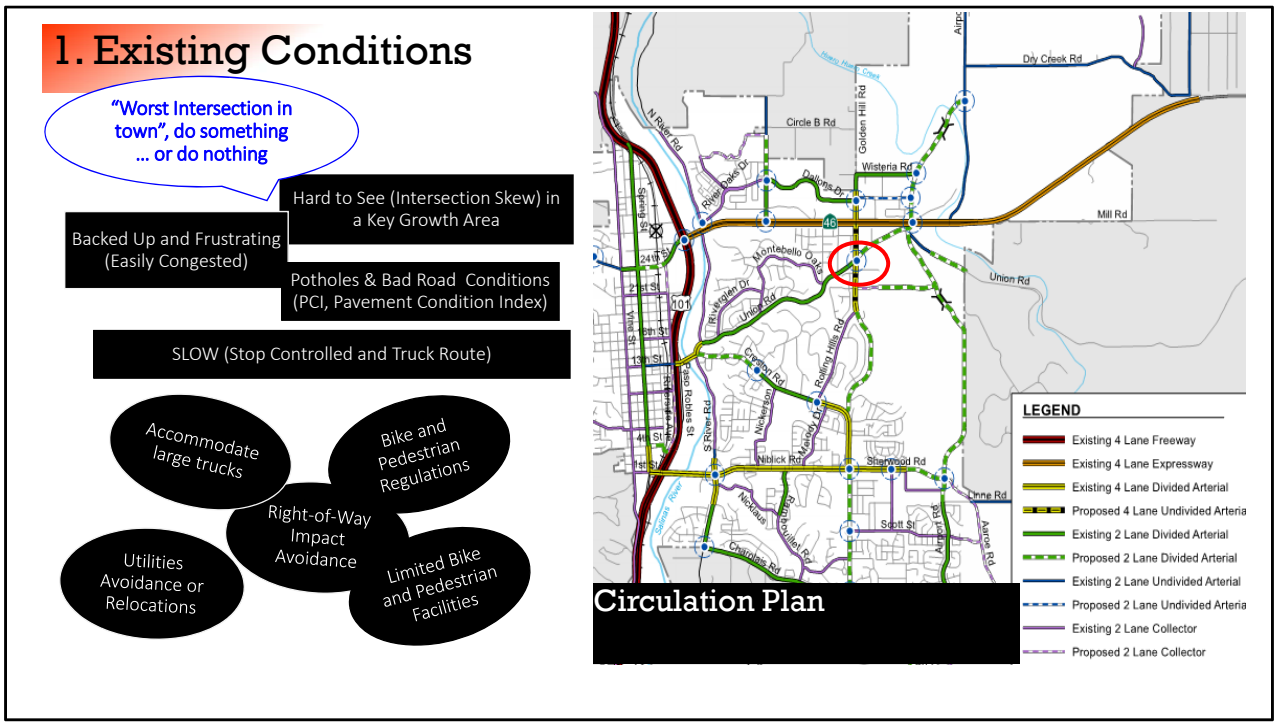
Note - presentation flows as follows:

- **Existing intersection** congested conditions/deficiencies (skew violates current stds for sight angles, stop control is unsustainable)
- **HCOC Needs List process** developed build-out planning level concepts for signalized vs roundabout alternatives. Results **-** both had large Costs/ROW impacts but … Roundabout less impacts/more cost effective (smaller footprint, less costly, better congestion relief and better expected safety performance).
- **Recent Work** Find a smaller solution (not full build-out of all developments) that would provide immediate relief and cost less. Wallace Group developed an initial concept for a temporary single lane roundabout that might meet these goals.
- **Next Steps -** Wallace Group team for Phase 1 "Final Design Concept Refinement". Evaluate likely traffic growth (near term of 10 years or so)/assess a footprint more accurately. , provide for added public input opportunity and receive .
- **Future Steps** - Once the concept is established, they will transition to Phase 2 "Final Design PS&E".




Commonly referred to as "worst intersection in town". Most restrictive 4 way stop control - bad skew/high traffic. City's Circ plan forecasts growth and needs, both Union and Golden Hill are truck routes. Existing right of way constraints has hampered any solution/future growth means act now or suffer the consequences.

Don’t lose sight of a basic problem here … people can’t see others easily, some not at all!
(… audience participation on chin to left shoulder then further)
Can’t just “throw in a signal”, congestion/delay/frustration and risk grows.

Tasked Wallace and CCTC with what can we do/should we do here considering build-out?

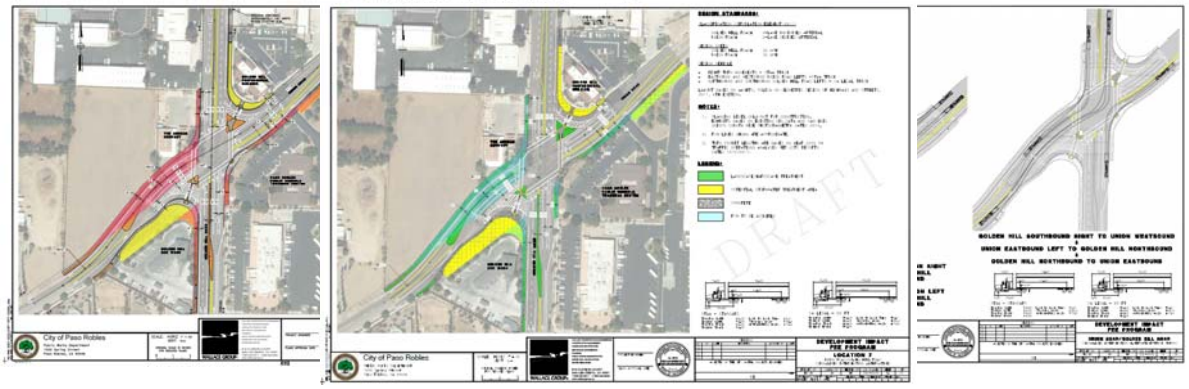
# HCOC Needs List Research and Review Process

## Signalized Intersection Alternatives

Tasked with review of a signalized intersections assessing safety and standards … significant property impacts and cost.

# HCOC Needs List Investigation at Golden Hill/Union

Signalized Intersection Alternatives – 60 degree skew

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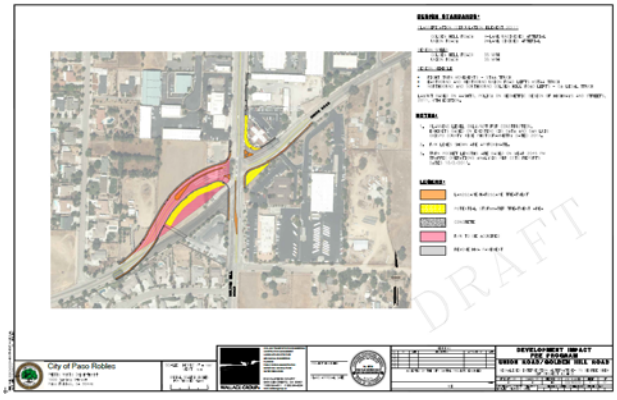
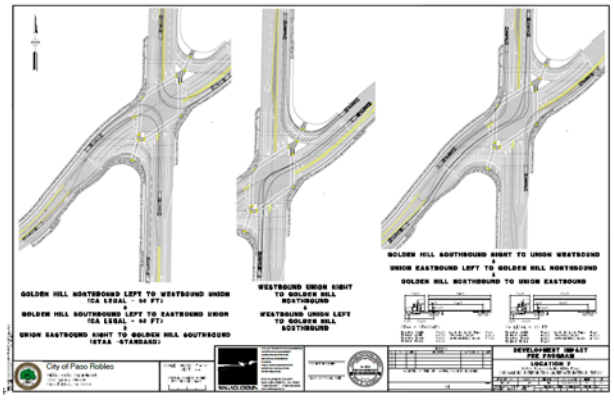
Initially looked at AASHTO allowed 60 degree intx, not allowed by FHWA or Caltrans … many drivers can't navigate but assessed as a betterment to the existing … still has larger accident risk and with significant costs/impacts

# HCOC Needs List Investigation at Golden Hill/Union

Signalized Intersection Alternatives – 75 degree skew

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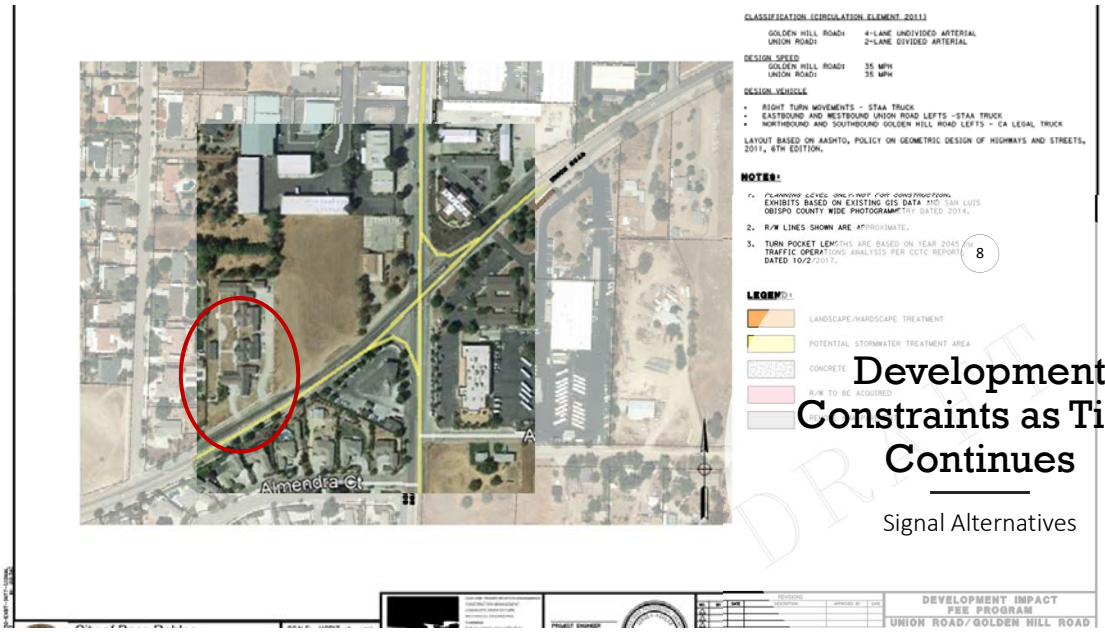
Then looked at a stds compliant 75 degree intersection skew, more impacts and costs but able to design for trucks and reduced accident risk … still not optimal.




# Development Constraints as Time Continues

Signal Alternatives

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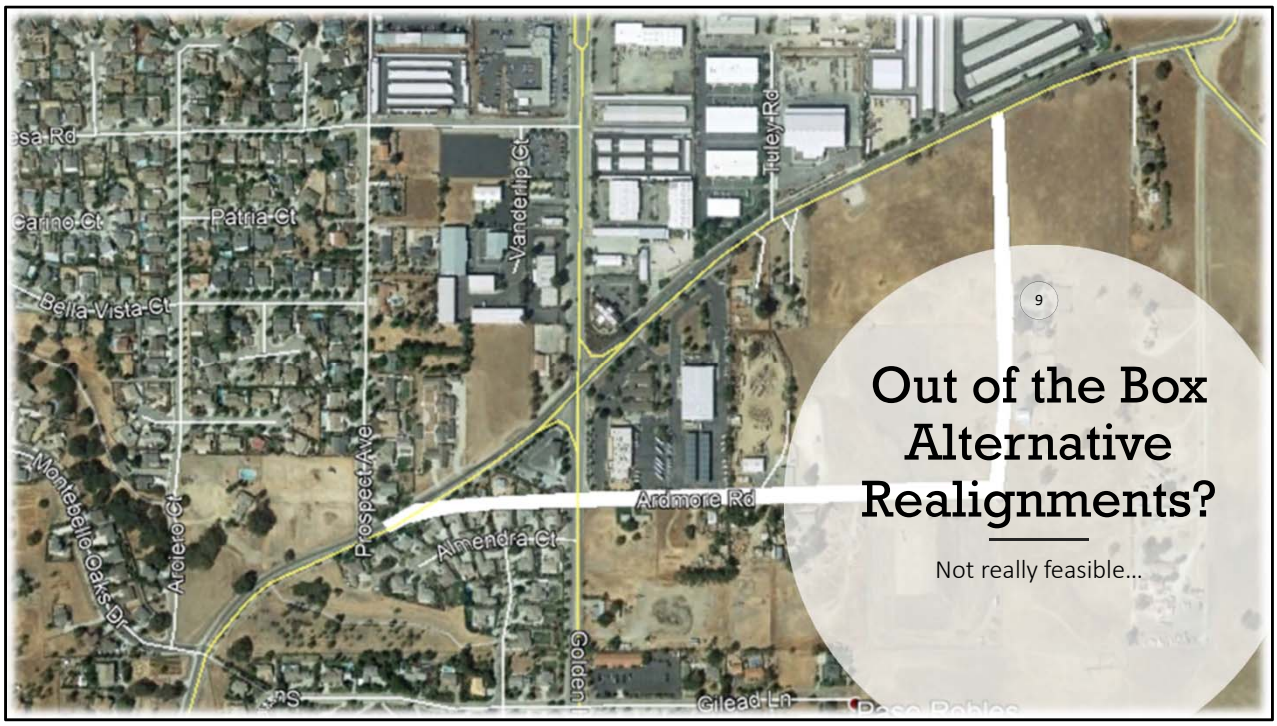
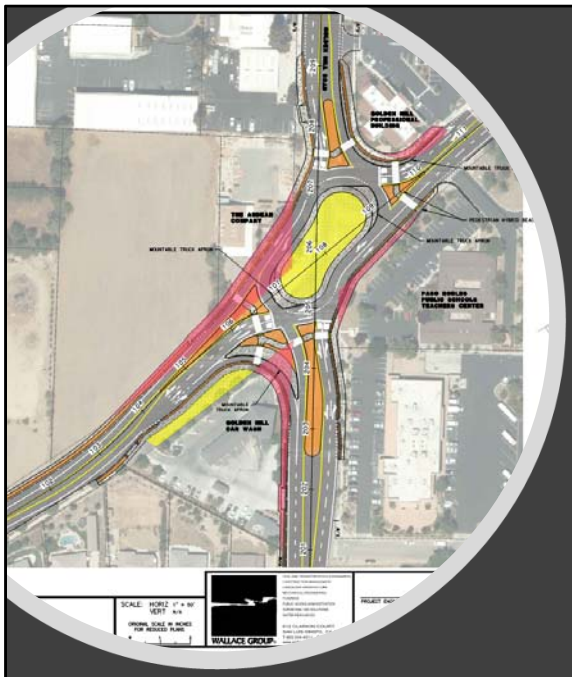
Property impacts exist and are growing



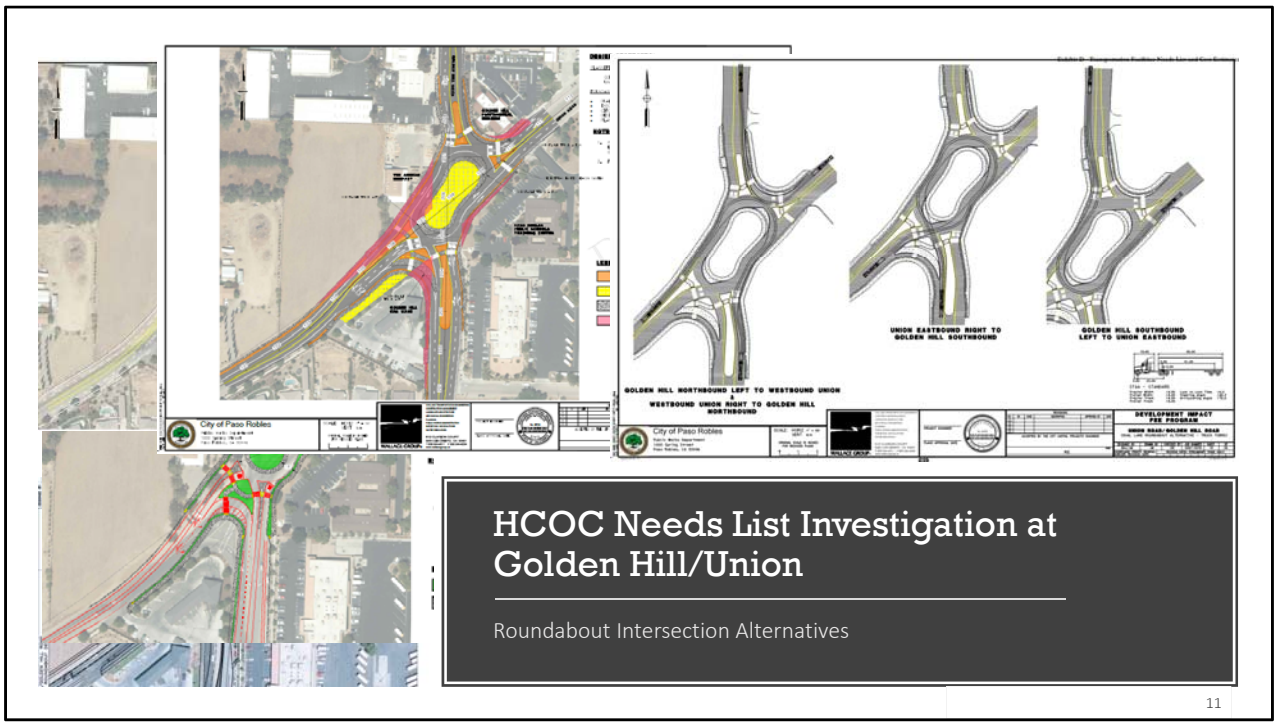

Even looked at drastic alternatives to realign the corridor…



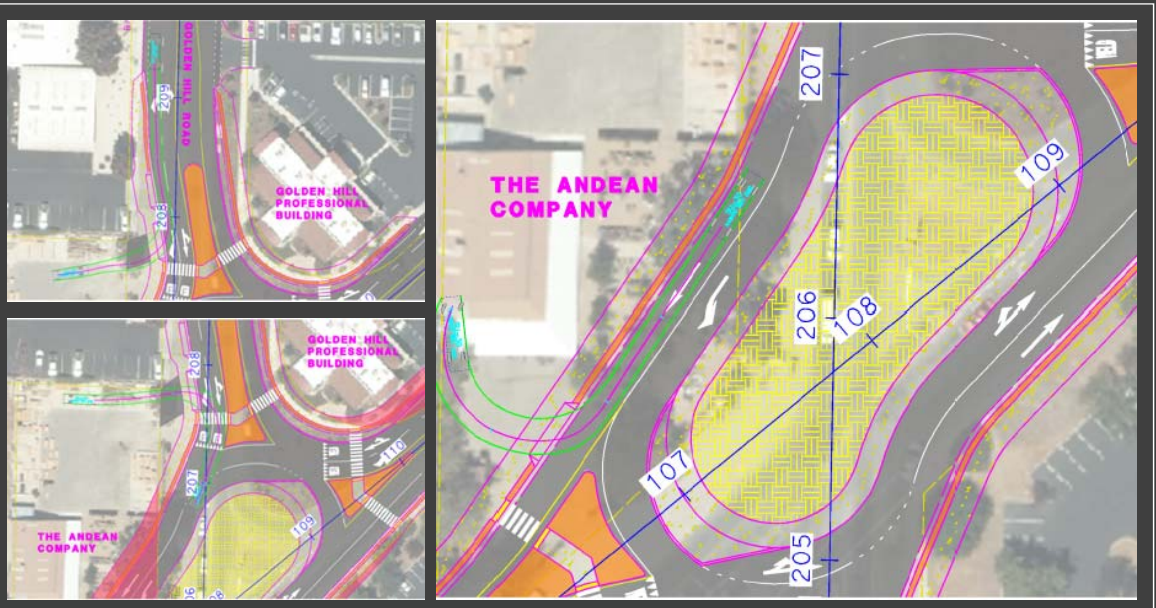

# HCOC Needs List Research and Review Process

## Roundabout Alternatives

Tasked to look at roundabout options even though studied in the past by others. Effort to reduce ROW impacts (similar to others such as in Boise Idaho), significantly less ROW and cost … but still ~ $4M.
Needed new thinking for this unique intersection configuration as the prior alternative typical roundabout had stalled




2010 roundabout alt couldn't be implemented due to heavy impacts on school district site
Tasked to look at a single lane/smaller/offset alt while Circ Element traffic volumes were being developed … discovered more lanes were needed when traffic forecasts were available.
Revised, refined and tested trucks/turns.

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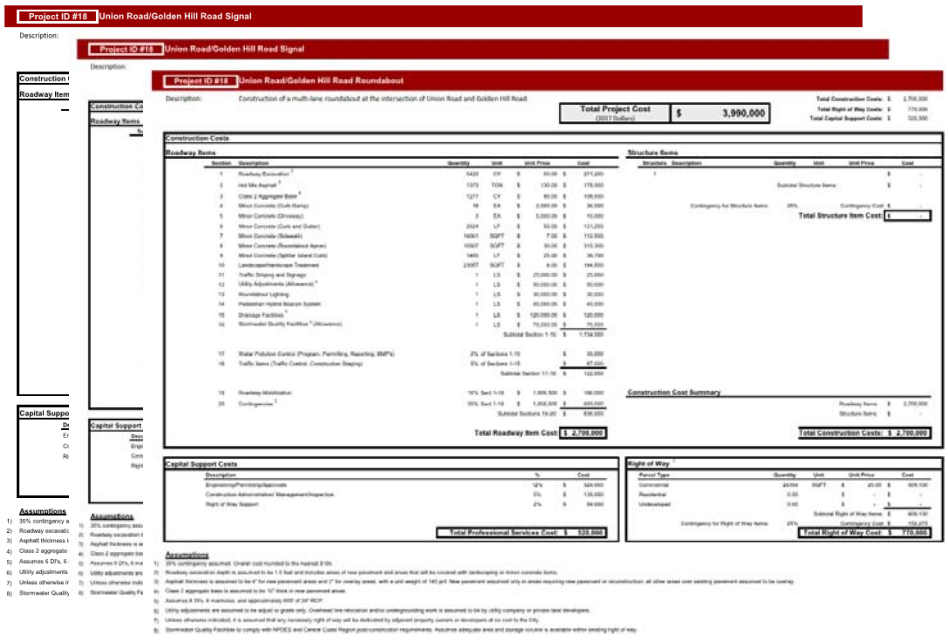
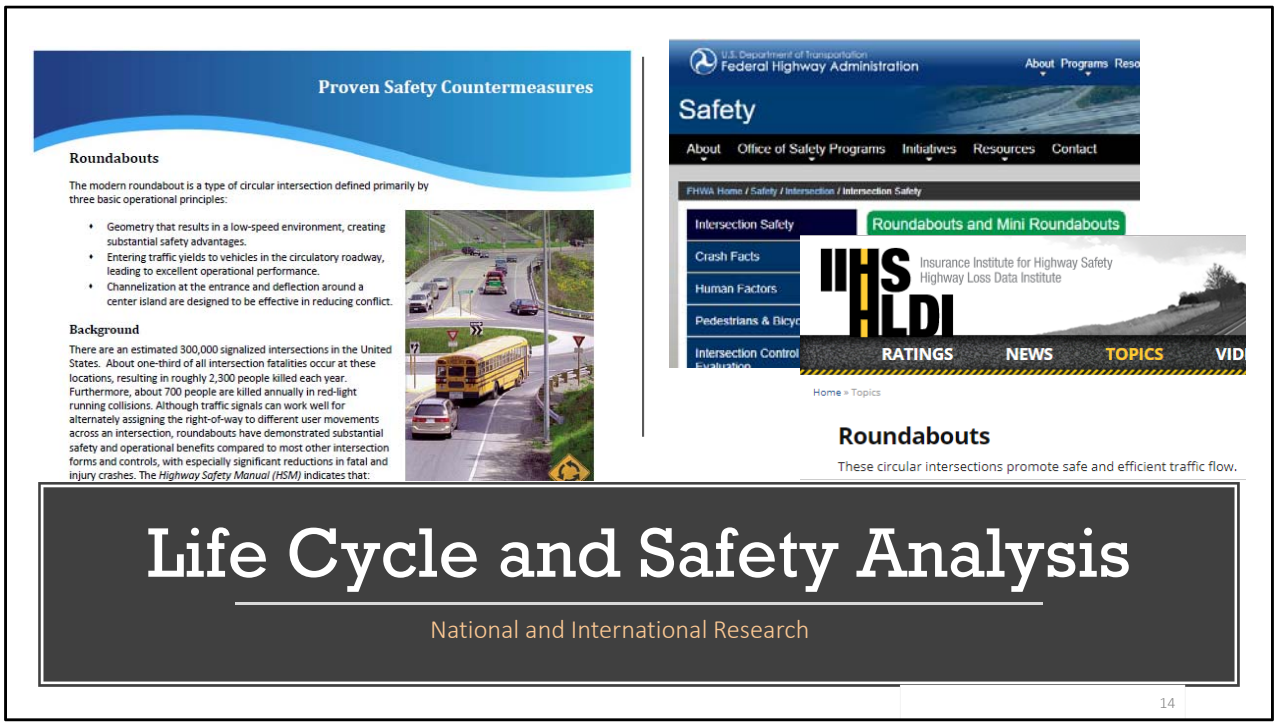
And more access specific analysis

# Cost Estimates

Signalized Intersection and Roundabout Alternatives



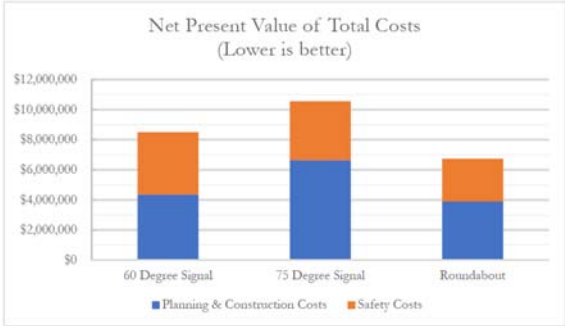

60 degree skew signal alt cost of ~$4.4M
75 degree skew signal alt cost of > $6.6 million
Dual lane roundabout cost of ~$4M




82% reduction in severe (fatal/injury) crashes by converting a stop to a roundabout, 78% reduction by converting a signal to a roundabout. 44% -48% reductions in overall crashes respectively.
FHWA, Insurance Institute for Hwy Safety

| Table 1: Present Value Cost Summary[1] | | | |
|---|---|---|---|
| Cost Category | 60 Degree Signal | 75 Degree Signal | Roundabout |
| Planning & Construction Costs | $4,360,000 | $6,650,000 | $3,900,000 |
| Safety Costs | $4,150,000 | $3,910,000 | $2,840,000 |
| **Total Costs** | **$8,510,000** | **$10,560,000** | **$6,740,000** |

1. Planning level costs. Does not include costs associated with auto/transit/truck time, travel time reliability, post-opening costs, and greenhouse gas costs.




# Life Cycle and Safety Analysis

Signalized Intersection and Roundabout Alternatives

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60 degree skew signal alt cost of ~$4.4M
75 degree skew signal alt cost of > $6.6 million
Dual lane roundabout cost of ~$4M

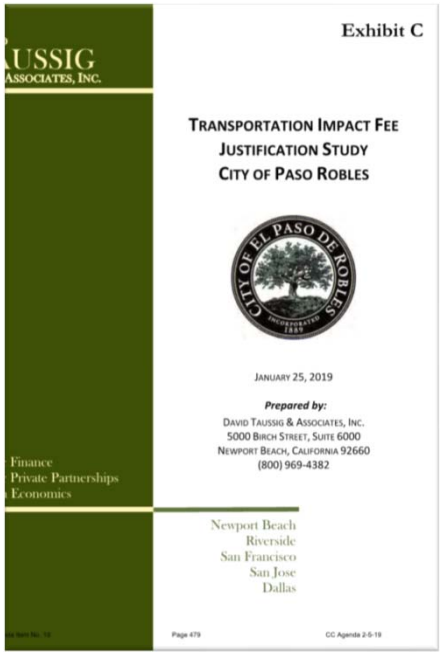

Exhibit C

USSIG
ASSOCIATES, INC.

TRANSPORTATION IMPACT FEE
JUSTIFICATION STUDY
CITY OF PASO ROBLES

JANUARY 25, 2019

*Prepared by:*
DAVID TAUSSIG & ASSOCIATES, INC.
5000 BIRCH STREET, SUITE 6000
NEWPORT BEACH, CALIFORNIA 92660
(800) 969-4382

Finance
Private Partnerships
Economics

Newport Beach
Riverside
San Francisco
San Jose
Dallas

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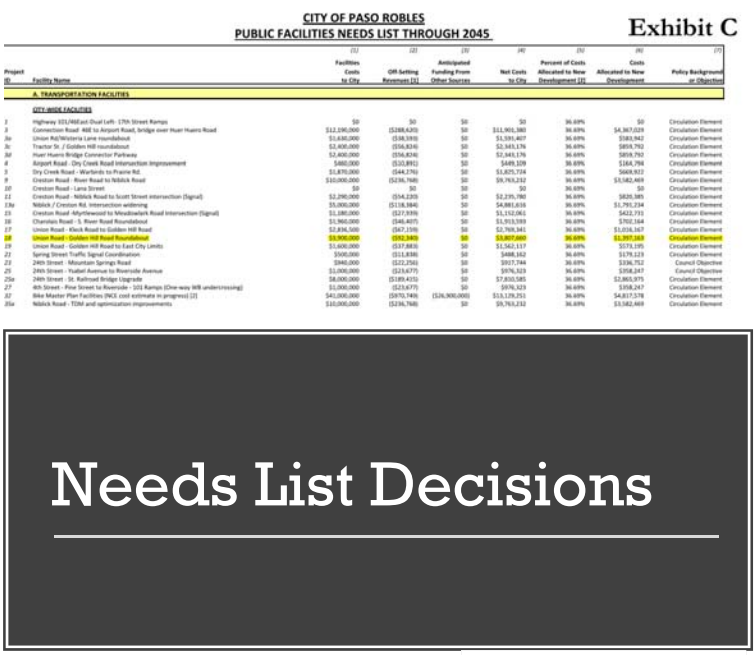

Exhibit C

CITY OF PASO ROBLES
PUBLIC FACILITIES NEEDS LIST THROUGH 2045

| Project ID | Facility Name | (1) Facilities Costs to City | (2) Off-Setting Revenues [1] | (3) Anticipated Funding From Other Sources | (4) Net Costs to City | (5) Percent of Costs Allocated to New Development [2] | (6) Costs Allocated to New Development | (7) Policy Background or Objective |
|---|---|---|---|---|---|---|---|---|
| | A. TRANSPORTATION FACILITIES | | | | | | | |
| | CITY-WIDE FACILITIES | | | | | | | |
| 1 | Highway 101/46East-Dual Left- 17th Street Ramps | $0 | $0 | $0 | $0 | 36.69% | $0 | Circulation Element |
| 3 | Connection Road- 46E to Airport Road, bridge over Huer Huero Road | $12,190,000 | ($288,620) | $0 | $11,901,380 | 36.69% | $4,367,029 | Circulation Element |
| 3a | Union Rd/Wisteria Lane roundabout | $1,630,000 | ($38,593) | $0 | $1,591,407 | 36.69% | $583,942 | Circulation Element |
| 3c | Tractor St. / Golden Hill roundabout | $2,400,000 | ($56,824) | $0 | $2,343,176 | 36.69% | $859,792 | Circulation Element |
| 3d | Huer Huero Bridge Connector Parkway | $2,400,000 | ($56,824) | $0 | $2,343,176 | 36.69% | $859,792 | Circulation Element |
| 4 | Airport Road - Dry Creek Road intersection improvement | $480,000 | ($10,891) | $0 | $469,109 | 36.69% | $164,794 | Circulation Element |
| 5 | Dry Creek Road - Warbirds to Prairie Rd. | $1,870,000 | ($44,276) | $0 | $1,825,724 | 36.69% | $669,922 | Circulation Element |
| 9 | Creston Road - River Road to Niblick Road | $10,000,000 | ($236,768) | $0 | $9,763,232 | 36.69% | $3,582,469 | Circulation Element |
| 10 | Creston Road - Lana Street | $0 | $0 | $0 | $0 | 36.69% | $0 | Circulation Element |
| 11 | Creston Road - Niblick Road to Scott Street intersection (Signal) | $2,290,000 | ($54,220) | $0 | $2,235,780 | 36.69% | $820,385 | Circulation Element |
| 13a | Niblick / Creston Rd. intersection-widening | $5,000,000 | ($118,384) | $0 | $4,881,616 | 36.69% | $1,791,234 | Circulation Element |
| 15 | Creston Road -Mythlewood to Meadowlark Road intersection (Signal) | $1,180,000 | ($27,939) | $0 | $1,152,061 | 36.69% | $422,731 | Circulation Element |
| 16 | Charolais Road - S. River Road Roundabout | $1,960,000 | ($46,407) | $0 | $1,913,593 | 36.69% | $702,164 | Circulation Element |
| 17 | Union Road - Kleck Road to Golden Hill Road | $2,836,500 | ($67,159) | $0 | $2,769,341 | 36.69% | $1,016,167 | Circulation Element |
| 18 | Union Road - Golden Hill Road Roundabout | $3,900,000 | ($92,340) | $0 | $3,807,660 | 36.69% | $1,397,169 | Circulation Element |
| 19 | Union Road - Golden Hill Road to East City Limits | $1,600,000 | ($37,883) | $0 | $1,562,117 | 36.69% | $573,195 | Circulation Element |
| 22 | Spring Street Traffic Signal Coordination | $500,000 | ($11,838) | $0 | $488,162 | 36.69% | $179,123 | Circulation Element |
| 23 | 24th Street - Mountain Springs Road | $940,000 | ($22,256) | $0 | $917,744 | 36.69% | $336,752 | Council Objective |
| 25 | 24th Street - Ysabel Avenue to Riverside Avenue | $1,000,000 | ($23,677) | $0 | $976,323 | 36.69% | $358,247 | Council Objective |
| 25a | 24th Street - St. Railroad Bridge Upgrade | $8,000,000 | ($189,415) | $0 | $7,810,585 | 36.69% | $2,865,975 | Circulation Element |
| 27 | 4th Street - Pine Street to Riverside - 101 Ramps (One-way WB undercrossing) | $1,000,000 | ($23,677) | $0 | $976,323 | 36.69% | $358,247 | Circulation Element |
| 32 | Bike Master Plan Facilities (NCE cost estimate in-progress) [2] | $41,000,000 | ($970,749) | ($26,900,000) | $13,129,251 | 36.69% | $4,817,578 | Circulation Element |
| 35a | Niblick Road - TDM and optimization improvements | $10,000,000 | ($236,768) | $0 | $9,763,232 | 36.69% | $3,582,469 | Circulation Element |

# Needs List Decisions

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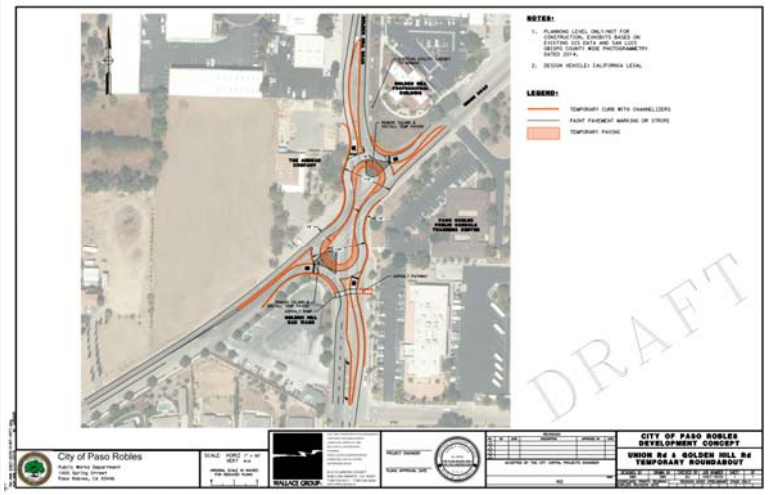
The City spent considerable resources and effort that culminated in the approval of proposed projects and estimates needed for Housing Opportunities.

Full build or not is not the only question, it's really can we do something or do we do nothing?
Search for a near term concept of a single-lane roundabout that would approximately fit within the existing pavement, be more affordable and avoid ROW impacts. Still need to accommodate trucks and roundabout standards.

## Goals:

- Meet safety standards
- Handle trucks
- Interim cost-effective solution
- Minimize added pavement and right-of-way needs

# Analysis of an Interim Period Roundabout




Wallace Group was tasked with and developed an initial concept single lane roundabout

Various “dog bone” or “race track” layout examples, this is not a new concept

Do Nothing - Leave it as a 4-way stop, will continue degrading and this is a high volume passenger/truck route . Eventually this will lock up impacting existing and future growth traffic

Or

Do Something – the problem is clear and the safer-cost effective solution is a roundabout.

development is ongoing and constraints are inevitable … Decision Time.

Look into the construction of the single-lane roundabout type to help and potentially be full build out capable.

Phase 1 "Final Design Concept Refinement"/define likely near term traffic growth/plan a more accurate footprint-cost.
Phase 2 "Final Design" is pending the results of this next step.

Thank you

Traffic scenario assessment
Engineering layout refinement
City Council and Public input
Assess, refine, decide.