection] The following intersections need to be added: • SR 46 E/Buna Vista Drive • SR 46 E/Airport Road • SR 46 E/Mill Road	Intersections will be added per the City's TIA Guidelines. See response to CT-004.
CT-029	[Task 1- Data Collection] The US 101 Segments need to be studied using ADT volumes to match the data collect on the local roads and roadway segments.	See response to CT-005.
CT-030	[Task 1- Data Collection] The following US 101 segments need to be added: • US 101 NB at SR 46 W (on and off ramps) • US 101 SB at SR 46 W (on and off ramps) • US 101 SB at Riverside Avenue/Pine Street (Off Ramp)	The SR 46 W ramps will be added, see response to CT-006. Also, the Riverside/Pine SB off ramp will be added.
CT-031	[Task 1- Data Collection] The correct data collected for analysis needs to include: • Queuing on ramps • Impacts to ramp metering	Ramp queue observations will be conducted. Please provide the applicable ramp metering impact criteria.

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CT-032	[Task 2 – Existing Model Review and Calibration] What software is the model in? Does it include the Caltrans intersections and segments? Include in the scope that Caltrans will be able to review the preliminary model.	TransCAD 7 will be used. The model includes the Caltrans intersections and segments.
CT-033	[Task 3 – Project Trip Generation and Distribution] Is there a current site plan and project description? If so, provide to determine if any additional scoping is required.	A current site plan and project description will be provided.
CT-034	[Task 3 – Project Trip Generation and Distribution] The ITE Trip Generation Manual User's Guide should provide the guidance for trip generation, using the fitted curve or weighted average. Additionally, the Peak Hour Generator should be used for trip generation, not the adjacent street traffic generator.	The fitted curve or weighted average will be selected per ITE guidance. See response to CT-014 regarding Peak Hour of Generator.
CT-035	[Task 4 – Existing and Existing Plus Project Conditions] Update scope to include that the highway segments will be evaluated using the Caltrans requirements.	Please clarify the Caltrans requirements.
CT-036	[Task 5 – Near Term and Near Term Plus Project Conditions] Include the pending and proposed project list, and the planned roadway network changes with the Memorandum of Assumptions.	The pending and proposed project list and the planned roadway network changes will be included in the TIS.
CT-037	[Task 6 – Cumulative and Cumulative Plus Project Conditions] Clarify if the planned roadway network changes will be different from the Near Term roadway network changes.	See response to CT-008.
CT-038	[Task 6 – Cumulative and Cumulative Plus Project Conditions] Clarify the last sentence, "Despite the General Plan buildout assumptions, the Cumulative no project scenario will not include any dwelling units on the project site."	See response to CT-016.
CT-039	[Task 7 – Deficiency and Mitigation Analysis] Any changes to intersection control within Caltrans Right-of-Way will require an Intersection Control Evaluation per Caltrans requirement. It is suggested that multiple warrants are evaluated before proposing a signal as a mitigation.	Comment noted. The peak hour signal warrant is the first step in the process towards signalization; other warrants and other traffic control methods would also be evaluated.

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CT-040	[Task 8 – Site Access and On-Site Circulation] Clarify if the circulation of the Chandler portion has been master planned. Previous studies, the entire parcel had access to Union Road. That future access will need to be addressed and documented.	Clarification will be added. Future access will be addressed and documented.
CT-041	[Task 9 – Documentation] The model and synchro should be provided for review at the draft stage.	The technical files can be provided to Caltrans for review at the draft stage.

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Attachment 1: Hourly Data from Caltrans Count Stations

Peak Hour Volumes

US 101 n/o Main St	NB AM Peak	NB PM Peak	SB AM Peak	SB PM Peak
Average	1924	2696	2407	2412
6/6/2018	1958	2698	2454	2456
Difference	1.74%	0.09%	1.96%	1.81%

Most Frequent Peak Hour

US 101 n/o Main St	AM	PM
NB	7-8	4-5
SB	7-8	4-5

Peak Hour Volumes

SR 46E w/o McMillan Canyon Rd	EB AM Peak	EB PM Peak	WB AM Peak	WB PM Peak
Average	549	703	515	666

Most Frequent Peak Hour

SR 46E w/o McMillan Canyon Rd	AM	PM
EB	11-12	5-6
WB	11-12	4-5

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Central Coast Transportation Consulting
Traffic Engineering & Transportation Planning

COMMENT/RESPONSE SUMMARY

Date: May 16, 2019

From: Joe Fernandez, Travis Low, Devin Ciriaco, and Vanessa See

Project: Beechwood SP Administrative Draft TIA – Caltrans Comment Response (received April 5, 2019)

Document: Beechwood Specific Plan Administrative Draft TIA

ID	Comment	Response/Action
Caltrans-p1a	After reviewing the mitigation measures and discussing them internally, most of the proposed mitigation measure will not be supported by Caltrans due to physical or operational constraints.	Noted. Project will make fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents.
Caltrans-p1b	Was the existing signal timing requested and used for the existing Synchro conditions? If not, the signal timing needs to be requested via Public Records Request and the existing scenarios updated. Were U-Turns or left turns considered in the analysis?	Signal timing at the intersection of State Route 46 E/Buena Vista and State Route 46 E/Golden Hill was requested, received and will be included in the updated report. U-turns are prohibited at Buena Vista. U-turn volumes are included in the left turn volumes at Golden Hill.
Caltrans-p1c	As mitigations propose changes to the signal timing, please include a list of the changes to the operation and new signal timing sheets for review.	Will summarize recommended timing changes where applicable in the updated report. See following table for proposed timing sheet changes. .
Caltrans-p1d	Volume Maps – The orientation of intersection 10 (Creston Road and Golden Hills Road) appears to be off from the existing condition. Creston is a N/S with a right angle to the west and Golden Hills is the street north of the right angle. The map does not match the trip movements of the existing roadway conditions/turning movements.	Creston was assumed to run E/W at this intersection so that Golden Hill would be consistent with its orientation at other intersections. All figures and Synchro files are consistent with this orientation.

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Caltrans-p1e	Near Term Conditions – The mitigations may not have been studied properly. It needs to be determined if the Union Road fly over is realistic in a near term (2025) time frame.	Report notes that "For the 46 E corridor to operate acceptably under Near Term Conditions with or without the project, the Union Road/Paso Robles Boulevard Extension to Airport Road and the Union Road eastbound on and off-ramps are needed." The study assumed that the overcrossing is not in place under Near Term conditions.
Caltrans-p1f	Synchro Model and Simulation – The intersection of Buena Vista and SR46E does not match existing conditions. The existing signal timing does not appear to be what is in the Synchro Model for Buena Vista or Golden Hills Road at SR46E.	Signal timing at the intersection of State Route 46 E/Buena Vista and State Route 46 E/Golden Hill was input into the updated Synchro files and will be included in the updated report. No microsimulation was performed for the study.
Caltrans-p1g	The Paso Robles Road Overcrossing – It is unclear how the phasing of this project ties into the phasing of the Paso Robles Road Overcrossing. The TOAR for the overcrossing is still in progress and the timing of construction of the overcrossing may be considerably different from the timing of constructing the phases of Beechwood.	There are existing LOS deficiencies without the construction of this project as shown in this report and the draft TOAR. The Project will make fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable planning documents.
Caltrans-p1h	Was the existing signal timing requested and used for the existing Synchro conditions? If not, the signal timing needs to be requested via Public Records Request and the existing scenarios updated. Were U-Turns or left turns considered in the analysis?	See response to Caltrans-p1b and Caltrans-p1f.
Caltrans-p1i	Fair Share Cost Calculations need to be completed for this project.	Fair share calculations will be prepared once mitigations are finalized.
Caltrans-p11	Analysis Methods Caltrans peak hour can be outside of the 7-9 am and 4-6 pm discussed in the City TIS Guidelines.	Refer to last paragraph of the "Existing Traffic Conditions" section on pages 17-18
Caltrans-p14	Existing Roadway Network Include information about access types to all Caltrans intersections.	Refer to Figure 4 on page 27 for existing lane configurations and traffic control.

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Caltrans-p17	Existing Traffic Conditions Was the existing signal timing requested for the Caltrans signals and implemented in the Synchro (SR46 and Buena Vista Drive, SR46 and Golden Hill Road, Riverside Avenue/Pine Street/US 101 SB Ramp)?	See response to Caltrans-p1b and Caltrans-p1f. The intersection of Riverside Avenue/Pine Street/US 101 SB Ramp is stop controlled.
Caltrans-p28	Trip Generation Table 10 includes Internal Trips that were subtracted from the overall trips generated from the project. Caltrans previously commented that all trips to and from the state facilities should be considered primary trips with no reductions. I checked the appendices and there were not trip gen worksheets, internal trip worksheets, or internal trip distribution with volume map included. Those sheets need to be included to complete the review.	No pass-by trip reductions were applied so all trips are primary trips. Since this development includes a commercial component, there will be Internal Trips between the commercial and residential developments. These Internal Trips represent a portion of the total development's trip generation without using the external road system, and thus must be subtracted from the Gross Trips to determine Net New Trips. We will show project trip distributions leaving each project access intersection.
Caltrans-p37	Existing Plus Project Impact Analysis SR46E/Union Road #3 Intersection: There are only 5 AM trips and 9 PM trips turning left. Were other options considered before restriction of the left turns? Creating right turn pocket? Restricting left turns from Union Road to SR45E may not be feasible.	A 25' NBR turn pocket was already being modeled at this intersection. Constructing a formal NBR turn pocket or constructing a median acceleration lane were both considered. Restricting the northbound left turns improves the LOS to an acceptable LOS C. Restricting the NB lefts also reduces the conflict points at the intersection. The signal at Golden Hill Road/SR 46E serves this movement. No restriction of westbound left turns are proposed due to likely secondary impacts to the Golden Hill Road/SR 46E signal.
Caltrans-p50a	Transportation Network Provide an update on the status of the three projects listed in the Transportation network?	Will include in the updated report.
Caltrans-p50b	Transportation Network The Synchro for SR46E does not appear to be updated to match the mitigations proposed for the near term mitigations.	Will provide the Near Term mitigated Synchro networks and output sheets with the updated report.

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Caltrans-p56a	Near Term Plus Project Impact Analysis Intersections SR46E/Union Road #3: Were other options considered before restriction of the left turns? Creating right turn pocket? Restricting left turns from Union Road to SR45E may not be feasible.	See response to Caltrans-p37
Caltrans-p56b	Near Term Plus Project Impact Analysis Intersections SR46E/Airport Road #4: What other mitigations are possible? There is a project specific impact that needs to be addressed to return the intersection to the performance before the project.	Will expand discussion of potential mitigation measures in the updated report.
Caltrans-p56c	Near Term Plus Project Impact Analysis Intersections The recommendation has confusing wording that could use clarification, it's providing a recommendation that is not recommended unless Union Road/ Paso Robles Blvd. is extended to Airport Road. What if that extension doesn't happen?	Will expand discussion of the overcrossing/Paso Robles Boulevard extension in the updated report.
Caltrans-p59	Near Term Plus Project Impact Analysis Queues SR46E/Golden Hills Road #2: See general comment about existing signal timing. Clarify which directions would require right turn overlap to improve the intersection performance. Explain how right turn overlaps would improve the intersection if the issue is with the left turn queue volumes on the North/Southbound Golden Hills Road. Installing right turn overlap timing would mean U-Turns would have to be prohibited.	See response to Caltrans-p1b and Caltrans-p1f. Will clarify overlap phases in the updated report for cumulative LOS impacts at this intersection. Queuing is not a measure of effectiveness at signalized and unsignalized intersections in the Caltrans Guide for the Preparation of Traffic Impact Studies; therefore, queuing impacts are not considered at Caltrans facilities in the updated analysis.
Caltrans-p60a	Summary of Intersection Mitigations Where in the Phasing of this project is the Paso Robles Boulevard Overcrossing required for additional phases to be built?	As shown in Table 20 improvements to State Route 46 are needed without the construction of this project. Union and Airport operate at LOS F in the PM in all Near-Term scenarios. The project will make fair share contribution through the City's impact fee program for ultimate improvements on SR 46 E consistent with the RTP and other applicable documents..

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Caltrans-p60b	Summary of Intersection Mitigations Table 20 Intersection #4 doesn't match the mitigations on page 56. All the mitigations proposed in Caltrans Right-of-Way and intersections need to be explored for additional options or other alternatives.	The proposed mitigation is to prohibit southbound lefts, which is consistent with the City's General Plan. All improvements within Caltrans' right-of-way will require approval by Caltrans.
Caltrans-p63a	Cumulative Conditions Transportation Network All the mitigations proposed in Caltrans Right-of-Way and intersections need to be explored for additional options or other alternatives. Some of the proposed mitigations are not acceptable for implementation.	The Cumulative roadway network includes planned improvements consistent with the City's General Plan. These are not project-specific mitigation measures, but the project would contribute to their construction via payment of impact fees. All improvements within Caltrans' right-of-way will require approval by Caltrans.
Caltrans-p63b	Cumulative Conditions Transportation Network The Synchro for SR46E does not appear to be updated to match the mitigations proposed for the cumulative mitigations.	Will provide the Cumulative mitigated Synchro networks and output sheets with the updated report.
Caltrans-p75	Summary of Intersection Mitigations Where in the Phasing of this project is the Paso Robles Boulevard Overcrossing required for additional phases to be built?	See response to Caltrans-p60a. Under Cumulative Conditions, the Overcrossing is already assumed to have been constructed.

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Intersection #2: State Route 46 & Golden Hill Road – Proposed changes to signal timing.

Scenario	Phase Movement	1 WBL	2 EBT	3 NBL	4 SBT	5 EBL	6 WBT	7 SBT	8 NBT	Overlap A SBR(w/EBL)
Existing	Minimum Green	4	8	4	6	4	8	4	6	4
Existing	**MaxGreen**	**18**	**70**	**20**	**41**	**18**	**70**	**20**	**41**	**-**
Existing	Yellow	3	5.8	3	4.3	3	5.8	3	4.3	3
Existing	AllRed	1	1.5	1	1	1	1.5	1	1	1
Existing	Max split	22	77.3	24	46.3	22	77.3	24	46.3	-
Cumulative AM	**MaxGreen**	**26**	**57**	**26**	**35**	**26**	**57**	**20**	**41**	**-**
Cumulative AM	Max split	30	64.3	30	40.3	30	64.3	24	46.3	-
Cumulative PM	**MaxGreen**	**26**	**57**	**26**	**35**	**18**	**65**	**20**	**41**	**-**
Cumulative PM	Max split	30	64.3	30	40.3	22	72.3	24	46.3	-

XX - Proposed changes to timing sheets.

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Central Coast Transportation Consulting
Traffic Engineering & Transportation Planning

COMMENT/RESPONSE SUMMARY

Date: April 11, 2019

From: Joe Fernandez, Travis Low, and Vanessa See

Project: Beechwood SP Administrative Draft TIA – County of San Luis Obispo Comment Response (received April 10, 2019)

Document: Beechwood Specific Plan Administrative Draft TIA

ID	Comment	Response/Action
Roberts-1	-Impacts to South River Road Did not see mention of traffic routing to South River (south of Charolais) as an alternate to taking 101 south. Would imagine that in a future condition bypassing through east Templeton could be a time saver to 101 south vs River to Niblick to 101. Trader Joe's for instance, is closer mileage-wise to the project through east Templeton vs. through Paso.	Project traffic through east Templeton was assigned to the segment of South River Road south of Spanish Camp Road (via Barley Grain Road) rather than the segment immediately south of Charolais Road. Project trips into Templeton via El Pomar Drive will be calculated and provided in the County section of the updated report.
Roberts-2	-Impacts to Barley Grain The intersection geometry of BG @ Creston appears sufficient to handle the cumulative + project condition. No action.	Comment noted.
Roberts-3	-101 NB @ 46E Offramp Surprised that this has an existing LOS B and only rolls to LOS C in the cumulative + project. Currently queuing at the offramp can spill onto the mainline. I understand Caltrans is potentially looking at future improvements at this location. Assuming Caltrans will chime in.	The results of the freeway diverge analysis consider only the capacity of the ramp itself and do not account for any queue spillback from the downstream signalized intersection. This intersection was not a study location. Project traffic is not expected to use this ramp.

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