12TH STREET – FRESNO STREET TO VINE STREET

RECOMMENDATIONS

Pavement Maintenance Options (Short-Term)

These options are not available for this street because of structural deficiencies and/or pavement cracking condition.

Pavement Rehabilitation Options (Long-Term)

Overlay Options

For option 1, we recommend 4 inch digouts for base failures, placing a 1/2 inch HMA leveling course and a 2 inch RHMA overlay.

Estimated Cost: $270,000 Estimated Life Expectancy: 10-12 Years

An overlay using HMA is not recommended because the 4-1/2 inch structural requirement exceeds the 3-1/2 inch maximum overlay that is considered feasible to meet geometric constraints.

Recycle and Mill and Replace Options

These options are not available for this street because of the structural deficiencies and thin pavement layer.

Reconstruction Options

For option 1, we recommend removing the pavement to a depth of 9 inches and placing 9 inches of new HMA. The HMA should be placed in 4 lifts.

Estimated Cost: $653,000 Estimated Life Expectancy: 20 Years

For option 2, we recommend removing 4 inches of the existing structure, lime treating the native soil to a depth of 10 inches and placing 4 inches of new HMA in 2 lifts.

Estimated Cost: $338,000 Estimated Life Expectancy: 20 Years

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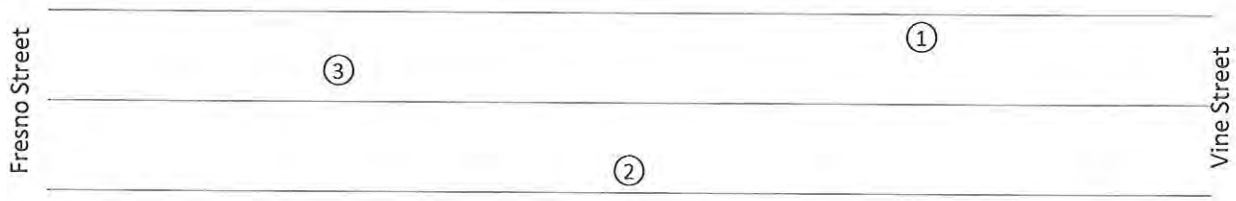

NOTES:
- NTS
- ACTUAL ROAD MAY NOT BE STRAIGHT
- NOT ALL ROADS CONNECTING TO THIS STREET ARE SHOWN
- WIDTH OF ROAD MAY VARY WITHIN THE BOUNDARY SECTION
- ALL LOCATIONS SHOWN ARE APPROXIMATED

12th Street

[Section of Road ≈ 1400ft]

TRAFFIC LAYOUT:
- 2-WAY STREET
- 1 LANE EACH WAY

VISUAL DESCRIPTION FOR THIS SECTION OF ROAD

The pavement exhibits block shrinkage cracking progressing to alligator cracking. Some of the pavement has unimproved adges. Previous maintenance includes skin patching of potholes.

CORING LOG

Symbol	Location	Core Data		R-value
1	West of Vine Street 350ft	AC PCC AB	3.00" 3.50" NO BASE	28
2	West of Vine Street 700ft	AC AB	3.00" NO BASE	-
3	West of Vine Street 1050ft	AC AB	3.50" NO BASE	25

DEFLECTION ANALYSIS

Lane	Tolerable	TI	80th Percentile	Percent Reduction	HMA Overlay
West Bound	27	7.0	55.00	50.91	4.08 - inches
East Bound	27	7.0	59.08	54.30	4.56 - inches
				Overlay Required by Reflective Cracking	1.75 - inches

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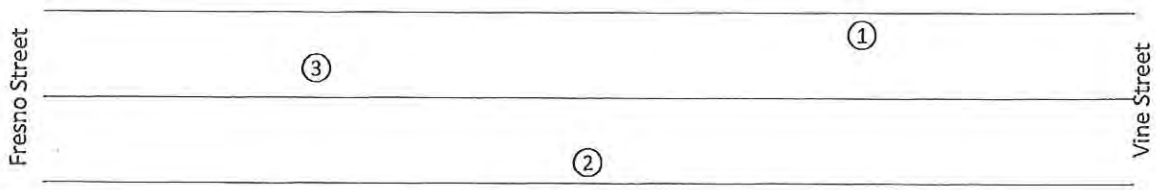

NOTES:
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12th Street (N)

[Section of Road ≈ 1400ft]

TRAFFIC LAYOUT:
- 2-WAY STREET
- 1 LANE EACH WAY

VISUAL DESCRIPTION FOR THIS SECTION OF ROAD

CORING LOG			
Symbol	Location	Core Data	R-value
1	West of Vine Street 350ft	AC 3.00" PCC 3.50" AB NO BASE	28
2	West of Vine Street 700ft	AC 3.00" AB NO BASE	-
3	West of Vine Street 1050ft	AC 3.50" AB NO BASE	25

PHOTO LOG		
Symbol	Location	Comments
A	_____ of _____ _____ft	
B	_____ of _____ _____ft	
C	_____ of _____ _____ft	

DEFLECTION ANALYSIS					
Lane	Tolerable	TI	80th Percentile	Percent Reduction	HMA Overlay
West Bound	27	7.0	55.00	50.91	4.08 - Inches
East Bound	27	7.0	59.08	54.30	4.56 - Inches
				Overlay Required by Reflective Cracking	1.75 - Inches

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03/27/13

City of Paso Robles

Road: 12th
From: Fresno
To: Vine
Lane/Line: EB

Survey Date: 03/14/13
Thickness: 0.29
Traffic Index: 7.00
Project Number: 130065

Deflection Data Analysis

Deflection Readings (Equivalent Deflectometer Units)

No. of Tests	Low	Mean	High	Std. Dev.
14	34.21	51.31	68.24	9.26

Road Surface

Thickness	Traffic Index
0.29	7.00

Structural Design

Tolerable	80th Percentile	90th Percentile	% Reduction	GE Deficient
27.00	59.08	63.16	54.30	0.73

HMA Overlay
0.38

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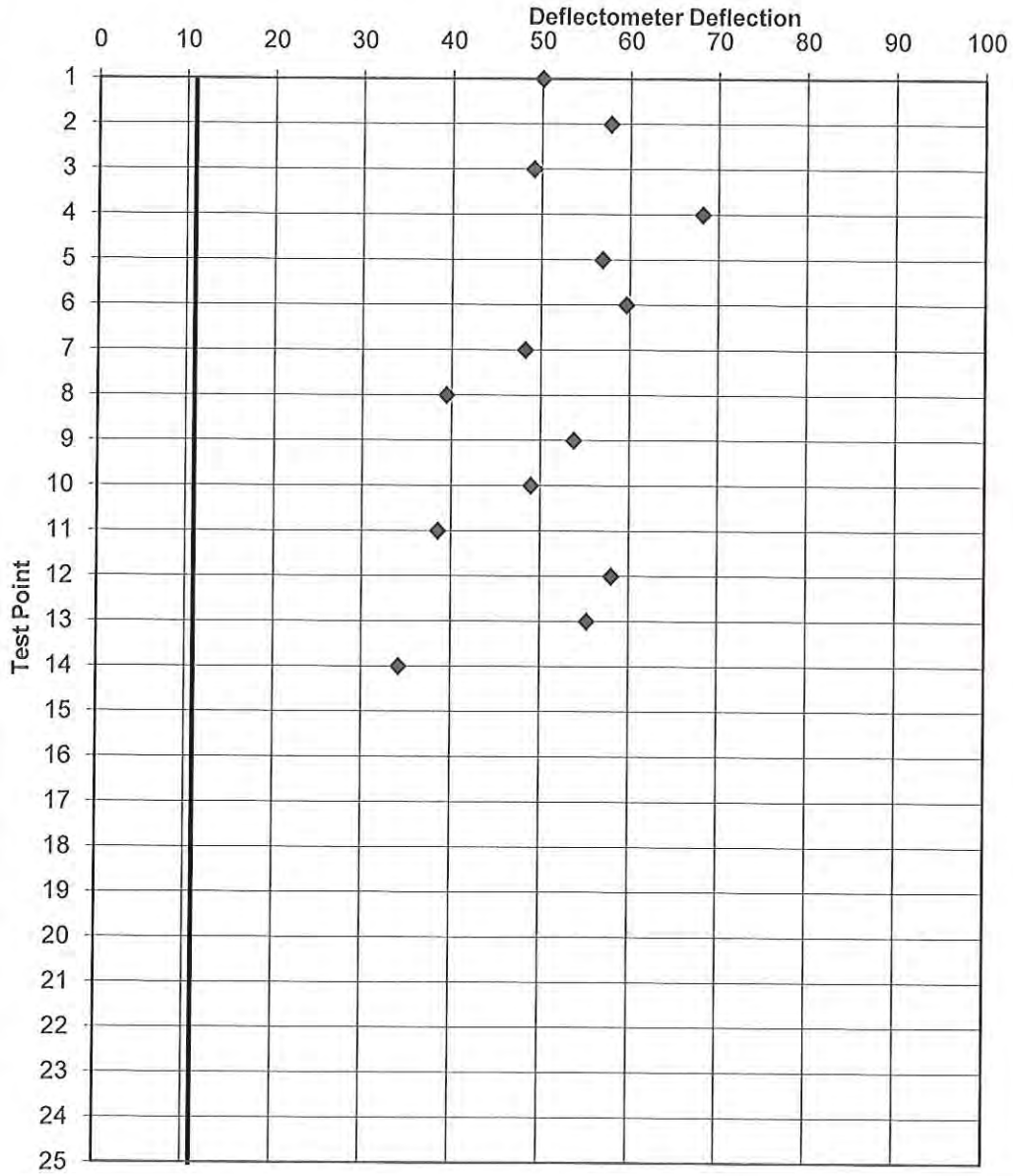
City of Paso Robles

Road: 12th
From: Fresno
To: Vine
Lane/Line: EB

Survey Date: 03/14/13
Thickness: 0.29
Traffic Index: 7.00
Project Number: 130065



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Date: 3/27/2013

Client: City of Paso Robles
Road: 12th
From: Fresno
To: Vine
Lane/Line: EB

Interval: 100
Survey Date: 3/14/13
Thickness: 0.29
Traffic Index: 7.00
Project Number: 130065

Test Points	Dynaflect	Conditions	Comments	Deflection	Exclude
1	2.23			50.091	
2	2.57			57.805	
3	2.19			49.184	
4	3.03		Townhouse	68.240	
5	2.53			56.897	
6	2.65			59.619	
7	2.15		Chestnut	48.276	
8	1.76			39.428	
9	2.39			53.721	
10	2.18		Olive	48.957	
11	1.72			38.521	
12	2.58			58.031	
13	2.46			55.309	
14	1.53			34.211	

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03/27/13

City of Paso Robles

Road: 12th
From: Vine
To: Fresno
Lane/Line: WB

Survey Date: 03/14/13
Thickness: 0.29
Traffic Index: 7.00
Project Number: 130065

Deflection Data Analysis

Deflection Readings (Equivalent Deflectometer Units)

No. of Tests	Low	Mean	High	Std. Dev.
14	33.30	46.41	67.79	10.22

Road Surface

Thickness	Traffic Index
0.29	7.00

Structural Design

Tolerable	80th Percentile	90th Percentile	% Reduction	GE Deficient
27.00	55.00	59.49	50.91	0.65

HMA Overlay
0.34

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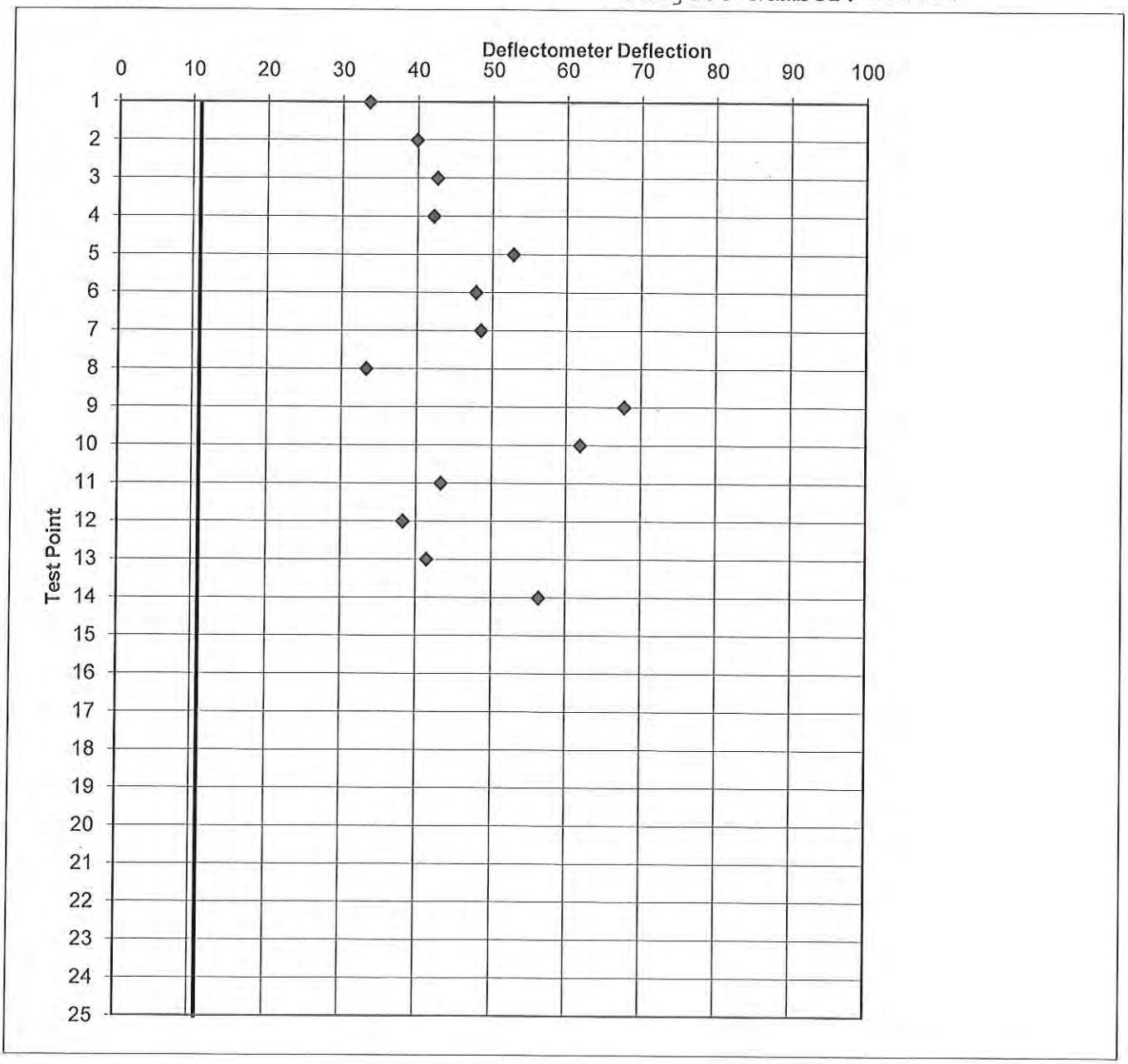
City of Paso Robles

Road: 12th
From: Vine
To: Fresno
Lane/Line: WB

Survey Date: 03/14/13
Thickness: 0.29
Traffic Index: 7.00
Project Number: 130065



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Date: 3/27/2013

Client: City of Paso Robles
Road: 12th
From: Vine
To: Fresno
Lane/Line: WB

Interval: 100
Survey Date: 3/14/13
Thickness: 0.29
Traffic Index: 7.00
Project Number: 130065

Test Points	Dynaflect	Conditions	Comments	Deflection	Exclude
1	1.50			33.530	
2	1.78			39.882	
3	1.90		Olive	42.605	
4	1.88			42.151	
5	2.35			52.814	
6	2.13			47.822	
7	2.16		Chestnut	48.503	
8	1.49			33.303	
9	3.01			67.787	
10	2.75		Townhouse	61.888	
11	1.93			43.285	
12	1.71			38.294	
13	1.85			41.470	
14	2.51			56.443	

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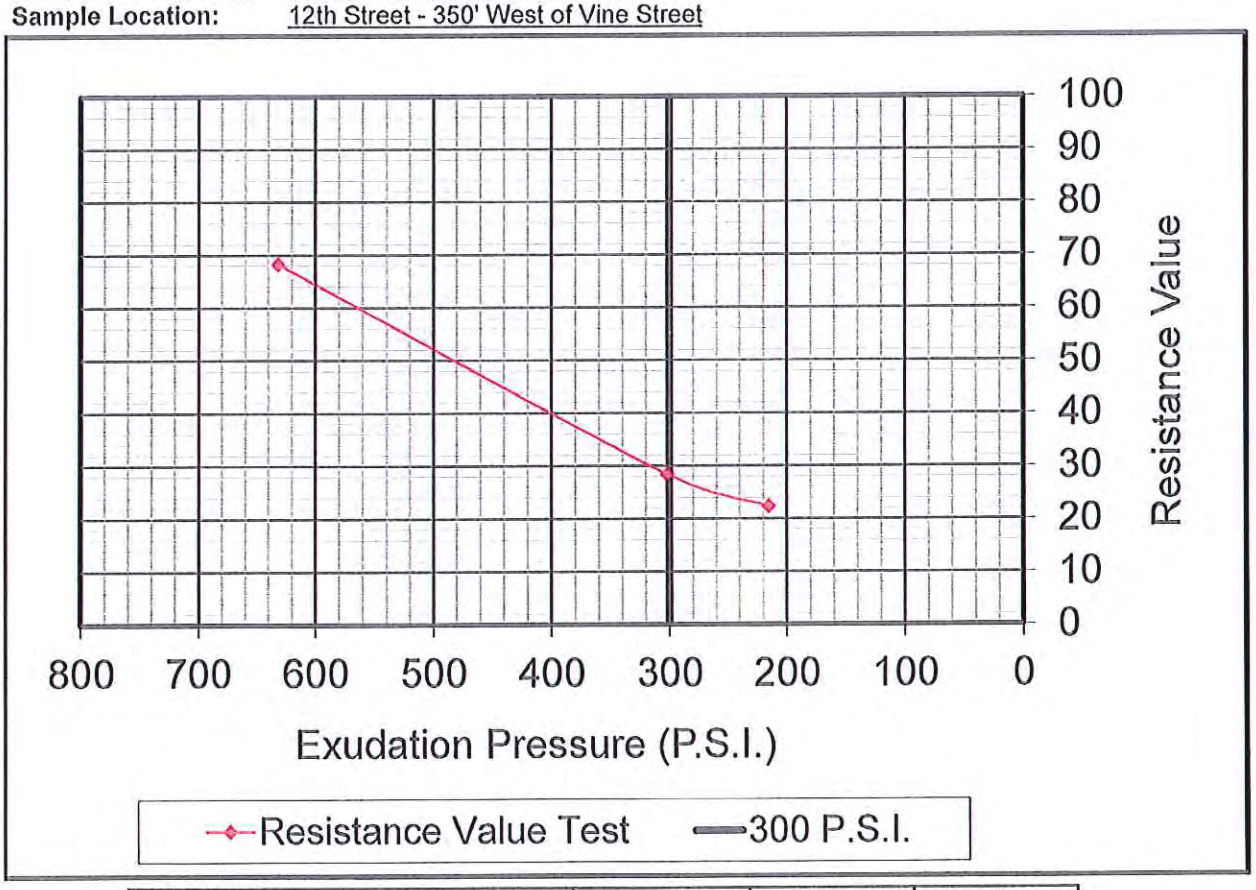
RESISTANCE (R) VALUE TEST
ASTM D 2844

Laboratory No.: L130083AM
Project No.: 130065
Sample Date: March 14, 2013
Report Date: April 10, 2011
Client: City of Paso Robles
Project Name: City of Paso Robles 2013 Pavement Analysis
Sample Description: Brown Clayey Sand with Gravel
Sample Location: 12th Street - 350' West of Vine Street



Specimen No.	1	2	3
Moisture Content (%)	35.7	37.1	37.5
Dry Density (PCF)	76.6	76.4	76.5
Resistance Value (R)	68	28	22
Exudation Pressure (PSI)	632	303	216
Expansion Pressure	0	0	0

RESISTANCE VALUE AT 300 P.S.I. 28

AASHTO R18

Reviewed By: Craig Long
Craig W. Long
Laboratory Operations Manager

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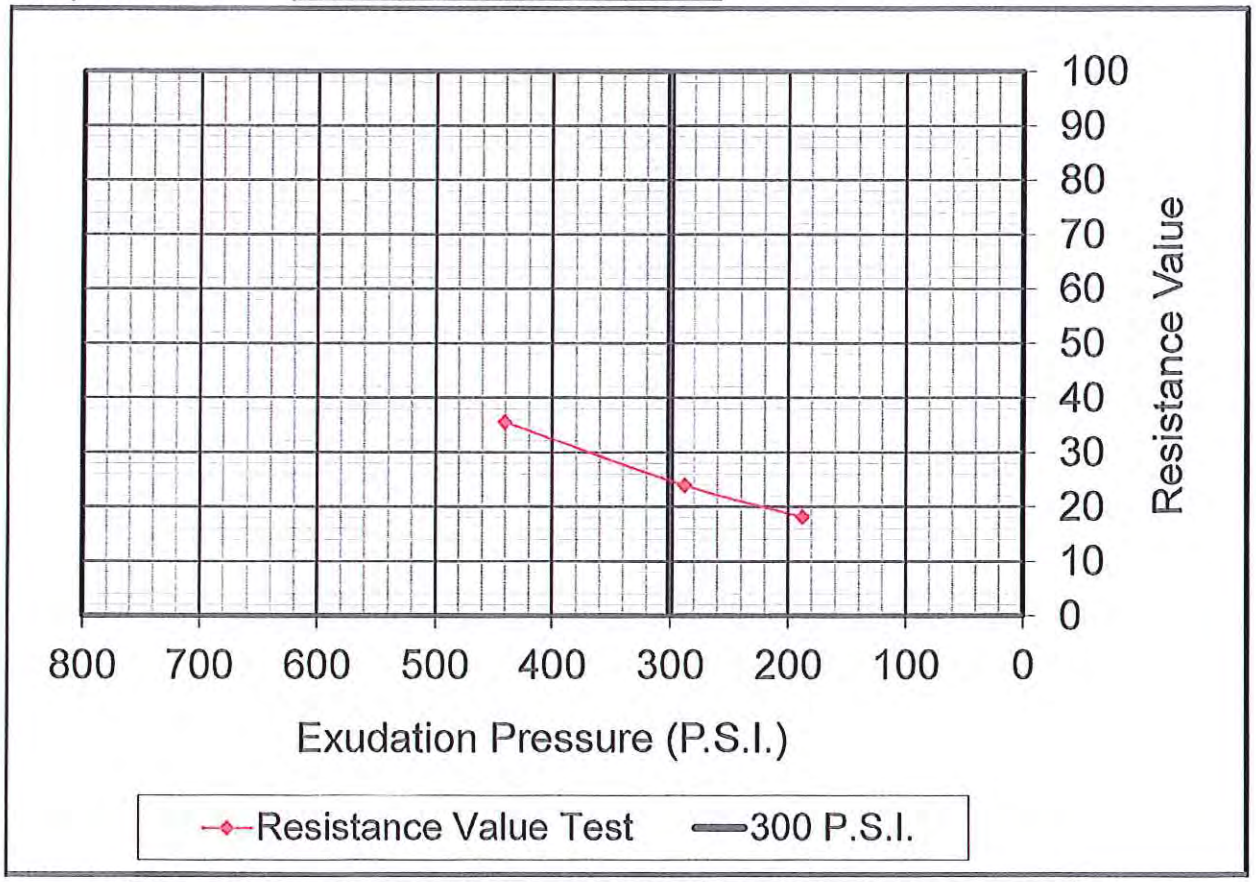
RESISTANCE (R) VALUE TEST

ASTM D 2844

Laboratory No.: L130083P
Project No.: 130065
Sample Date: March 14, 2013
Report Date: March 25, 2013
Client: City of Paso Robles
Project Name: City of Paso Robles 2013 Pavement Analysis
Sample Description: Dark Brown Sandy Silt with Gravel
Sample Location: 12th Street - 1050' West of Vine Street



Specimen No.	1	2	3
Moisture Content (%)	34.3	35.4	35.9
Dry Density (PCF)	79.8	79.0	78.4
Resistance Value (R)	36	24	18
Exudation Pressure (PSI)	441	288	189
Expansion Pressure	0	0	0

RESISTANCE VALUE AT 300 P.S.I. 25

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12TH STREET – FRESNO STREET TO VINE STREET
Vine Street looking Westbound

12TH STREET – FRESNO STREET TO VINE STREET
Chestnut Street looking Westbound

12TH STREET – FRESNO STREET TO VINE STREET
Fresno Street looking Eastbound