
Road Recycling in Eugene:

The Challenge of Addressing the Needs of Local Streets

Oct 24, 2018

Katie Marwitz, PE

City of Eugene Public Works Engineering

541-501-0380

kmarwitz@eugene-or.gov



Presentation Outline

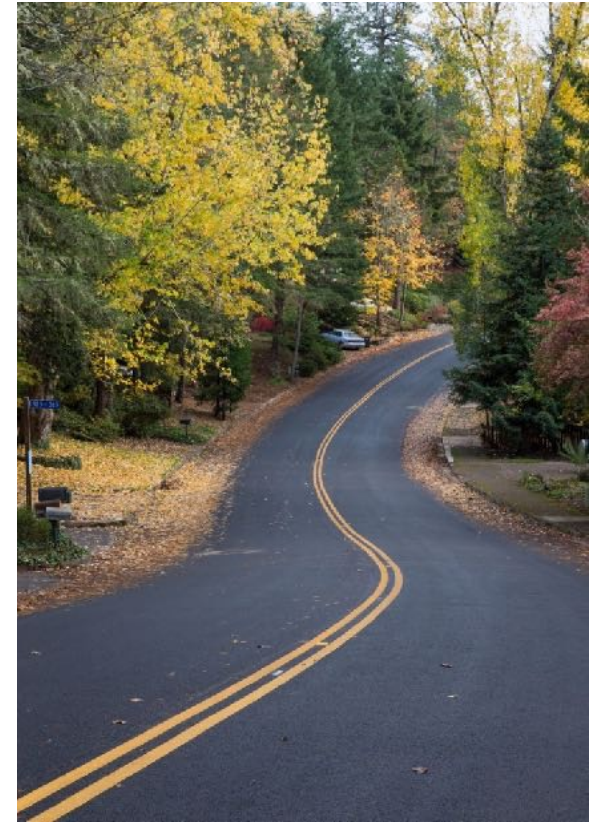
- Welcome
- Pavement Preservation Program Overview
 - Toolbox
 - Harlow Project Example
 - Woodside Project Example
- Cost Data
- Conclusion



Pavement Preservation Snapshot

PPP - BASICS

- Current capital project program to preserve Eugene's improved street system
 - 1250 Lane Miles
 - Street preservation, rehabilitation, capital improvements, and maintenance



Pavement Preservation Snapshot

PPP - FUNDING

Fuel Tax – (\$0.05/gallon)

- \$3 Million Annually

2008, 2012 Bond Measures

- 5 years each (100+ streets)

2017 Bond Measure

- 5 year, \$51 Million, 78 streets

System Development Charges

- \$300,000 Annually



Total Funding

- \$11 Million Annually



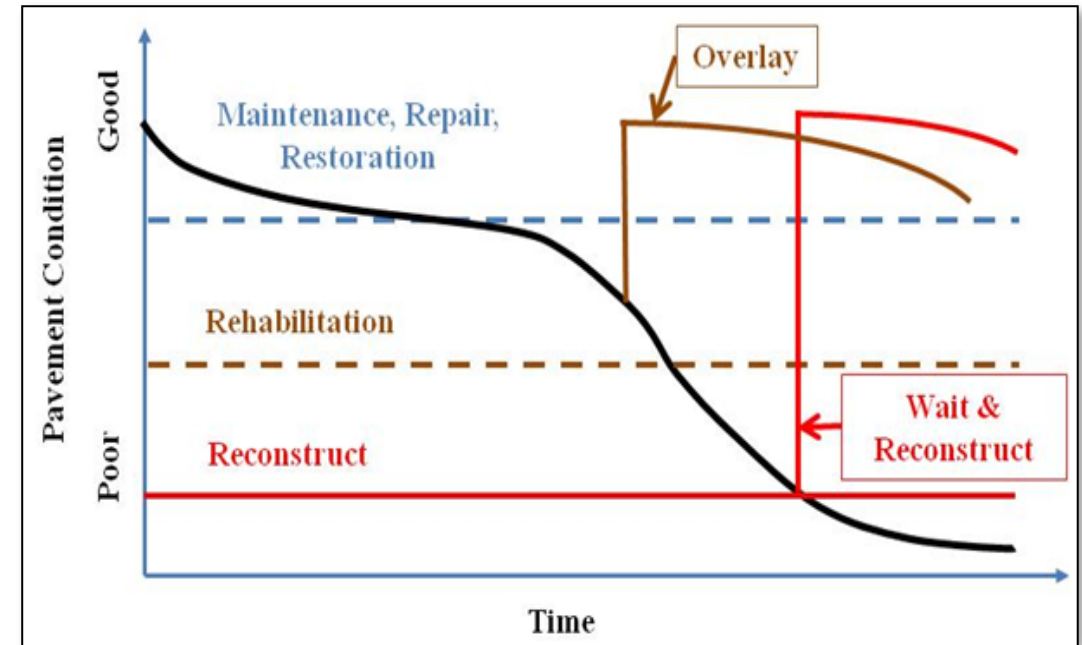
Pavement Preservation Snapshot

PPP – HOW WE USE IT

Priority is timely preservation of the streets

Challenge of local streets

- 700+ lane miles



Pavement Life Cycle – City of Eugene
Transportation Service Profile Presentation

Overview of Treatment Types- Toolbox

Traditional Road Treatments

- **Reconstruct** – Excavate the existing road entirely and build a new road from the dirt up.
- **Mill and Fill** a.k.a. Grind and Inlay – Grind off the top of the existing road surface and place one or more layers of asphalt pavement.
- **Overlay** – Place one or more layers of asphalt pavement on top of the existing road surface.
- **Slurry Seal** – Seal the existing surface.

More Tools

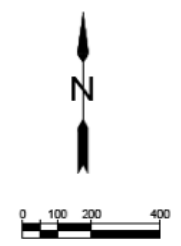
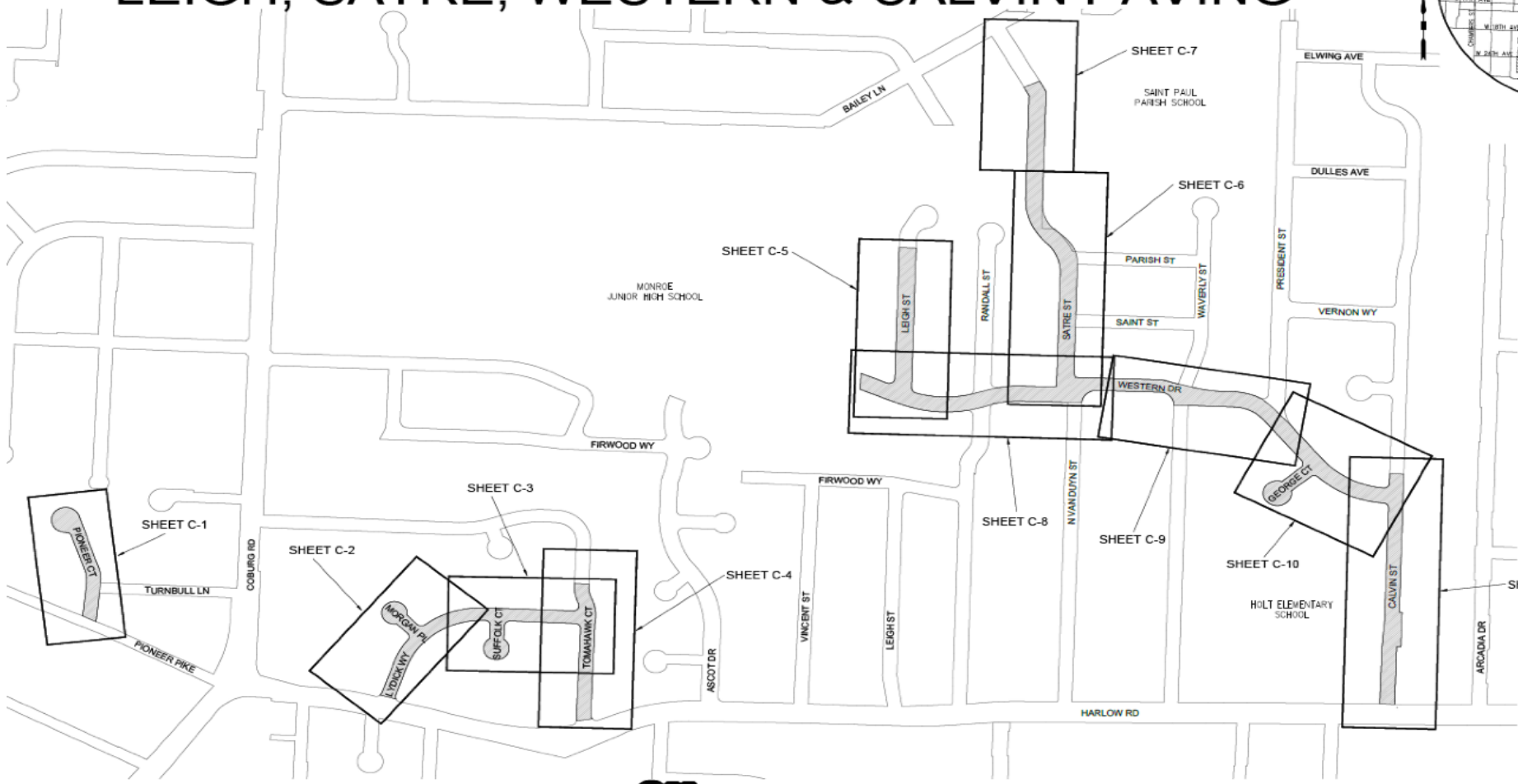
Road Recycling Treatments

- **Full Depth Reclamation (FDR)** – Pulverizing and mixing the existing road structure with cement and water, then compacting the mixture and grading it to form a new, strengthened roadbed.
- **RAP Base** a.k.a. Grind/Pack/Pave – Milling the existing asphalt pavement and using the resultant RAP in-place to compact and grade a new roadbed surface.

2017 PAVEMENT PRESERVATION PROGRAM PIONEER, TOMAHAWK, LYDICK, LEIGH, SATRE, WESTERN & CALVIN PAVING



VICINITY MAP
N.T.S.



FUNDED BY 2012 STREET REPAIR BOND

ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. These rules are set forth in OAR 952-001-0010 through OAR 952-00-0090. You may obtain copies of these rules from the Center by calling 1-800-332-2344. If you have any questions about these rules, you may contact the call Center.




APPROVED: CITY ENGINEER

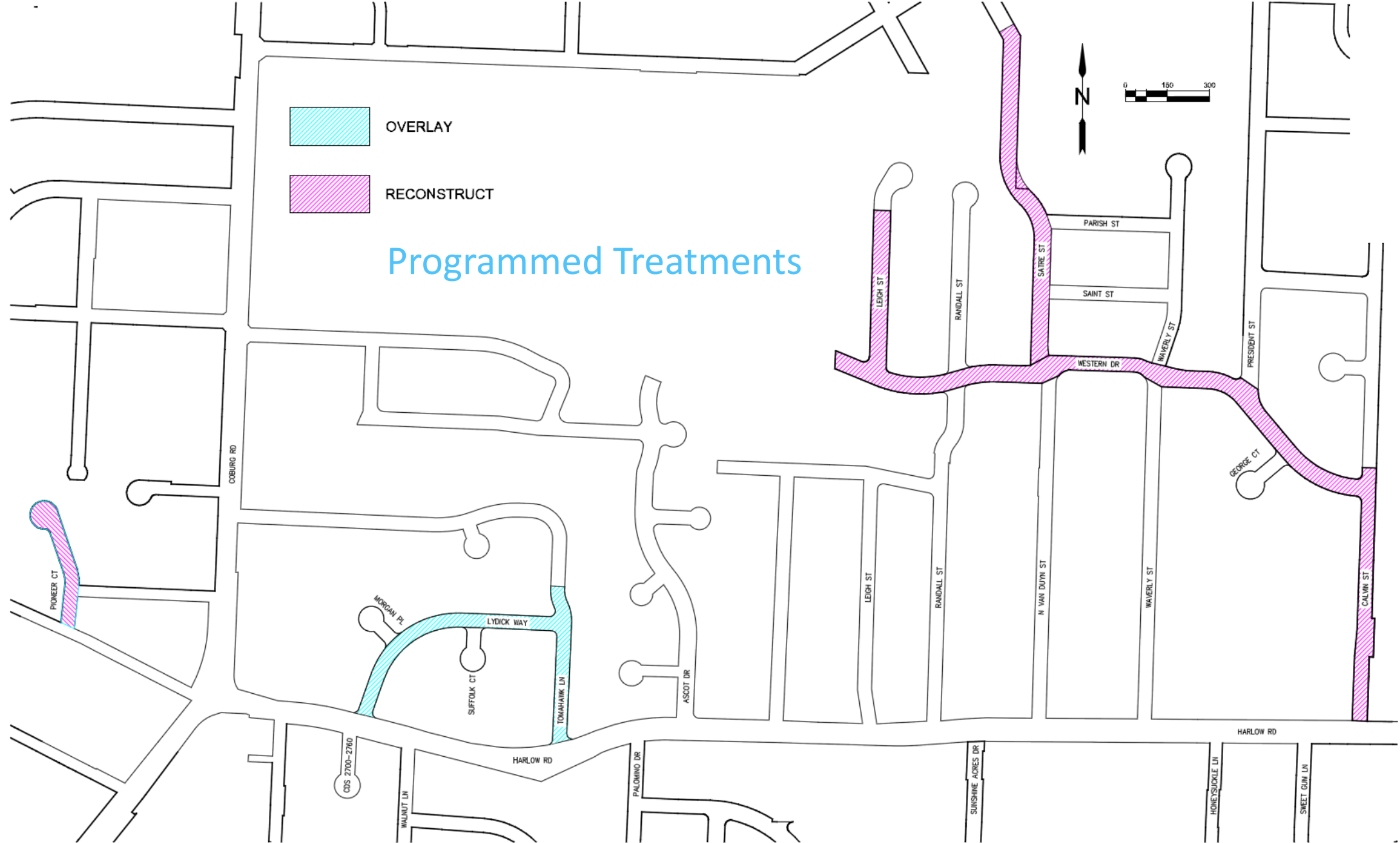
APPROVED: TRAFFIC ENGINEER

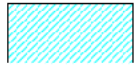


EXPIRES 12/31/17

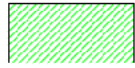
Programmed Treatments

-  OVERLAY
-  RECONSTRUCT

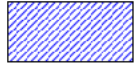




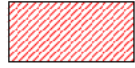
1.5" OVERLAY



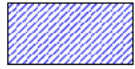
RAP BASE



2" MILL AND FILL

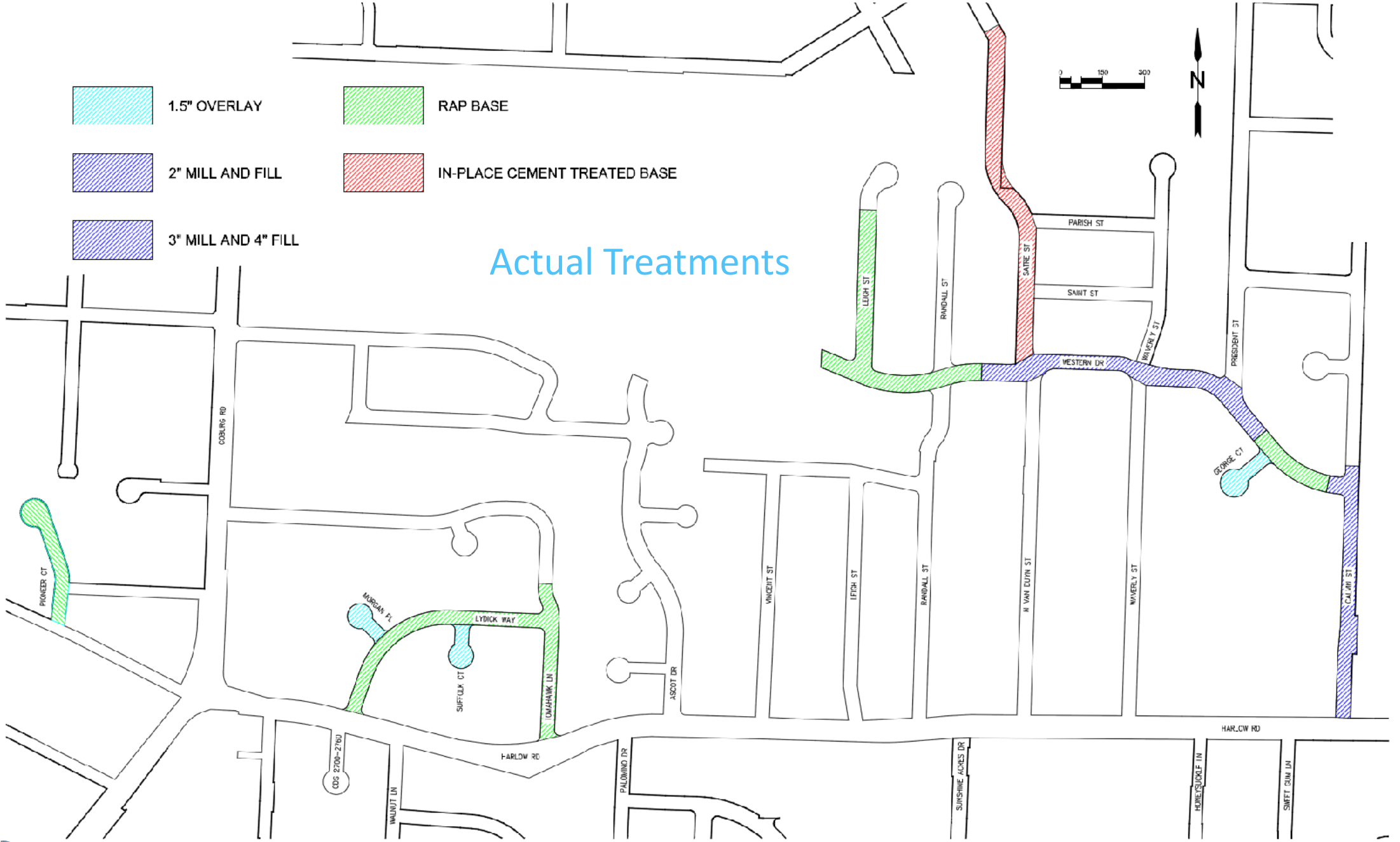
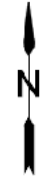


IN-PLACE CEMENT TREATED BASE



3" MILL AND 4" FILL

Actual Treatments



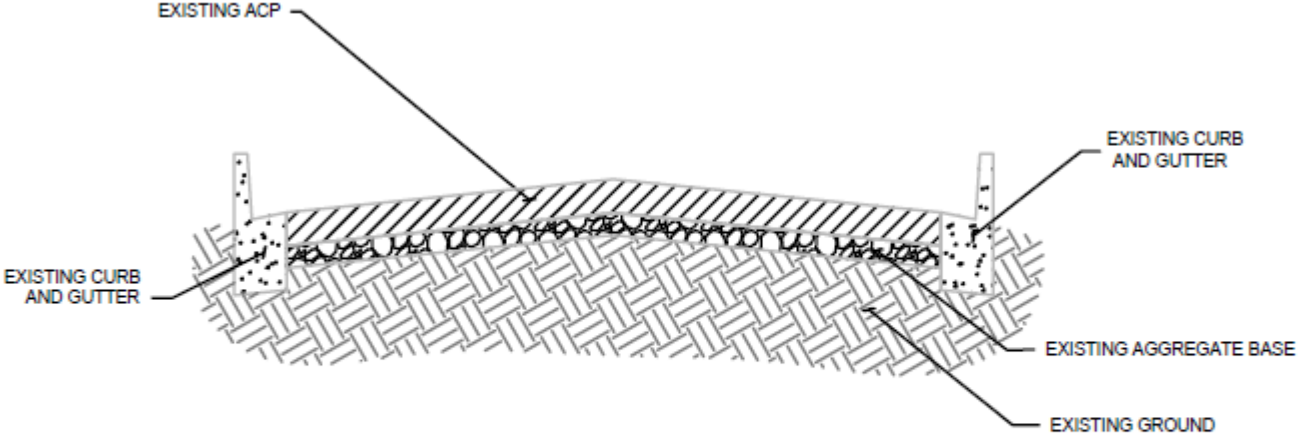
Programmed Estimates

Street Name	PPP Treatment	Lane Miles	Estimate
CALVIN STREET	RECONSTRUCT	0.45	\$ 226,000
LEIGH STREET	RECONSTRUCT	0.30	\$ 152,000
SATRE STREET	RECONSTRUCT	0.75	\$ 591,000
WESTERN DRIVE	RECONSTRUCT	0.75	\$ 376,000
LYDICK WAY	OVERLAY	0.37	\$ 72,000
PIONEER COURT	RECONSTRUCT	0.18	\$ 93,000
TOMAHAWK LANE	OVERLAY	0.24	\$ 76,000

\$1,586,000

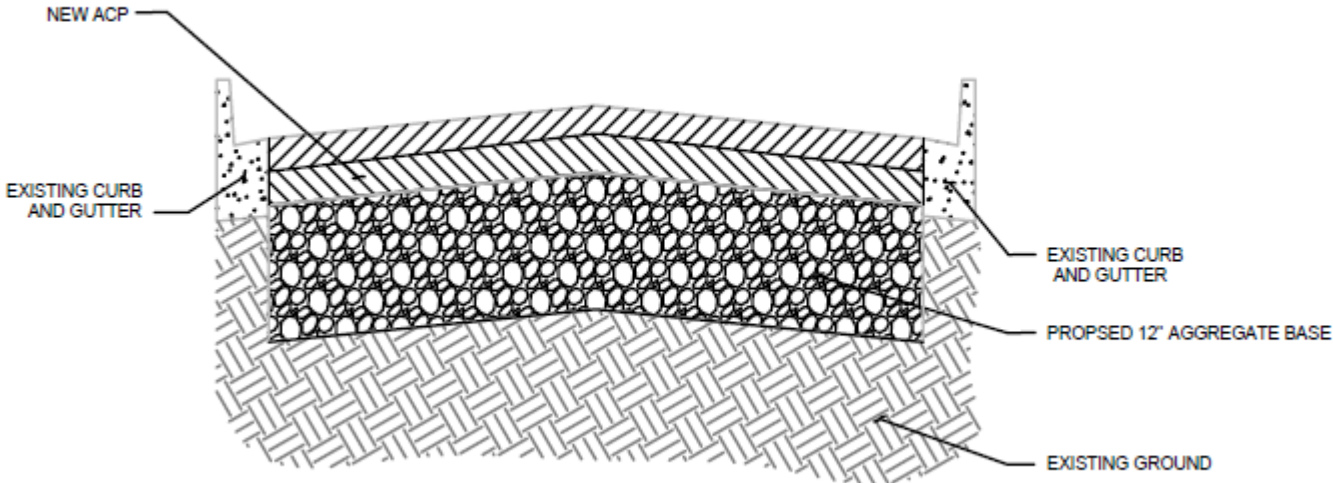
Pioneer Ct

Existing – 2.5” ACP on 2” of Aggregate Base



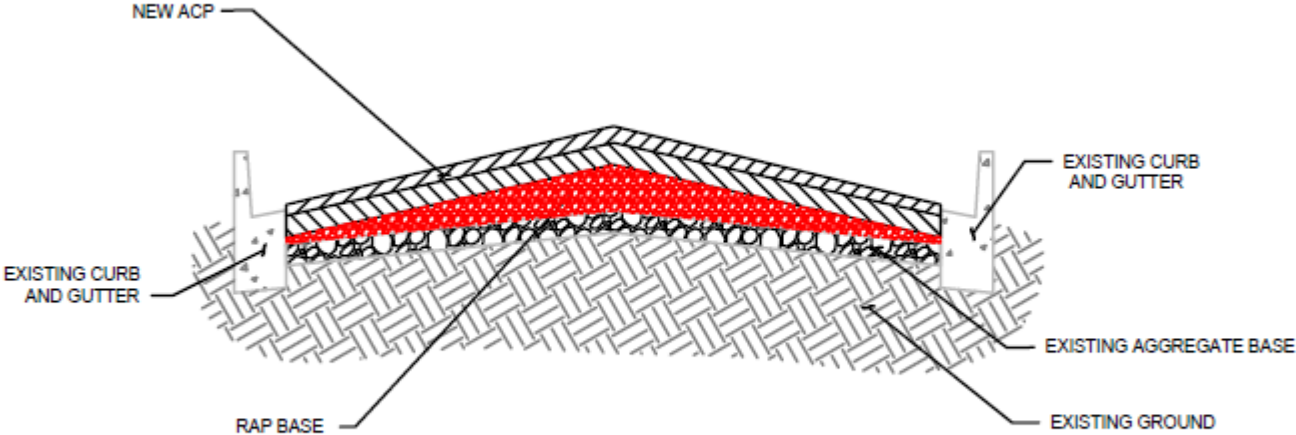
Pioneer Ct

Programmed – Reconstruct 6" ACP on 12" Aggregate Base (*standard minimum from PIDS*)



Pioneer Ct

Actual – RAP Base



Pioneer Ct

EXISTING CONDITION



Pioneer Ct

EXISTING CONDITION



Pioneer Ct

MILLING FOR RAP BASE



Pioneer Ct

SHAPING THE RAP BASE



Pioneer Ct

SHAPING THE RAP BASE



Pioneer Ct

COMPACTING THE RAP BASE

FAITH RESTORED





Needs 3.5 inches of AC
But NO trucks allowed

Trucks okay here

RAP Base

Existing

Pioneer Ct

COMPACTING THE RAP BASE

Pioneer Ct

THE SHUTTLE BUGGY



Paving on RAP Base

Existing Pavement



Pioneer Ct

THE SHUTTLE BUGGY

Pioneer Ct

RAP BASE THE OTHER SIDE



Pioneer Ct

TOP LIFT PAVING

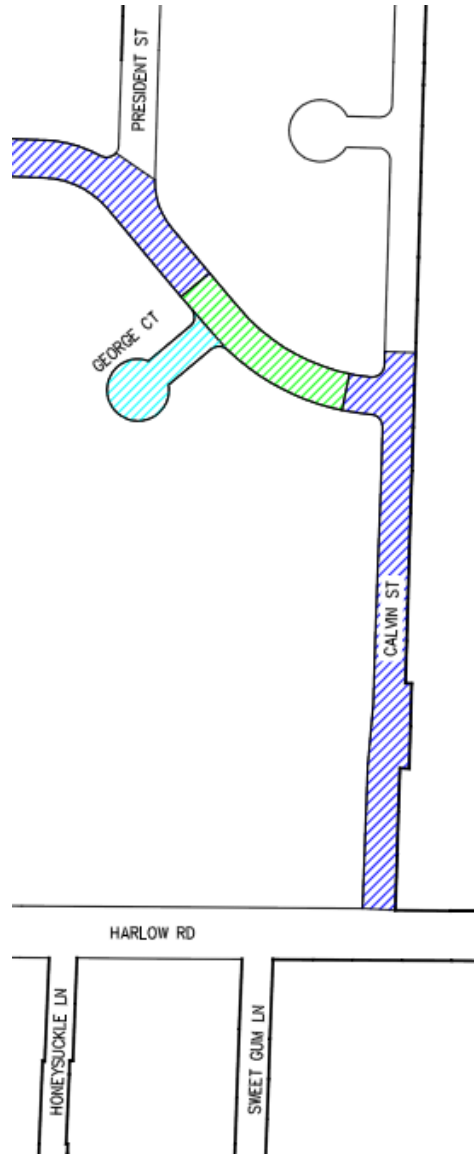
TRUCKS OKAY



Pioneer Ct

TOP LIFT PAVING





Calvin St

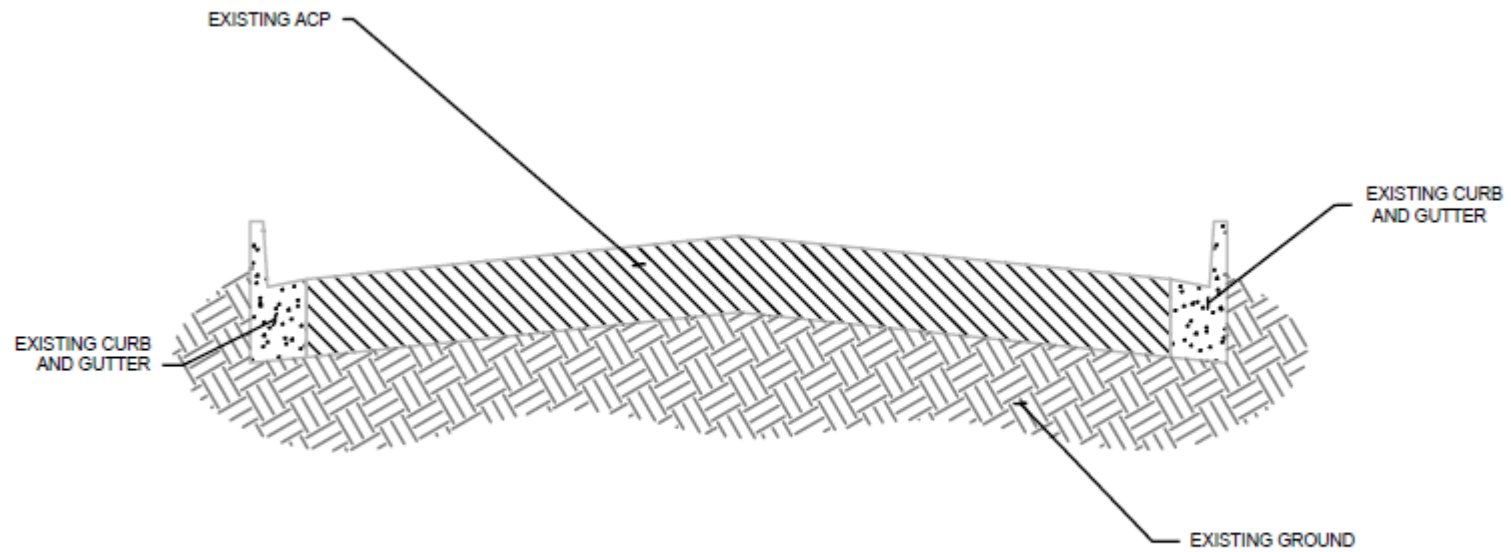
930 feet (0.45 lane miles)

Programmed: Reconstruction \$226,000

Actual: 2" Mill and Fill

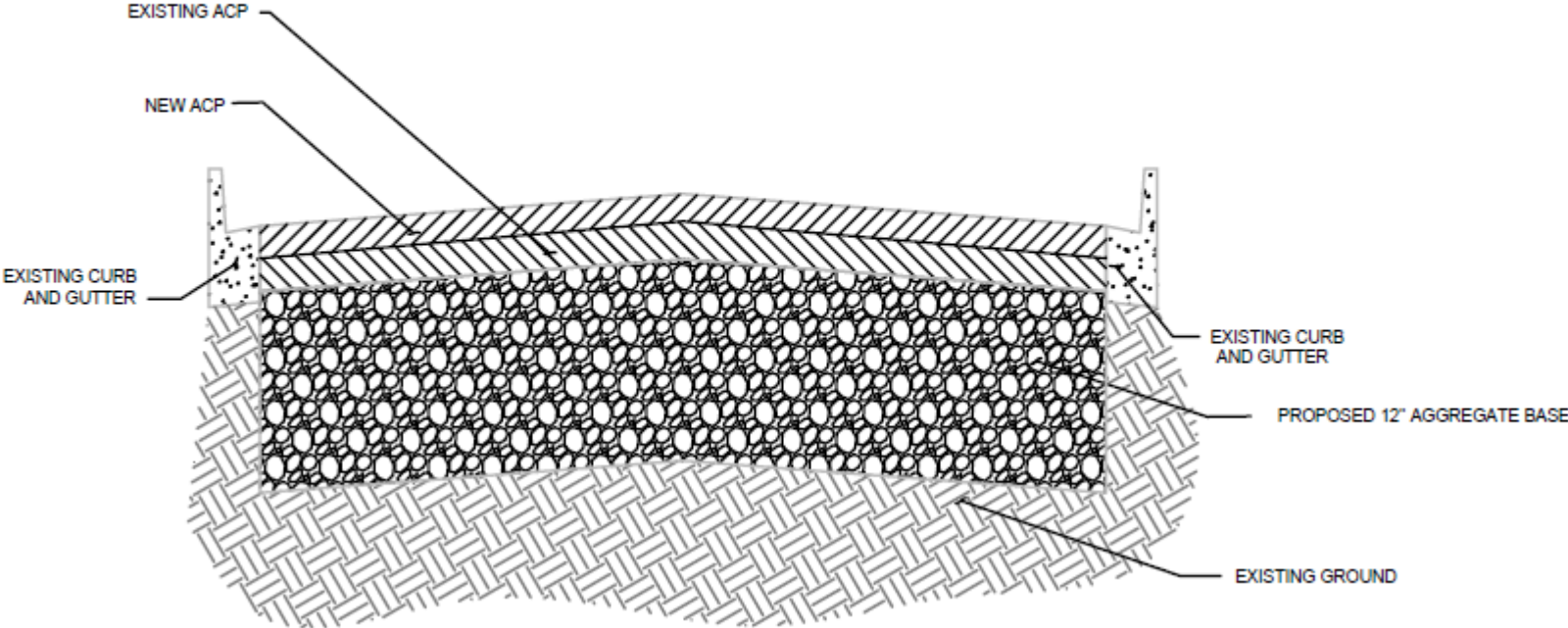
Calvin St

Existing – 7" ACP on Subgrade



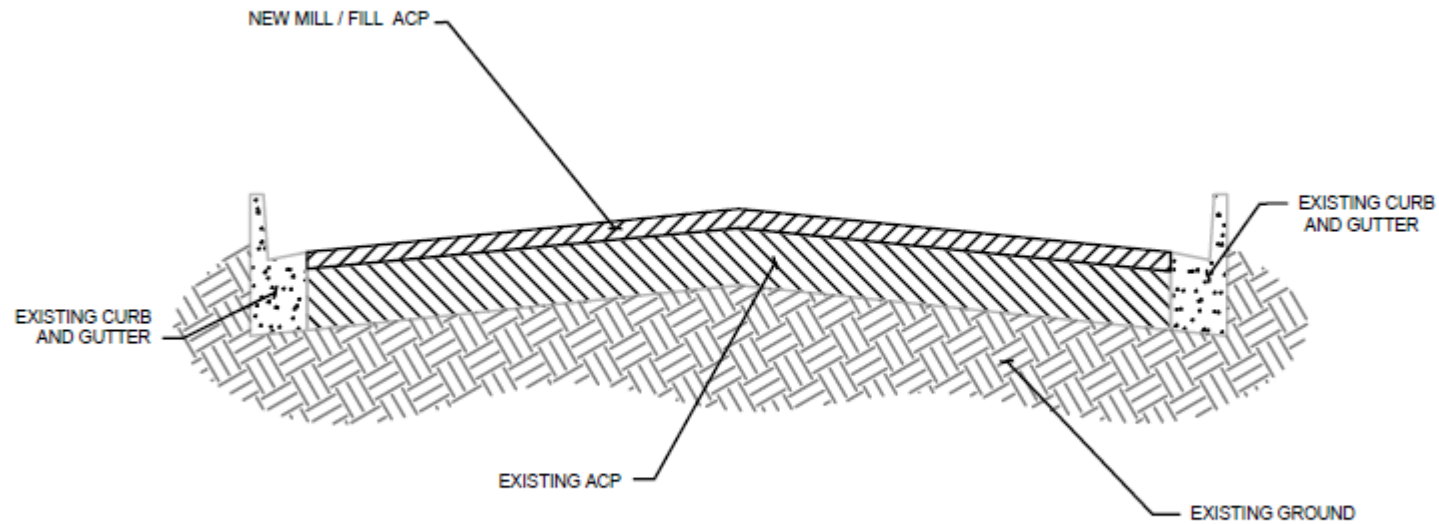
Calvin St

Programmed – Reconstruct 6" ACP on 12" Aggregate Base



Calvin St

Actual – 2" Mill and Fill

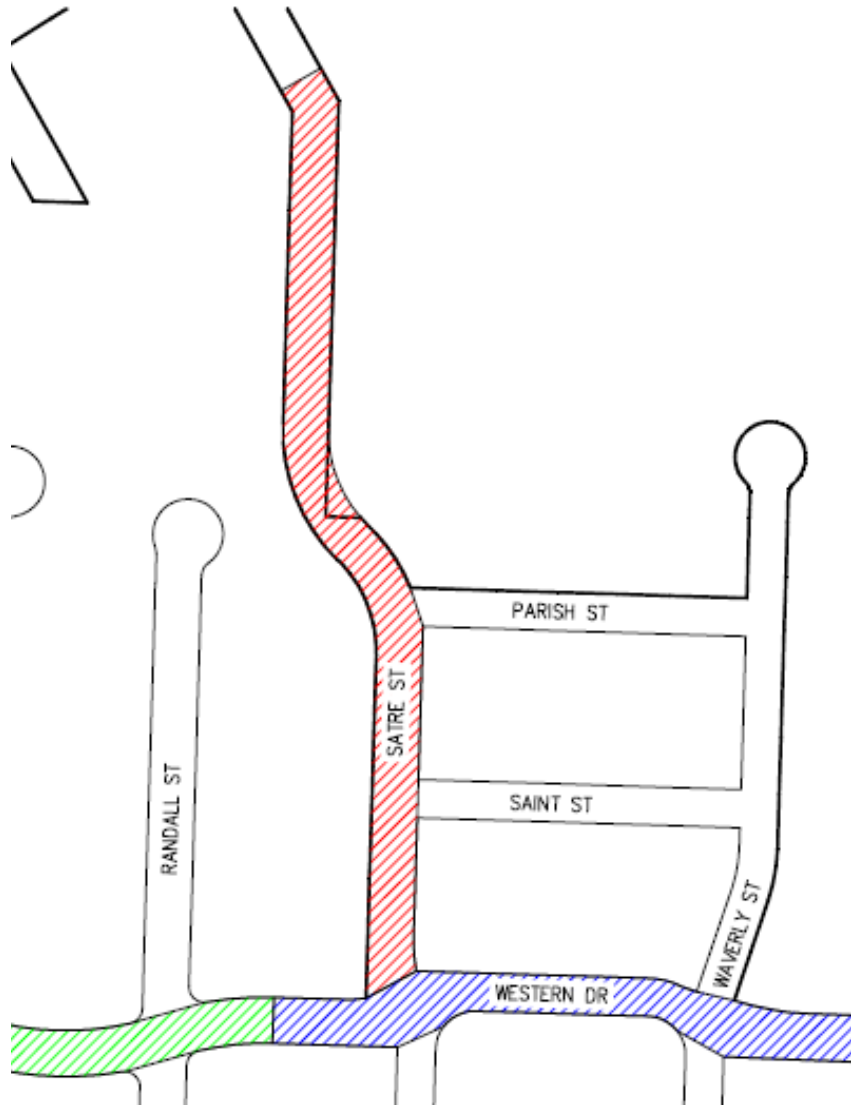


Satre St

1,240 feet (0.75 lane miles)

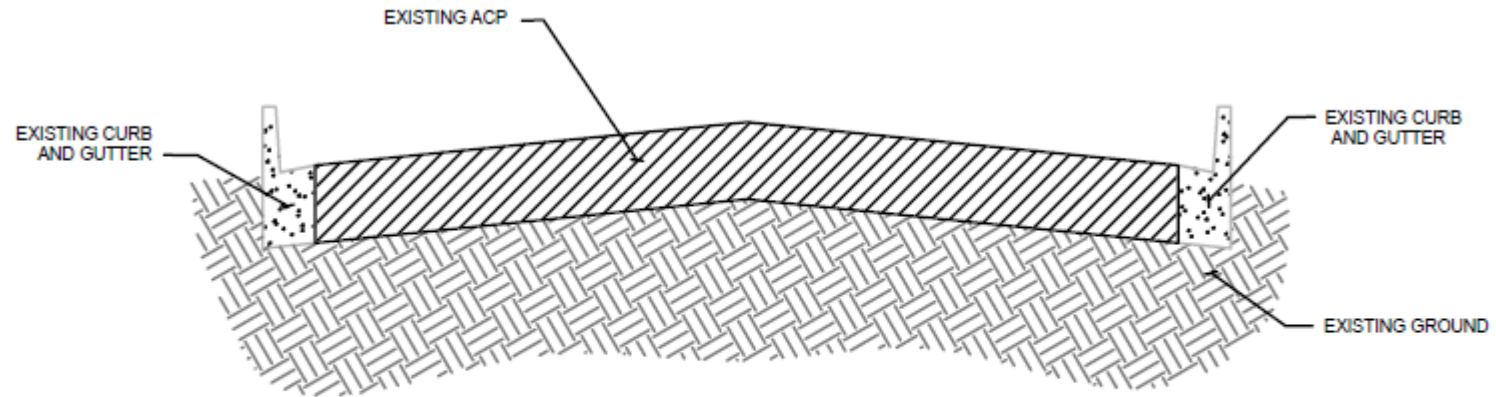
Programmed: Reconstruction \$591,000

Actual: Full Depth Reclamation



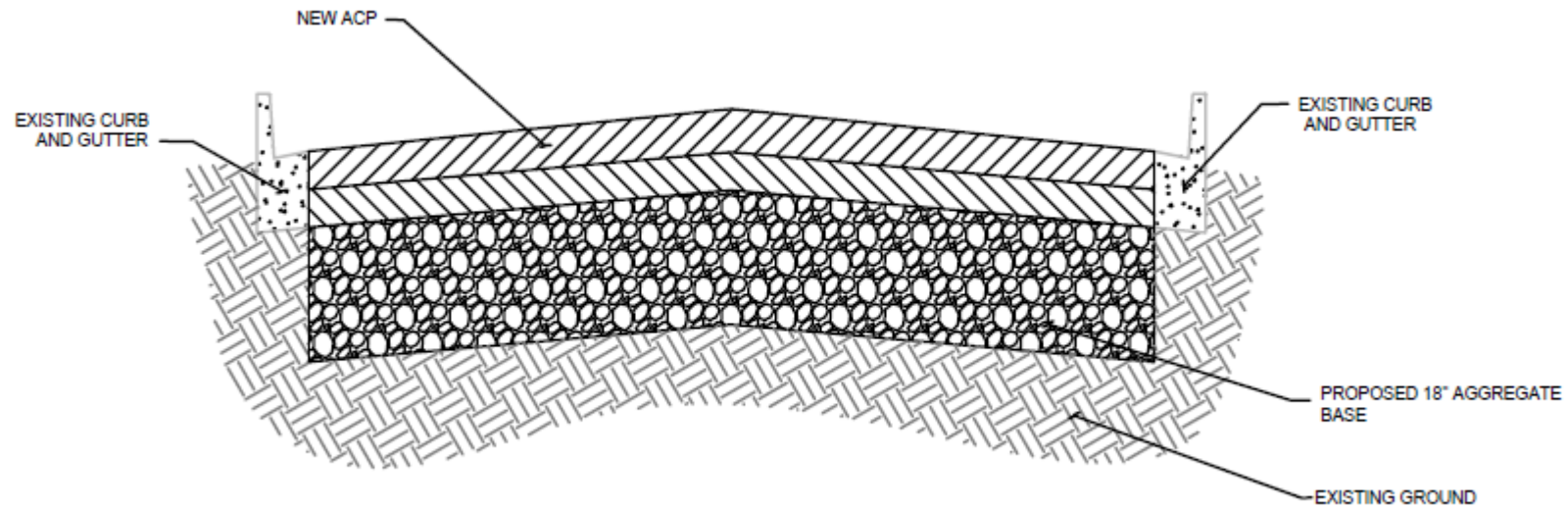
Satre St

Existing – 7" ACP on Subgrade



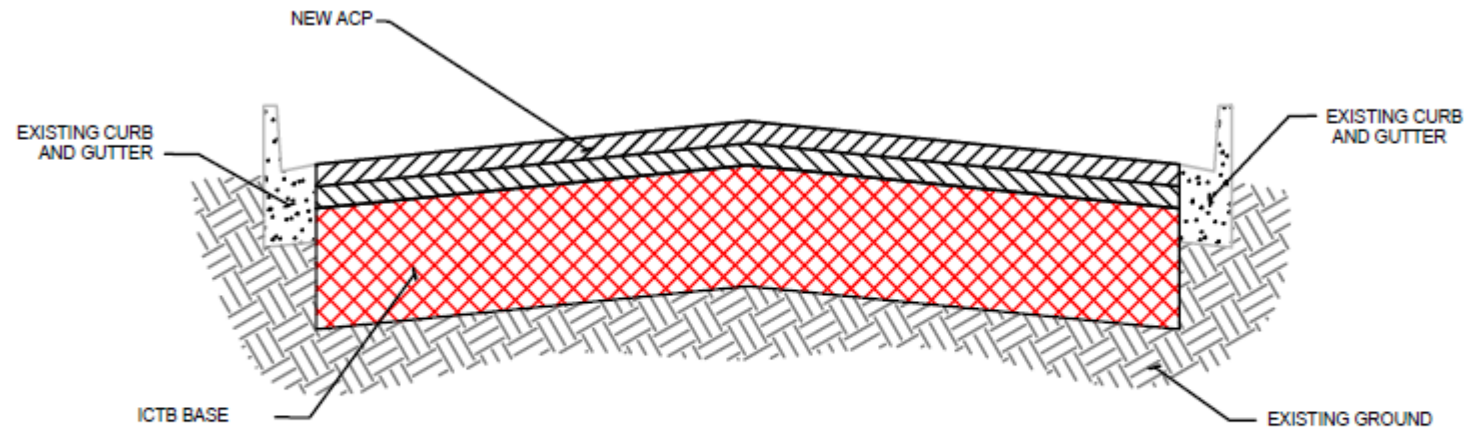
Satre St

Programmed – 6" ACP on 18" Aggregate Base



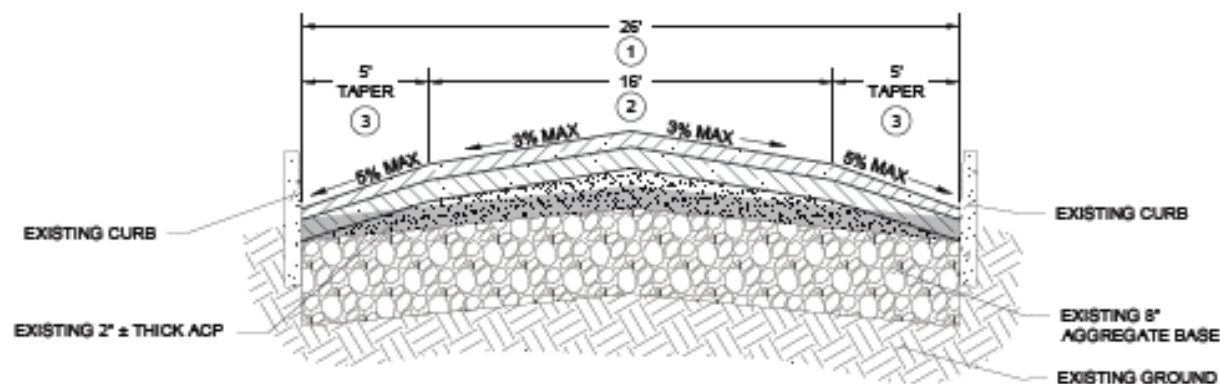
Satre St

Actual – 4" ACP on 11" ICTB (Full Depth Reclamation)



Contract Challenges

- Shaping/Grading RAP Base
- Excavation by the Ton



H TOMAHAWK LN TYPICAL SECTION

STATION 0+48 TO 5+70 NTS

COLD PLANING

- 1 COLD PLANE EXISTING AC FULL DEPTH (2" ± TYP) SPREAD, SHAPE AND COMPACT RAP IN PLACE AS FOLLOWS: GRADE RAP TO 0" THICK AT FACE OF CURB AND TRANSITION TO 2.5" THICK AT 5'. SPREAD, GRADE AND REMOVE REMAINING RAP BETWEEN GRADE BREAK AND CROWN AS DIRECTED TO ACHIEVE BUT NOT EXCEED MAXIMUM CROSS SLOPES.

PAVING

- 1 2" THICK LEVEL 2, 1/2" DENSE ACP BASE COURSE
- 2 1.5" THICK LEVEL 2, 1/2" DENSE ACP WEARING COURSE
- 3 1"-1.5" THICK LEVEL 2, 1/2" DENSE ACP WEARING COURSE TAPER WEARING COURSE FROM 1.5" THICK AT 5' TO 1" THICK AT CURB. AT ADA RAMPS TAPER FLUSH TO LIP OF GUTTER OR BASE OF RAMP.

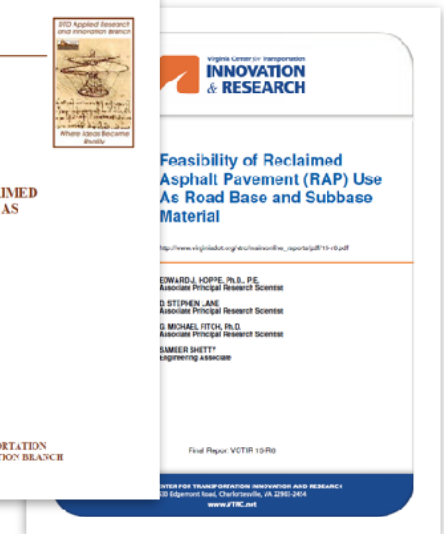
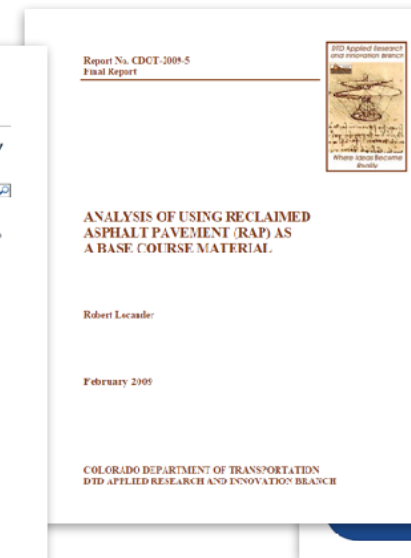
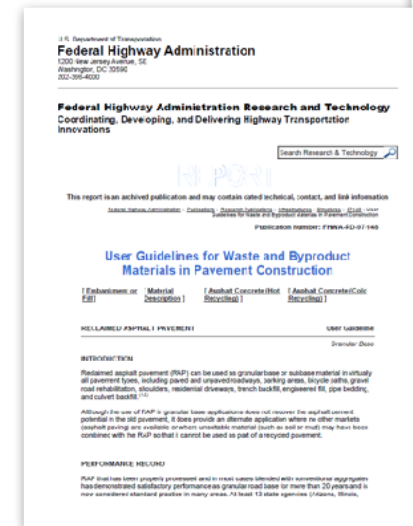
Programmed Estimates vs Actual Costs

Street Name	Programmed Treatment	Actual Treatment	Programmed Costs	Actual Costs
CALVIN STREET	RECONSTRUCT	MILL/FILL	\$ 226,000	\$145,622
LEIGH STREET	RECONSTRUCT	RAP BASE	\$ 152,000	\$90,292
SATRE STREET	RECONSTRUCT	FDR	\$ 591,000	\$418,016
WESTERN DRIVE	RECONSTRUCT	COMBO	\$ 376,000	\$335,143
LYDICK WAY	OVERLAY	RAP BASE	\$ 72,000	\$69,848
PIONEER COURT	RECONSTRUCT	RAP BASE	\$ 93,000	\$87,996
TOMAHAWK LANE	OVERLAY	RAP BASE	\$ 76,000	\$74,083
			\$1,586,000	\$1,222,000

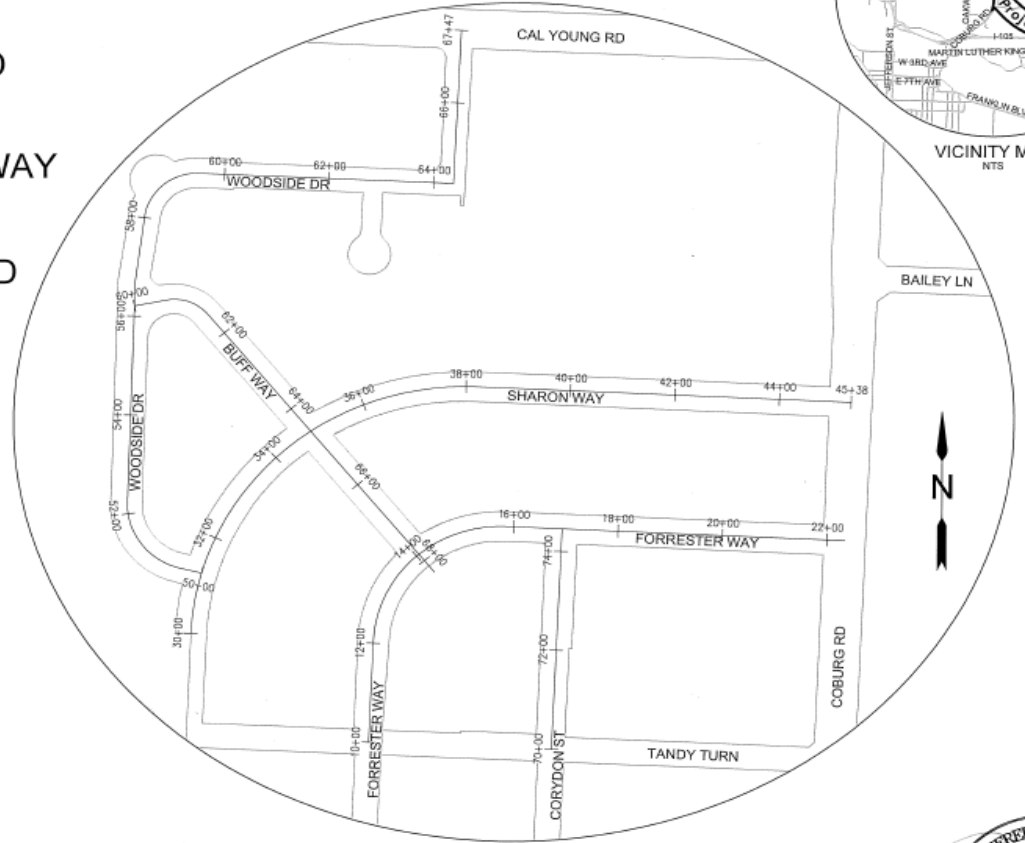
Standards

- Minimum Thickness of AC
 - *Can be reduced by 2" w/cement treated base
- Minimum Thickness of Agg Base
- Pavement Design – SN
 - 20 Yr - Rehab
 - 30 Yr - Reconstruction

<u>Street Classification</u>	<u>Minimum Thickness</u>
Local or Neighborhood Collector	6 inches
Local or Neighborhood Collector w/bus route	8 inches
Major Collector	8 inches
Arterial	9 inches



**2018 PAVEMENT
PRESERVATION PROGRAM**
WOODSIDE DRIVE
 FROM SHARON WAY TO CAL YOUNG ROAD
BUFF WAY
 FROM WOODSIDE DRIVE TO FORRESTER WAY
SHARON WAY
 FROM WOODSIDE DRIVE TO COBURG ROAD
FORRESTER WAY
 FROM TANDY TURN TO COBURG ROAD
CORYDON STREET
 FROM TANDY TURN TO FORRESTER WAY



WOODSIDE DRIVE PAVING, BUFF WAY PAVING,
 SHARON WAY PAVING, FORRESTER WAY PAVING AND
 CORYDON STREET PAVING
 FUNDED BY THE 2012 STREET REPAIR BOND

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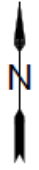
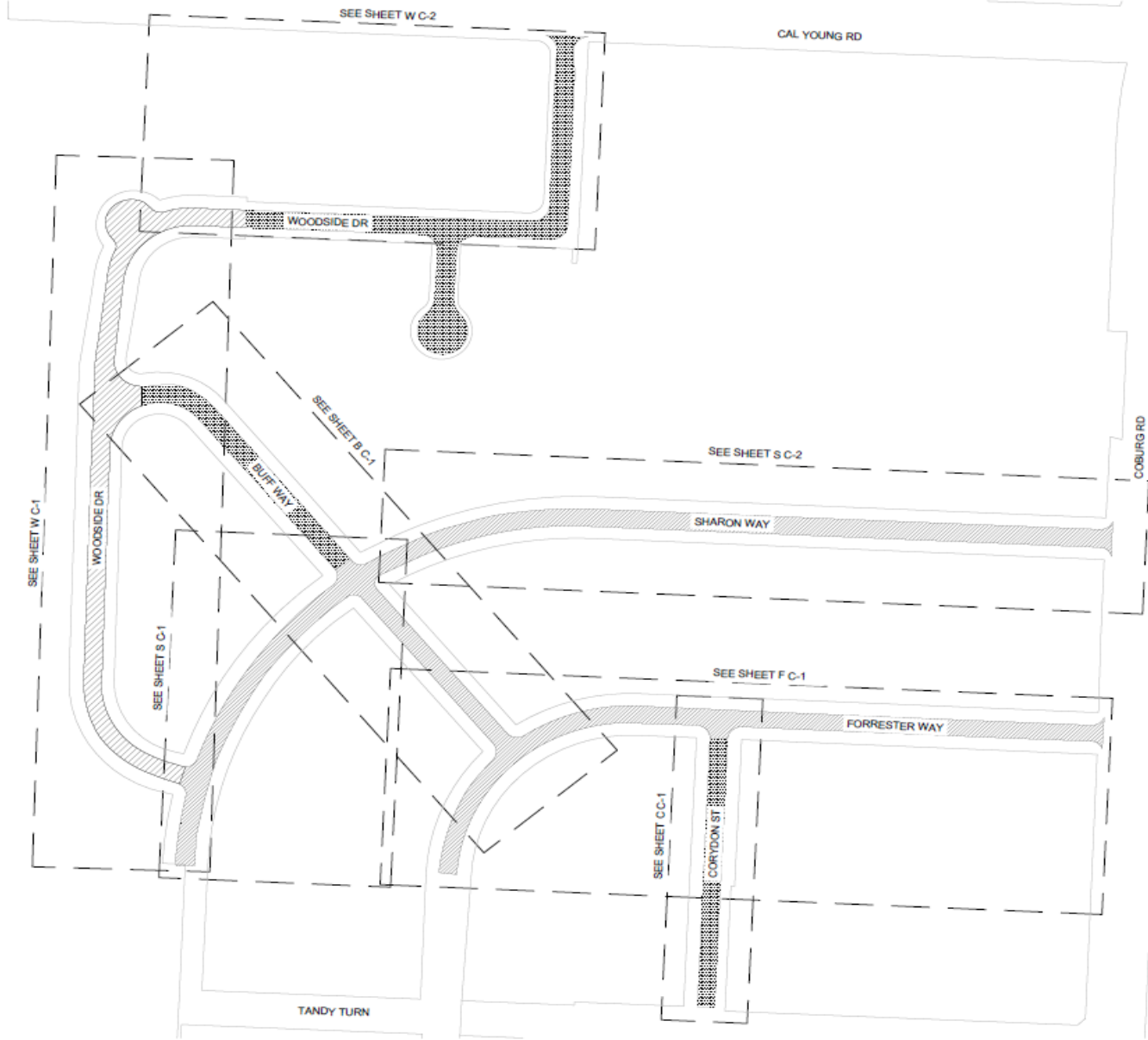


CITY OF
 EUGENE, OREGON
 DEPARTMENT OF PUBLIC WORKS
 ENGINEERING DIVISION

FORRESTER-SHARON-WOODSIDE
 BUFF-CORYDON PAVING
 COVER

DATE	SCALE	DATE	SCALE	DATE	SCALE	DATE	SCALE
5/4/2016	NTS						
DESIGNED BY	K. MARVITZ	CHECKED BY	D. SINGER	DATE		DESCRIPTION	BY
DRAWN BY	S. SPANITZ	PROJECT NO.					

PAVING INDEX



LEGEND

- PAVING LIMITS OF 2.5' OVERLAY
- PAVING LIMITS OF IN PLACE RAP BASE W/3.5' ACP

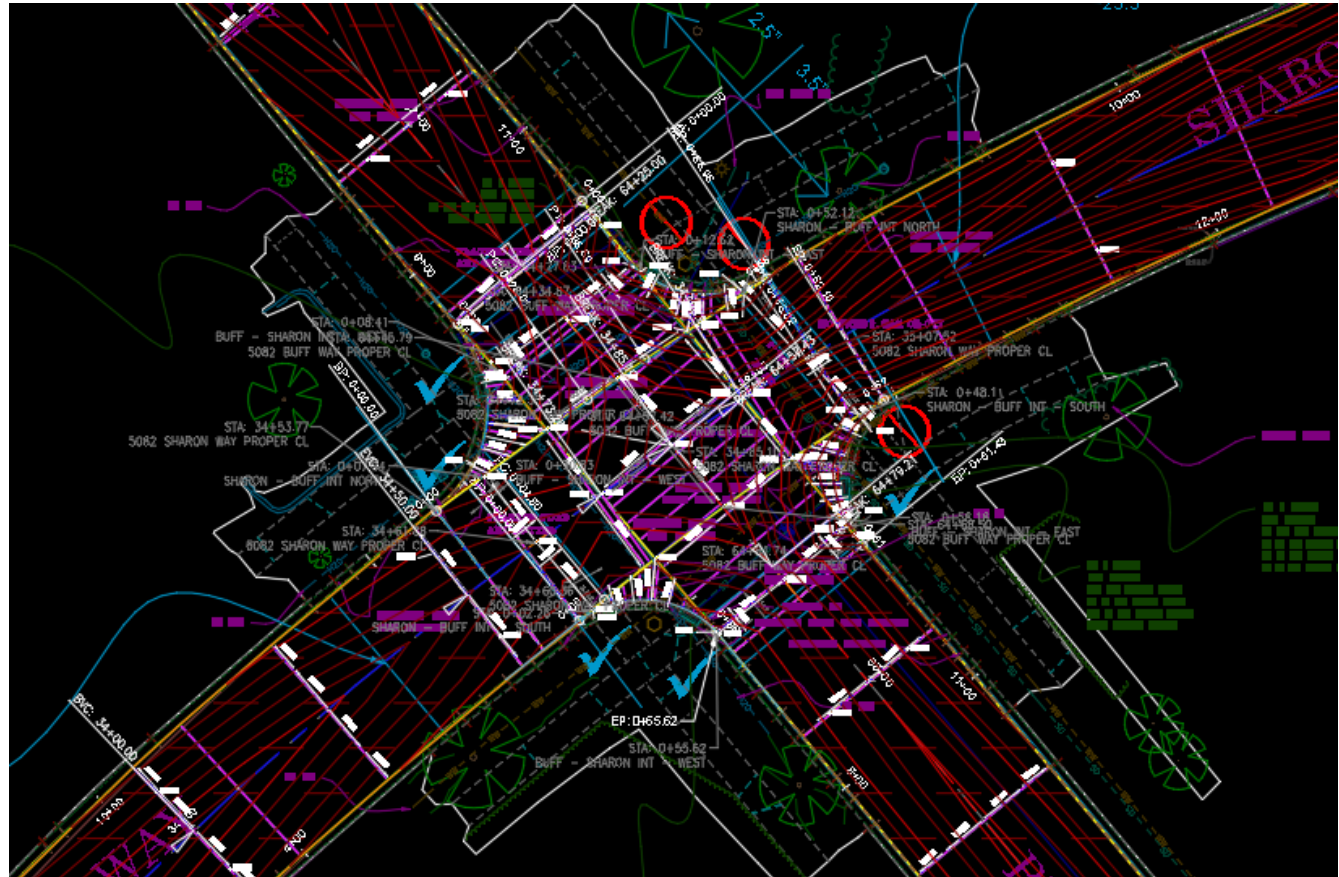


Expires: 06/30/2018

DATE		1/30/2018	NTS
SCALE		AS SHOWN	
DESIGNED BY		K. MARWITZ	
DRAWN BY		M. STEVENS	
CHECKED BY		D. SINGER	
PROJECT NO.		5082	REV
DATE			
DESCRIPTION		FORRESTER-SHARON-WOODSIDE BUFF-CORYDON PAVING	
CITY OF EUGENE, OREGON DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION		PAVING INDEX	
NA003/NAV008		3	

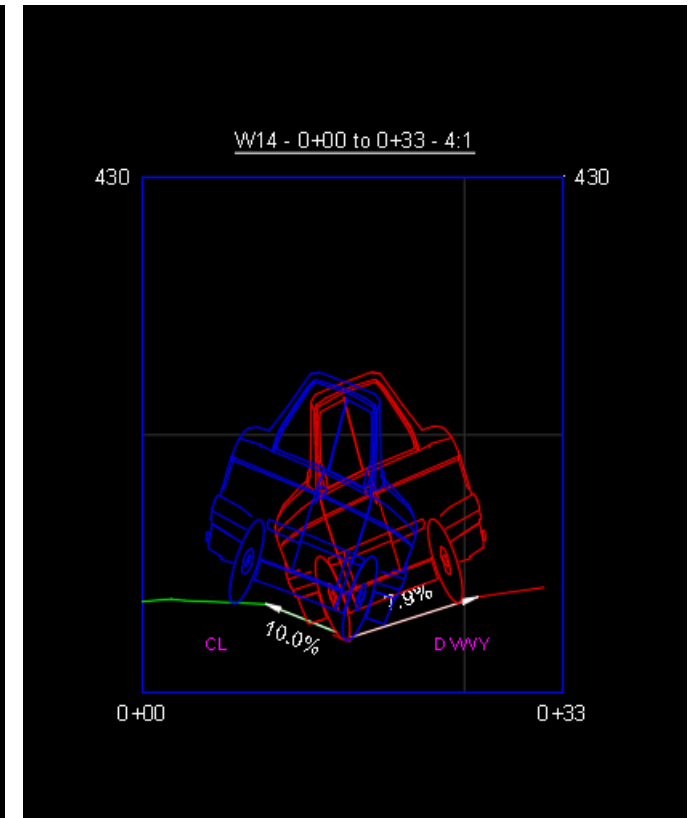
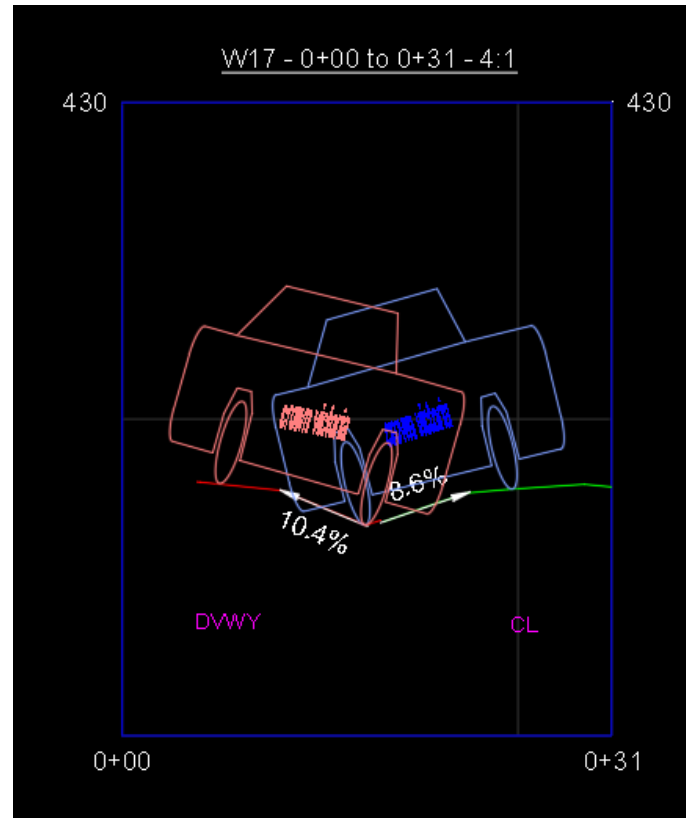
Pump the Brakes!

- ADA Cross Slope Concern
- Modeled Intersections

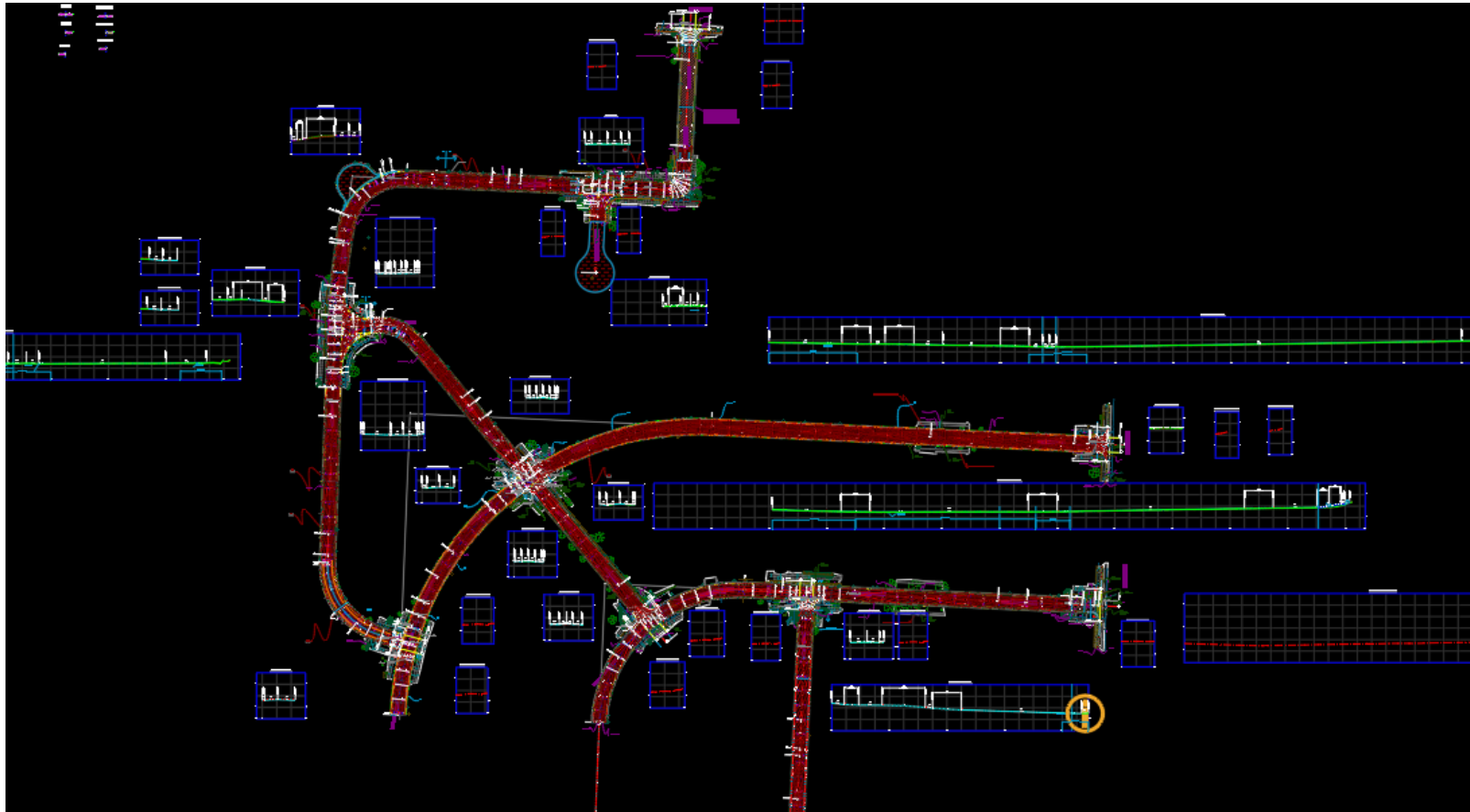


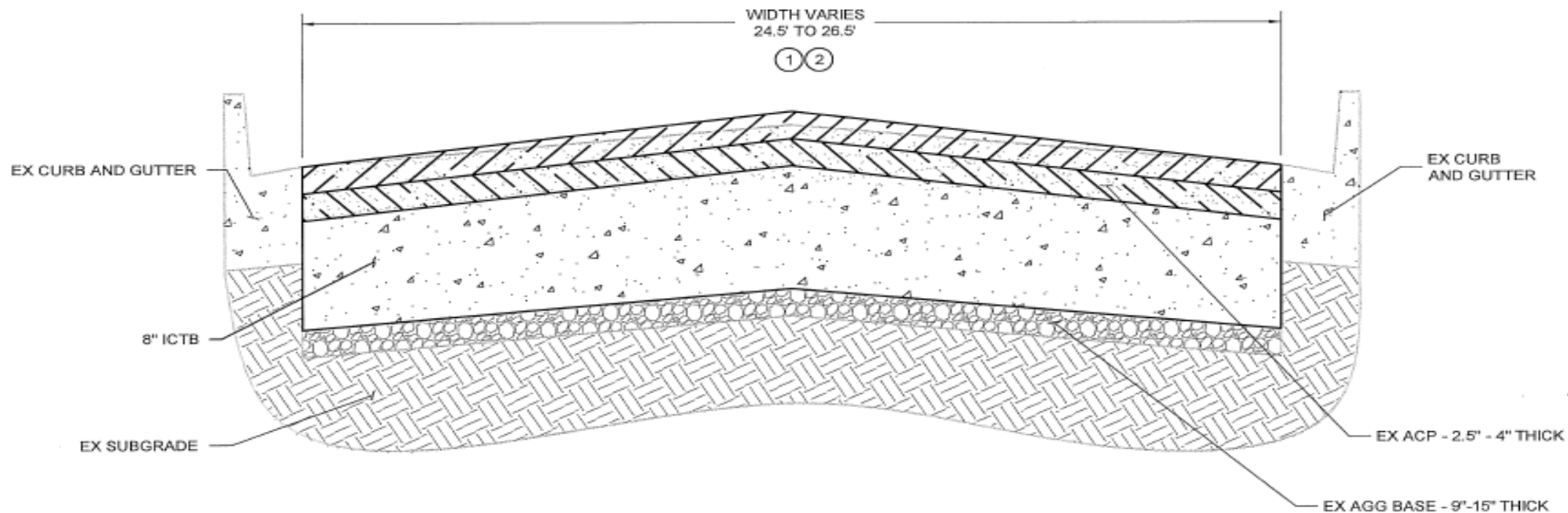
Pump the Brakes!

- Driveway Cross Slopes
- Modeled Driveways



Change Course...





A FULL DEPTH RECLAMATION TYPICAL SECTION NTS

FORRESTER	STA 12+06 TO 21+53
SHARON WAY	STA 30+00 TO 45+06
WOODSIDE DR	STA 50+30 TO 65+00
BUFF WAY	STA 60+14 TO 67+70
CORYDON	STA 70+30 TO 74+34
WOODSIDE CDS	STA 80+00 TO 81+37

FULL DEPTH RECLAMATION

- ① PULVERIZE EXISTING ACP, AGGREGATE BASE AND SUBGRADE TO A DEPTH OF 14 INCHES. REMOVE EXCESS MATERIAL TO A DEPTH OF 4 INCHES BELOW DESIGN GRADE. COMPLETE 8" ICTB FDR WORK PER THE SPECIAL PROVISIONS.

PAVING

- ② 2" LEVEL 2, 1/2" DENSE ACP WEARING COURSE
2" LEVEL 2, 1/2" DENSE ACP BASE COURSE



Forrester Way- FDR

Considerations

- Objective
- Existing Cross Slope of Roadway
- Relative Positions of Homes & Driveways
- Sidewalks

PPP Program Cost Data

Classification	PPP Treatment	Cost/SF
Arterial	Overlay	\$5.29
	Reconstruct	\$14.07
Collector	Overlay	\$4.90
	In-Place Reclamation	\$7.02
	Reconstruct	\$13.94
Local	Overlay	\$4.02
	RAP Base	\$4.75
	Reconstruct	\$10.23

Conclusions/Questions

- Keep Neighborhood Context in Mind During Design
- Be Flexible

- Questions?



Katie Marwitz, PE
City of Eugene Public Works Engineering
541-501-0380
kmarwitz@eugene-or.gov