DISTRICT ONE DESIGN

PAVEMENT DESIGN

FOR

448930-1-52-01

Collier County

SR 90 (US 41)

MP 15.616
to
MP 18.684

David Agacinski
Design Project Manager

PAVEMENT DESIGN PACKAGE

FINANCIAL PROJECT ID :	**448930-1-52-01**
WPI NO.:	**N/A**
STATE PROJECT NO.:	**N/A**
COUNTY SECTION NO.:	**03010**
FEDERAL AID PROJECT NO.:	**N/A**
COUNTY:	**Collier**
PROJECT NAME:	**SR 90 (US 41)**
FROM:	**N OF THOMASSON DR (15.616)**
TO:	**S OF SOUTHWEST BLVD (18.684)**

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On the date indicated here.

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The Balmoral Group
165 Lincoln Avenue
Winter Park, Florida 32789

Kevin Ingle
2024.01.12
09:45:04-05'00'

Concurrence by
Kevin Ingle, P.E.
FDOT District One Design Engineer

FLEXIBLE PAVEMENT DESIGN
QUALITY CONTROL CHECKLIST

Financial Project ID: ***448930-1*** Financial Aid No.: ***NA***
WPI No.: ***N/A*** County: ***Collier***

Ref. No.	**Flexible Pavement Design Review**	**Satisfactory Yes/No**
1.	Pavement Design Summary Sheet	***Yes***
2.	Project Location and Description	***Yes***
3.	Traffic Data and ESALD Calculations	***Yes***
4.	Resilient Modulus (MR)	***Yes***
5.	Required Structural Number (SNR) Calculations	***Yes***
6.	Calculated Structural Number (SNC) Calculations	***Yes***
7.	Base Material Selection	***Yes***
8.	Friction Course Selection	***Yes***
9.	Stabilized Subgrade Evaluation	***Yes***
10.	Shoulder Design	***Yes***
11.	Coordination with Other Offices	***Yes***
12.	Other Special Details	***NA***
13.	Final Pavement Design Drawing or Narrative	***Yes***
	Rehabilitation	
14.	Field Evaluation of Project	***Yes***
15.	Pavement Coring and Evaluation	***Yes***
16.	Distress Evaluation	***Yes***
17.	Existing Cross-Slope and Correction Method	***NA***
18.	Milling Depth and Purpose	***Yes***
19.	Overlay Structural Number (SNO) Calculations	***Yes***
20.	Leveling/Overbuild Recommendation	***Yes***
21.	Composition Report	***NA***
	Projects That Do Not Require Design Calculations	
22.	Existing Pavement Evaluation	***NA***
23.	Existing Cross-Slope and Correction method	***NA***
24.	Asphalt Thickness	***NA***
25.	Base Type and Thickness	***NA***
26.	Future Milling Considerations	***NA***
27.	Structural Evaluation	***NA***
	Plans Review	
28.	Plans Conform to Pavement Design	***Yes***
29.	Cross-Slope correction addressed	***NA***
30.	Design Details Adequately Covered	***Yes***
31.	Standard Indexes Properly Referenced	***Yes***
32.	Project is Constructable with Current Technology	***Yes***

Comments (by Ref. No.)

QA by: ***Marlene Hebert*** Date: ***1/8/2024***

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

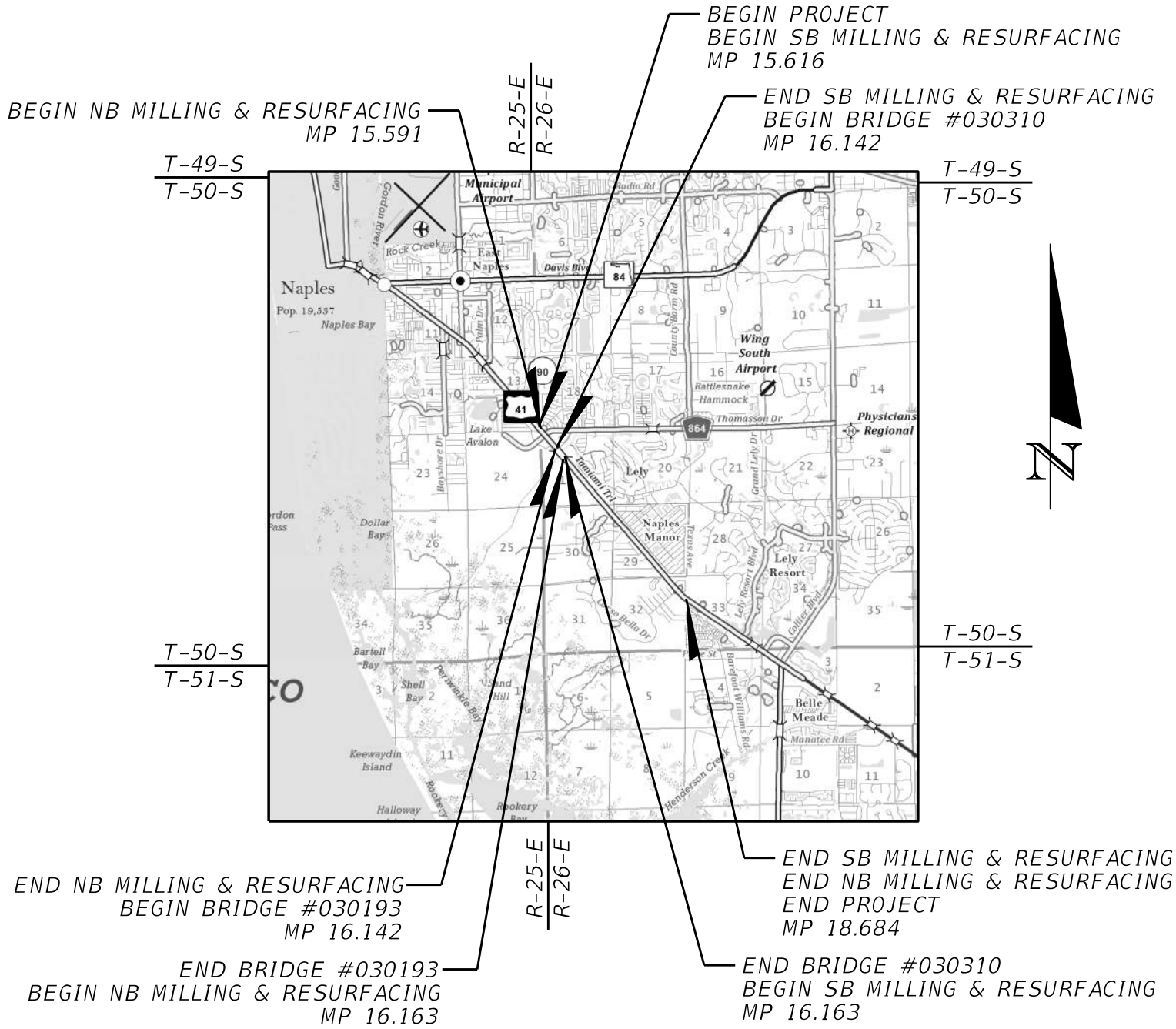
PROJECT LOCATION MAP

FINANCIAL PROJECT ID 448930-1-52-01

COLLIER COUNTY (03010)

STATE ROAD NO. 90 (US 41)

FROM N OF THOMASSON DR TO S OF SOUTHWEST BLVD



Project Description

This report contains the pavement design and supporting documentation for the State Road 90 (US 41) milling & resurfacing project from N. of Thomasson Drive to S. of Southwest Boulevard in Collier County, Florida. This is a Pavement Only Project and the primary objective is to restore the functional condition of the pavement. Additional improvements include correcting non-compliant ADA curb ramps. State Road 90 is an urban principal arterial other roadway with a projected design year (2045) AADT of 48,600. The Typical Section Package (Appendix D) shows a divided 6-lane roadway with three 12-foot-wide travel lanes, a 30-foot raised grassed median with Type F curb and gutter, and 12-foot outside shoulders (5 to 6-foot paved) with adjacent 6-foot sidewalk on both sides.

The Pavement Survey and Evaluation Report was provided by the Department and is dated April 10, 2023 (Appendix C). This data was taken into consideration while evaluating the existing pavement structure as noted in the Existing Pavement Coring Information and Computed Averages (Appendix E).

The 18-kip Equivalent Single Axle Loads (ESAL's) Analysis and design traffic were provided by the Department in a memo from Brittany Nichols, Traffic Analyst/RCI Coordinator, dated March 9, 2021 (Appendix A). The Resilient Modulus (Mr) was also provided by the Department in a memo from Guangming Wang P.E., dated August 2, 2022 (Appendix B).

A design life of 20 years was chosen and 97% reliability was utilized in accordance with Tables 3.1 and 5.2 of the Flexible Pavement Design Manual (January 2023). The existing pavement was noted to be in fair condition with light to moderate cracking and minimal rutting. The Materials Office provided the initial mainline, shoulder, and auxiliary lane recommendation for milling and resurfacing (Appendix C) which can be seen in the following table.

Location	Milling Depth	SP-12.5 Lift	FC-5 Lift	FC-12.5 Lift
Mainline	3 3/4"	3"	3/4"	--
Mainline (L1), Shoulders, Auxiliary Lanes	2 1/4"	1 1/2"	3/4"	--

Per the Executive Directive issued on September 22, 2023 (Appendix F), all District One RRR projects with a 2025 letting date were to reduce the placement of structural course by 1", where feasible. The initial recommendation was reevaluated and with coordination of the District Pavement Materials Office, the final pavement design is summarized in the following table.

Location	Milling Depth	SP-12.5 Lift	FC-5 Lift	FC-12.5 Lift
Mainline (L1, L3, R3), Shoulders, Auxiliary Lanes	2 1/4"	1 1/2"	3/4"	--
Mainline (L2, R1, R2)	2 3/4"	2"	3/4"	--
Crossovers	1 1/2"	1 1/2"	--	--
Side Streets	1 1/2"	--	--	1 1/2"

FLORIDA DEPARTMENT OF TRANSPORTATION
FLEXIBLE PAVEMENT DESIGN SUMMARY SHEET

Prepared by:	The Balmoral Group	**Date Prepared:**	12/21/23
Financial Project No.	448930-1-52-01	**Project Name:**	SR 90 (US 41)
WPI No.	N/A	**From:**	N OF THOMASSON DR
State Project No.	N/A	**To:**	S OF SOUTHWEST BLVD
County Section No.	03010	**Begin MP:**	15.616
FAP No.	N/A	**End MP:**	18.684
County:	Collier	**Project Length (Mi)**	3.068
Type Work:	Resurfacing (Pavement Only)		
Opening Year:	2025	**% R:**	97
Design Year:	2045	**M_R:**	21,000 **PSI**
$ESAL_D$ - Mainline	3,688,000	**Design Speed:**	50 **MPH**
$ESAL_D$ - Shoulder	* 110,640	**Functional Class:**	Urban Principal Arterial Other
SN_R - Mainline	3.22		
SN_R - Shoulder	1.79	*** 3% of $ESAL_D$ - Mainline**	

Milling & Resurfacing - NB Mainline 15.616 to 18.684

Existing Mainline

Layer	Thickness	Coef.	SN
FC-9.5	1.00	0.25	0.25
SP-9.5	3.90	0.25	0.98
LBR 100	10.50	0.18	1.89
Stabilization	12.00	0.08	0.96
		Existing Total SN:	4.08

Recommended Milling & Resurfacing Pavement Design - Mainline (L1 & L3):

Layer	Thickness	Coef.	SN
Milling	2.25	0.25	-0.56
Asphalt Concrete Friction Course, Inc Bit, FC-5, PG 76-22	0.75	0.00	0.00
Superpave Asphaltic Concrete, Traffic C, PG 76-22	1.50	0.44	0.66
		Existing Total SN:	4.08
		Design Total SN:	**4.18**
		Required SN:	3.22
		Difference From Required SN:	0.96

Recommended Milling & Resurfacing Pavement Design - Mainline (L2):

Layer	Thickness	Coef.	SN
Milling	2.75	0.25	-0.69
Asphalt Concrete Friction Course, Inc Bit, FC-5, PG 76-22	0.75	0.00	0.00
Superpave Asphaltic Concrete, Traffic C, PG 76-22	2	0.44	0.88
		Existing Total SN:	4.08
		Design Total SN:	**4.27**
		Required SN:	3.22
		Difference From Required SN:	1.06

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State Project No.	N/A	**To:**	S OF SOUTHWEST BLVD	
County Section No.	03010	**Begin MP:**	15.616	
FAP No.	N/A	**End MP:**	18.684	
County:	Collier	**Project Length (Mi)**	3.068	
Type Work:	Resurfacing (Pavement Only)			
Opening Year:	2025	**% R:**	97	
Design Year:	2045	**M_R:**	21,000	**PSI**
$ESAL_D$ - Mainline	3,688,000	**Design Speed:**	50	**MPH**
$ESAL_D$ - Shoulder	* 110,640	**Functional Class:**	Urban Principal Arterial Other	
SN_R - Mainline	3.22			
SN_R - Shoulder	1.79	*** 3% of $ESAL_D$ - Mainline**		

Milling & Resurfacing - NB Shoulder

Existing Shoulder

Layer	Thickness	Coef.	SN
FC-9.5	0.90	0.25	0.23
SP-9.5	3.70	0.25	0.93
LBR 100	9.30	0.18	1.67
Stabilization	12.00	0.08	0.96
		Existing Total SN:	3.79

Recommended Milling & Resurfacing Pavement Design - NB Shoulder:

Layer	Thickness	Coef.	SN
Milling	2.25	0.25	-0.56
Asphalt Concrete Friction Course, Inc Bit, FC-5, PG 76-22	0.75	0.00	0.00
Superpave Asphaltic Concrete, Traffic C, PG 76-22	1.50	0.44	0.66
		Existing Total SN:	3.79
		Design Total SN:	**3.89**
		Required SN:	1.79
		Difference From Required SN:	2.10

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County Section No.	03010	**Begin MP:**	15.616
FAP No.	N/A	**End MP:**	18.684
County:	Collier	**Project Length (Mi)**	3.068
Type Work:	Resurfacing (Pavement Only)		
Opening Year:	2025	**% R:**	97
Design Year:	2045	**M_R:**	21,000 **PSI**
$ESAL_D$ - Mainline	3,688,000	**Design Speed:**	50 **MPH**
$ESAL_D$ - Shoulder	* 110,640	**Functional Class:**	Urban Principal Arterial Other
SN_R - Mainline	3.22		
SN_R - Shoulder	1.79	*** 3% of $ESAL_D$ - Mainline**	

Milling & Resurfacing - NB Auxiliary Lanes

Existing Auxiliary Lanes

Layer	Thickness	Coef.	SN
FC-9.5	1.10	0.25	0.28
SP-9.5	3.50	0.25	0.88
LBR 100	10.60	0.18	1.91
Stabilization	12.00	0.08	0.96
		Existing Total SN:	4.03

Recommended Milling & Resurfacing Pavement Design - NB Auxiliary Lanes:

Layer	Thickness	Coef.	SN
Milling	2.25	0.25	-0.56
Asphalt Concrete Friction Course, Inc Bit, FC-5, PG 76-22	0.75	0.00	0.00
Superpave Asphaltic Concrete, Traffic C, PG 76-22	1.50	0.44	0.66
		Existing Total SN:	4.03
		Design Total SN:	**4.13**
		Required SN:	3.22
		Difference From Required SN:	0.91

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WPI No.	N/A	**From:**	N OF THOMASSON DR
State Project No.	N/A	**To:**	S OF SOUTHWEST BLVD
County Section No.	03010	**Begin MP:**	15.616
FAP No.	N/A	**End MP:**	18.684
County:	Collier	**Project Length (Mi)**	3.07
Type Work:	Resurfacing (Pavement Only)		
Opening Year:	2025	**% R:**	97
Design Year:	2045	**M_R:**	32,000 **PSI**
$ESAL_D$ - Mainline	3,688,000	**Design Speed:**	50 **MPH**
$ESAL_D$ - Shoulder	* 110,640	**Functional Class:**	Urban Principal Arterial Other
SN_R - Mainline	2.73		
SN_R - Shoulder	1.50	*** 3% of $ESAL_D$ - Mainline**	

Milling & Resurfacing - SB Mainline 15.616 to 18.684

Existing Mainline

Layer	Thickness	Coef.	SN
FC-9.5	1.00	0.25	0.25
SP-9.5	3.90	0.25	0.98
LBR 100	10.20	0.18	1.84
Stabilization	12.00	0.08	0.96
		Existing Total SN:	4.03

Recommended Milling & Resurfacing Pavement Design - SB Mainline (R1 & R2):

Layer	Thickness	Coef.	SN
Milling	2.75	0.25	-0.69
Asphalt Concrete Friction Course, Inc Bit, FC-5, PG 76-22	0.75	0.00	0.00
Superpave Asphaltic Concrete, Traffic C, PG 76-22	2.00	0.44	0.88
		Existing Total SN:	4.03
		Design Total SN:	**4.22**
		Required SN:	2.73
		Difference From Required SN:	1.49

Recommended Milling & Resurfacing Pavement Design - SB Mainline (R3):

Layer	Thickness	Coef.	SN
Milling	2.25	0.25	-0.56
Asphalt Concrete Friction Course, Inc Bit, FC-5, PG 76-22	0.75	0.00	0.00
Superpave Asphaltic Concrete, Traffic C, PG 76-22	1.50	0.44	0.66
		Existing Total SN:	4.03
		Design Total SN:	**4.13**
		Required SN:	2.73
		Difference From Required SN:	1.40

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County Section No.	03010	**Begin MP:**	15.616
FAP No.	N/A	**End MP:**	18.684
County:	Collier	**Project Length (Mi)**	3.07
Type Work:	Resurfacing (Pavement Only)		
Opening Year:	2025	**% R:**	97
Design Year:	2045	**M_R:**	32,000 **PSI**
$ESAL_D$ - Mainline	3,688,000	**Design Speed:**	50 **MPH**
$ESAL_D$ - Shoulder	* 110,640	**Functional Class:**	Urban Principal Arterial Other
SN_R - Mainline	2.73		
SN_R - Shoulder	1.50	*** 3% of $ESAL_D$ - Mainline**	

Milling & Resurfacing - SB Shoulders

Existing Mainline

Layer	Thickness	Coef.	SN
FC-9.5	0.90	0.25	0.23
SP-9.5	4.00	0.25	1.00
LBR 100	11.40	0.18	2.05
Stabilization	12.00	0.08	0.96
		Existing Total SN:	4.24

Recommended Milling & Resurfacing Pavement Design - SB Shoulder:

Layer	Thickness	Coef.	SN
Milling	2.25	0.25	-0.56
Asphalt Concrete Friction Course, Inc Bit, FC-5, PG 76-22	0.75	0.00	0.00
Superpave Asphaltic Concrete, Traffic C, PG 76-22	1.50	0.44	0.66
		Existing Total SN:	4.24
		Design Total SN:	**4.34**
		Required SN:	1.50
		Difference From Required SN:	2.84

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Design Year:	2045	**M_R:**	32,000 **PSI**
$ESAL_D$ - Mainline	3,688,000	**Design Speed:**	50 **MPH**
$ESAL_D$ - Shoulder	* 110,640	**Functional Class:**	Urban Principal Arterial Other
SN_R - Mainline	2.73		
SN_R - Shoulder	1.50	*** 3% of $ESAL_D$ - Mainline**	

Milling & Resurfacing - SB Auxiliary Lanes

Existing Mainline

Layer	Thickness	Coef.	SN
FC-9.5	1.10	0.25	0.28
SP-9.5	3.30	0.25	0.83
LBR 100	10.40	0.18	1.87
Stabilization	12.00	0.08	0.96
		Existing Total SN:	3.94

Recommended Milling & Resurfacing Pavement Design - SB Auxiliary Lanes:

Layer	Thickness	Coef.	SN
Milling	2.25	0.25	-0.56
Asphalt Concrete Friction Course, Inc Bit, FC-5, PG 76-22	0.75	0.00	0.00
Superpave Asphaltic Concrete, Traffic C, PG 76-22	1.50	0.44	0.66
		Existing Total SN:	3.94
		Design Total SN:	**4.04**
		Required SN:	2.73
		Difference From Required SN:	1.31

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State Project No.	N/A	**To:**	S OF SOUTHWEST BLVD
County Section No.	03010	**Begin MP:**	15.616
FAP No.	N/A	**End MP:**	18.684
County:	Collier	**Project Length (Mi)**	3.068
Type Work:	Resurfacing (Pavement Only)		
Opening Year:	2025	**% R:**	97
Design Year:	2045	**M_R:**	21,000 **PSI**
$ESAL_D$ - Mainline	3,688,000	**Design Speed:**	50 **MPH**
$ESAL_D$ - Shoulder	* 110,640	**Functional Class:**	Urban Principal Arterial Other
SN_R - Mainline	3.22		
SN_R - Shoulder	1.79	*** 3% of $ESAL_D$ - Mainline**	

Milling & Resurfacing - Side Streets and Crossovers

Existing Mainline

Layer	Thickness	Coef.	SN
FC-9.5	1.00	0.25	0.25
SP-9.5	3.90	0.25	0.98
LBR 100	10.50	0.18	1.89
Stabilization	12.00	0.08	0.96
		Existing Total SN:	4.08

Recommended Milling & Resurfacing Pavement Design - Side Streets

Layer	Thickness	Coef.	SN
Milling	1.50	0.25	-0.38
Asphalt Concrete Friction Course,Traffic C, FC-12.5, PG 76-22	1.50	0.44	0.66
		Existing Total SN:	4.08
		Design Total SN:	**4.36**
		Required SN:	3.22
		Difference From Required SN:	1.14

Recommended Milling & Resurfacing Pavement Design - Crossovers:

Layer	Thickness	Coef.	SN
Milling	1.50	0.25	-0.38
Superpave Asphaltic Concrete, Traffic C, PG 76-22	1.50	0.44	0.66
		Existing Total SN:	4.08
		Design Total SN:	**4.36**
		Required SN:	3.22
		Difference From Required SN:	1.14

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DESIGN SKETCH NB Mainline

(Not Drawn To Scale)

FPID: 448930-1-52-01

SNR Required:	3.22	3.22	3.22
SNR Existing:	4.08	4.08	4.03
SNR Provided:	4.18	4.27	4.13

Existing NB Mainline		NB Mainline L1 & L3			NB Mainline L2			NB Auxiliary Lanes		
Material	Thickness	Material	Thickness	Milling	Material	Thickness	Milling	Material	Thickness	Milling
Exist. FC-9.5	1.00"	Prop. FC-5, PG 76-22	.75"	2.25"	Prop. FC-5, PG 76-22	.75"	2.75"	Prop. FC-5, PG 76-22	.75"	2.25"
Exist. SP-9.5	3.90"	Prop. SP, Traffic C, PG 76-22	1.50"		Prop. SP, Traffic C, PG 76-22	2.00"		Prop. SP, Traffic C, PG 76-22	1.50"	
		Exist. SP-9.5	2.65"		Exist. SP-9.5	2.15"		Exist. SP-9.5	2.35"	
Exist. Limerock Base	10.5"	Exist. Limerock Base	10.5"		Exist. Limerock Base	10.5"		Exist. Limerock Base	10.6"	
Exist. Stabilization	12.00"	Exist. Stabilization	12.00"		Exist. Stabilization	12.00"		Exist. Stabilization	12.00"	

DESIGN SKETCH NB Shoulder
(Not Drawn To Scale)

FPID: 448930-1-52-01

SNR Required:	1.79
SNR Existing:	3.79
SNR Provided:	3.89

Existing NB Shoulder		NB Milling and Resurfacing Shoulder		
Material	Thickness	Material	Thickness	Milling
Exist. FC-9.5	0.90"	Prop. FC-5, PG 76-22	.75"	2.25"
Exist. SP-9.5	3.70"	Prop. SP, Traffic C, PG 76-22	1.5"	
		Exist. SP-9.5	2.35"	
Exist. Limerock Base	9.30"	Exist. Limerock Base	9.30"	
Exist. Stabilization	12.00"	Exist. Stabilization	12.00"	

DESIGN SKETCH SB Mainline

(Not Drawn To Scale)

FPID: 448930-1-52-01

SNR Required:	2.73	2.73	2.73
SNR Existing:	4.03	4.03	3.94
SNR Provided:	4.22	4.13	4.04

Existing SB Mainline		SB Mainline R1 & R2			SB Mainline R3			SB Auxiliary Lanes		
Material	Thickness	Material	Thickness	Milling	Material	Thickness	Milling	Material	Thickness	Milling
Exist. FC-9.5	1.00"	Prop. FC-5, PG 76-22	.75"	2.75"	Prop. FC-5, PG 76-22	.75"	2.25"	Prop. FC-5, PG 76-22	.75"	2.25"
Exist. SP-9.5	3.90"	Prop. SP, Traffic C, PG 76-22	2.00"		Prop. SP, Traffic C, PG 76-22	1.50"		Prop. SP, Traffic C, PG 76-22	1.50"	
		Exist. SP-9.5	2.15"		Exist. SP-9.5	2.65"		Exist. SP-9.5	2.15"	
Exist. Limerock Base	10.20"	Exist. Limerock Base	10.20"		Exist. Limerock Base	10.20"		Exist. Limerock Base	10.40"	
Exist. Stabilization	12.00"	Exist. Stabilization	12.00"		Exist. Stabilization	12.00"		Exist. Stabilization	12.00"	

DESIGN SKETCH SB Shoulder
(Not Drawn To Scale)

FPID: 448930-1-52-01
SNR Required: 1.50
SNR Existing: 4.24
SNR Provided: 4.34

Existing SB Shoulder		SB Milling and Resurfacing Shoulder		
Material	Thickness	Material	Thickness	Milling
Exist. FC-9.5	0.90"	Prop. FC-5, PG 76-22	.75"	2.25"
Exist. SP-9.5	4.00"	Prop. SP, Traffic C, PG 76-22	1.5"	
		Exist. SP-9.5	2.65"	
Exist. Limerock Base	11.4"	Exist. Limerock Base	11.4"	
Exist. Stabilization	12.00"	Exist. Stabilization	12.00"	

DESIGN SKETCH Turnouts, Crossovers

(Not Drawn To Scale)

FPID: 448930-1-52-01

SNR Required:	3.22	3.22
SNR Existing:	4.08	4.08
SNR Provided:	4.36	4.36

Existing NB Mainline		Side Streets			Crossovers		
Material	Thickness	Material	Thickness	Milling	Material	Thickness	Milling
Exist. FC-9.5	1.00"	Prop. FC-12.5, Traffic C PG 76-22	1.5"	1.5"	Prop. SP, Traffic C, PG 76-22	1.5"	1.5"
Exist. SP-9.5	3.90"	Exist. SP-9.5	3.4"		Exist. SP-9.5	3.4"	
Exist. Limerock Base	10.5"	Exist. Limerock Base	10.5"		Exist. Limerock Base	10.5"	
Exist. Stabilization	12.00"	Exist. Stabilization	12.00"		Exist. Stabilization	12.00"	

TABLE A.9B

REQUIRED STRUCTURAL NUMBER (SN_R)
97% RELIABILITY (%R)
RESILIENT MODULUS (M_R) RANGE 18,000 PSI TO 32,000 PSI

RESILIENT MODULUS (M_R), (PSI x 1000)															
$ESAL_D$	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
100,000	1.87	1.83	1.79	1.76	1.72	1.69	1.66	1.64	1.61	1.58	1.56	1.54	1.52	1.50	1.48
150,000	2.00	1.96	1.92	1.88	1.85	1.82	1.79	1.76	1.73	1.70	1.68	1.65	1.63	1.61	1.59
200,000	2.10	2.06	2.02	1.98	1.94	1.91	1.88	1.85	1.82	1.79	1.76	1.74	1.72	1.69	1.67
250,000	2.18	2.14	2.10	2.06	2.02	1.98	1.95	1.92	1.89	1.86	1.83	1.81	1.78	1.76	1.74
300,000	2.25	2.20	2.16	2.12	2.08	2.05	2.01	1.98	1.95	1.92	1.89	1.87	1.84	1.82	1.79
350,000	2.31	2.26	2.22	2.18	2.14	2.10	2.07	2.03	2.00	1.97	1.94	1.92	1.89	1.87	1.84
400,000	2.36	2.31	2.27	2.23	2.19	2.15	2.11	2.08	2.05	2.02	1.99	1.96	1.93	1.91	1.89
450,000	2.41	2.36	2.31	2.27	2.23	2.19	2.15	2.12	2.09	2.06	2.03	2.00	1.97	1.95	1.92
500,000	2.45	2.40	2.35	2.31	2.27	2.23	2.19	2.16	2.13	2.09	2.06	2.04	2.01	1.98	1.96
600,000	2.53	2.47	2.43	2.38	2.34	2.30	2.26	2.23	2.19	2.16	2.13	2.10	2.07	2.05	2.02
700,000	2.59	2.54	2.49	2.44	2.40	2.36	2.32	2.28	2.25	2.22	2.19	2.16	2.13	2.10	2.07
800,000	2.65	2.60	2.55	2.50	2.45	2.41	2.37	2.34	2.30	2.27	2.23	2.20	2.18	2.15	2.12
900,000	2.70	2.65	2.60	2.55	2.50	2.46	2.42	2.38	2.35	2.31	2.28	2.25	2.22	2.19	2.16
1,000,000	2.75	2.69	2.64	2.59	2.55	2.50	2.46	2.42	2.39	2.35	2.32	2.29	2.26	2.23	2.20
1,500,000	2.94	2.88	2.83	2.77	2.72	2.68	2.63	2.59	2.55	2.52	2.48	2.45	2.42	2.39	2.36
2,000,000	3.09	3.02	2.96	2.91	2.86	2.81	2.76	2.72	2.68	2.64	2.60	2.57	2.54	2.50	2.47
2,500,000	3.20	3.14	3.08	3.02	2.96	2.91	2.87	2.82	2.78	2.74	2.70	2.67	2.63	2.60	2.57
3,000,000	3.30	3.23	3.17	3.11	3.06	3.00	2.96	2.91	2.87	2.82	2.78	2.75	2.71	2.68	2.65
3,500,000	3.39	3.32	3.25	3.19	3.13	3.08	3.03	2.98	2.94	2.90	2.86	2.82	2.78	2.75	2.71
4,000,000	3.46	3.39	3.32	3.26	3.21	3.15	3.10	3.05	3.01	2.96	2.92	2.88	2.84	2.81	2.77
4,500,000	3.53	3.46	3.39	3.33	3.27	3.21	3.16	3.11	3.07	3.02	2.98	2.94	2.90	2.86	2.83
5,000,000	3.59	3.52	3.45	3.38	3.33	3.27	3.22	3.17	3.12	3.07	3.03	2.99	2.95	2.91	2.88
6,000,000	3.70	3.62	3.55	3.49	3.43	3.37	3.31	3.26	3.21	3.17	3.12	3.08	3.04	3.00	2.97
7,000,000	3.79	3.71	3.64	3.58	3.51	3.46	3.40	3.35	3.30	3.25	3.21	3.16	3.12	3.08	3.04
8,000,000	3.87	3.79	3.72	3.65	3.59	3.53	3.47	3.42	3.37	3.32	3.28	3.23	3.19	3.15	3.11
9,000,000	3.94	3.87	3.79	3.73	3.66	3.60	3.54	3.49	3.44	3.39	3.34	3.30	3.25	3.21	3.17
10,000,000	4.01	3.93	3.86	3.79	3.72	3.66	3.60	3.55	3.50	3.45	3.40	3.35	3.31	3.27	3.23
15,000,000	4.27	4.19	4.11	4.04	3.97	3.91	3.85	3.79	3.73	3.68	3.63	3.58	3.54	3.49	3.45
20,000,000	4.46	4.38	4.30	4.23	4.16	4.09	4.03	3.97	3.91	3.86	3.80	3.76	3.71	3.66	3.62
25,000,000	4.61	4.53	4.45	4.37	4.30	4.23	4.17	4.11	4.05	4.00	3.94	3.89	3.84	3.80	3.75
30,000,000	4.74	4.65	4.57	4.49	4.42	4.35	4.29	4.23	4.17	4.11	4.06	4.01	3.96	3.91	3.86
35,000,000	4.85	4.76	4.68	4.60	4.53	4.46	4.39	4.33	4.27	4.21	4.16	4.10	4.05	4.01	3.96
40,000,000	4.94	4.85	4.77	4.69	4.62	4.55	4.48	4.42	4.36	4.30	4.24	4.19	4.14	4.09	4.04
45,000,000	5.03	4.94	4.85	4.77	4.70	4.63	4.56	4.50	4.43	4.38	4.32	4.27	4.21	4.17	4.12
50,000,000	5.10	5.01	4.93	4.85	4.77	4.70	4.63	4.57	4.51	4.45	4.39	4.34	4.28	4.23	4.19
60,000,000	5.23	5.14	5.06	4.98	4.90	4.83	4.76	4.69	4.63	4.57	4.51	4.46	4.40	4.35	4.31
70,000,000	5.35	5.26	5.17	5.09	5.01	4.94	4.87	4.80	4.74	4.68	4.62	4.56	4.51	4.46	4.41
80,000,000	5.45	5.35	5.27	5.18	5.10	5.03	4.96	4.89	4.83	4.77	4.71	4.65	4.60	4.55	4.50
90,000,000	5.54	5.44	5.35	5.27	5.19	5.12	5.04	4.98	4.91	4.85	4.79	4.73	4.68	4.63	4.58
100,000,000	5.62	5.52	5.43	5.35	5.27	5.19	5.12	5.05	4.99	4.92	4.86	4.81	4.75	4.70	4.65

$$SN_R\,(NB) = [(3688 - 3500) / (4000 - 3500)] * (3.26 - 3.19) + 3.19 = 3.22$$

$$SN_R\,(SB) = [(3688 - 3500) / (4000 - 3500)] * (2.77 - 2.71) + 2.71 = 2.73$$

TABLE A.9B

REQUIRED STRUCTURAL NUMBER (SN_R)
97% RELIABILITY (%R)
RESILIENT MODULUS (M_R) RANGE 18,000 PSI TO 32,000 PSI

RESILIENT MODULUS (M_R), (PSI x 1000)															
$ESAL_D$	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
100,000	1.87	1.83	1.79	1.76	1.72	1.69	1.66	1.64	1.61	1.58	1.56	1.54	1.52	1.50	1.48
150,000	2.00	1.96	1.92	1.88	1.85	1.82	1.79	1.76	1.73	1.70	1.68	1.65	1.63	1.61	1.59
200,000	2.10	2.06	2.02	1.98	1.94	1.91	1.88	1.85	1.82	1.79	1.76	1.74	1.72	1.69	1.67
250,000	2.18	2.14	2.10	2.06	2.02	1.98	1.95	1.92	1.89	1.86	1.83	1.81	1.78	1.76	1.74
300,000	2.25	2.20	2.16	2.12	2.08	2.05	2.01	1.98	1.95	1.92	1.89	1.87	1.84	1.82	1.79
350,000	2.31	2.26	2.22	2.18	2.14	2.10	2.07	2.03	2.00	1.97	1.94	1.92	1.89	1.87	1.84
400,000	2.36	2.31	2.27	2.23	2.19	2.15	2.11	2.08	2.05	2.02	1.99	1.96	1.93	1.91	1.89
450,000	2.41	2.36	2.31	2.27	2.23	2.19	2.15	2.12	2.09	2.06	2.03	2.00	1.97	1.95	1.92
500,000	2.45	2.40	2.35	2.31	2.27	2.23	2.19	2.16	2.13	2.09	2.06	2.04	2.01	1.98	1.96
600,000	2.53	2.47	2.43	2.38	2.34	2.30	2.26	2.23	2.19	2.16	2.13	2.10	2.07	2.05	2.02
700,000	2.59	2.54	2.49	2.44	2.40	2.36	2.32	2.28	2.25	2.22	2.19	2.16	2.13	2.10	2.07
800,000	2.65	2.60	2.55	2.50	2.45	2.41	2.37	2.34	2.30	2.27	2.23	2.20	2.18	2.15	2.12
900,000	2.70	2.65	2.60	2.55	2.50	2.46	2.42	2.38	2.35	2.31	2.28	2.25	2.22	2.19	2.16
1,000,000	2.75	2.69	2.64	2.59	2.55	2.50	2.46	2.42	2.39	2.35	2.32	2.29	2.26	2.23	2.20
1,500,000	2.94	2.88	2.83	2.77	2.72	2.68	2.63	2.59	2.55	2.52	2.48	2.45	2.42	2.39	2.36
2,000,000	3.09	3.02	2.96	2.91	2.86	2.81	2.76	2.72	2.68	2.64	2.60	2.57	2.54	2.50	2.47
2,500,000	3.20	3.14	3.08	3.02	2.96	2.91	2.87	2.82	2.78	2.74	2.70	2.67	2.63	2.60	2.57
3,000,000	3.30	3.23	3.17	3.11	3.06	3.00	2.96	2.91	2.87	2.82	2.78	2.75	2.71	2.68	2.65
3,500,000	3.39	3.32	3.25	3.19	3.13	3.08	3.03	2.98	2.94	2.90	2.86	2.82	2.78	2.75	2.71
4,000,000	3.46	3.39	3.32	3.26	3.21	3.15	3.10	3.05	3.01	2.96	2.92	2.88	2.84	2.81	2.77
4,500,000	3.53	3.46	3.39	3.33	3.27	3.21	3.16	3.11	3.07	3.02	2.98	2.94	2.90	2.86	2.83
5,000,000	3.59	3.52	3.45	3.38	3.33	3.27	3.22	3.17	3.12	3.07	3.03	2.99	2.95	2.91	2.88
6,000,000	3.70	3.62	3.55	3.49	3.43	3.37	3.31	3.26	3.21	3.17	3.12	3.08	3.04	3.00	2.97
7,000,000	3.79	3.71	3.64	3.58	3.51	3.46	3.40	3.35	3.30	3.25	3.21	3.16	3.12	3.08	3.04
8,000,000	3.87	3.79	3.72	3.65	3.59	3.53	3.47	3.42	3.37	3.32	3.28	3.23	3.19	3.15	3.11
9,000,000	3.94	3.87	3.79	3.73	3.66	3.60	3.54	3.49	3.44	3.39	3.34	3.30	3.25	3.21	3.17
10,000,000	4.01	3.93	3.86	3.79	3.72	3.66	3.60	3.55	3.50	3.45	3.40	3.35	3.31	3.27	3.23
15,000,000	4.27	4.19	4.11	4.04	3.97	3.91	3.85	3.79	3.73	3.68	3.63	3.58	3.54	3.49	3.45
20,000,000	4.46	4.38	4.30	4.23	4.16	4.09	4.03	3.97	3.91	3.86	3.80	3.76	3.71	3.66	3.62
25,000,000	4.61	4.53	4.45	4.37	4.30	4.23	4.17	4.11	4.05	4.00	3.94	3.89	3.84	3.80	3.75
30,000,000	4.74	4.65	4.57	4.49	4.42	4.35	4.29	4.23	4.17	4.11	4.06	4.01	3.96	3.91	3.86
35,000,000	4.85	4.76	4.68	4.60	4.53	4.46	4.39	4.33	4.27	4.21	4.16	4.10	4.05	4.01	3.96
40,000,000	4.94	4.85	4.77	4.69	4.62	4.55	4.48	4.42	4.36	4.30	4.24	4.19	4.14	4.09	4.04
45,000,000	5.03	4.94	4.85	4.77	4.70	4.63	4.56	4.50	4.43	4.38	4.32	4.27	4.21	4.17	4.12
50,000,000	5.10	5.01	4.93	4.85	4.77	4.70	4.63	4.57	4.51	4.45	4.39	4.34	4.28	4.23	4.19
60,000,000	5.23	5.14	5.06	4.98	4.90	4.83	4.76	4.69	4.63	4.57	4.51	4.46	4.40	4.35	4.31
70,000,000	5.35	5.26	5.17	5.09	5.01	4.94	4.87	4.80	4.74	4.68	4.62	4.56	4.51	4.46	4.41
80,000,000	5.45	5.35	5.27	5.18	5.10	5.03	4.96	4.89	4.83	4.77	4.71	4.65	4.60	4.55	4.50
90,000,000	5.54	5.44	5.35	5.27	5.19	5.12	5.04	4.98	4.91	4.85	4.79	4.73	4.68	4.63	4.58
100,000,000	5.62	5.52	5.43	5.35	5.27	5.19	5.12	5.05	4.99	4.92	4.86	4.81	4.75	4.70	4.65

$$SN_R\,(NB) = [(110.64 - 100) / (150 - 100)] * (1.88 - 1.76) + 1.76 = 1.79$$

$$SN_R\,(SB) = [(110.64 - 100) / (150 - 100)] * (1.59 - 1.48) + 1.48 = 1.50$$

APPENDIX A

Design Traffic and
18-KIP ESAL Information

Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

KEVIN J. THIBALT, P.E.
SECRETARY

MEMORANDUM

Date: **March 9, 2021**
To: **Evan Agillon** **EXT 2261**

From: **Brittany Nichols, Traffic Analyst/RCI Coordinator**
Subject: **Financial Project No: 448930-1-52-01**
Roadway ID: 03010000
Project Name: SR 45
County: Collier
Type of Work: Pavement Resurfacing
From MP: 15.795 – 18.668

Per your request, the attached traffic data forecasts are provided for the above roadway. These estimates were taken from trends calculated from traffic counts provided by FDOT.

K =	9.0 %
D =	55.9 %
24 Hour T =	4.0 %
Design Hour T =	2.0 %
2019 AADT =	42,000
Functional Class =	Urban Prin Arterial Other

The attached 18-KIP Equivalent Single Axle Loading Accumulations are based on the above information and have been prepared in accordance with the Central Offices memo of December 1, 2000, reflecting the current Equivalency Factors.

As requested, we have included the 24-hour traffic count for site 030014 & 030015.

Please feel free to contact Brittany Nichols at extension 2753 if you have any questions.

District One – Traffic Operations
801 North Broadway Avenue * Post Office Box 1249 * Bartow, FL 33831-1249
(863) 519-2553 * (863) 534-0915 (Fax) * MS 1-8
www.dot.state.fl.us

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

FIN #: 448930-1-52-01
COUNTY: Collier
ROADWAYID: 03010000
PROJECT DESCRIPTION: Paving RESURFACING

LOCATION #: 1

LOCATION DESCRIPTION: SR 45 (MP: 15.834 - 18.285)

GROWTH RATE FORMULA

A: Interpolation
B: Enter Growth Rate
C: Enter All AADTs
D: New Facility

If "A" select an interpolation function
If "B" enter rate as decimals (1%=1.01)
If ""C", or "D" continue to next section

Choose A, B, C, or D here: A

Linear Growth Rate X %
Compounded Growth Rate ____ %
Decaying Growth Rate ____ %
(select one)

DESIGN INFORMATION

		AADT
Existing Year	2019	42000
Opening Year	2025	N/A
Mid-Design Year	2035	N/A
Design Year	2045	48600

Note: AADT values have been rounded to the nearest 100

Daily Direction Split (50% or 100%): 50%
Lanes in One Direction: 3

T24 values
Existing to Opening Year: 4.00%
Opening to Mid-Year: 4.00%
Mid-Year to Design-Year: 4.00%

2000 EQUIVALENCY FACTORS |u(1)|

(selected with an X)	FLEXIBLE PAVEMENT SN = 5/THICK		RIGID PAVEMENT SN = 12/THICK	
RURAL FREEWAY:	1.050	____	1.600	____
URBAN FREEWAY:	0.900	____	1.270	____
RURAL HIGHWAY:	0.960	____	1.350	____
URBAN HIGHWAY:	0.890	X	1.220	____
OTHER (Enter Factor and X):		____		____

(1) Equivalency Factors are based on Updated Pavement Damage Factors Memorandum, dated December 1, 2000.

Lane Factors developed by Copes equation

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by:	Brittany Nichols	Traffic Analyst Consultant	ATKINS
	Name	Title	Org. Unit or Firm
	DocuSigned by: Brittany Nichols 3491A225DF874FE...	3/9/2021 | 8:10 PM EST	
	Signature	Date	
Reviewed by:	Kyle Purvis	District Statistics Administrator	FDOT
	Name	Title	Org. Unit or Firm
	DocuSigned by: Kyle Purvis 35E9D52E12B14A4...	3/16/2021 | 10:27 AM EDT	
	Signature	Date	

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 1

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2019 to 2045*

SECTION #: 03010000 **COUNTY:** Collier **FIN #:** 448930-1-52-01

FLEXIBLE PAVEMENT URBAN HIGHWAY 0.890

SN=5/THICK Paving RESURFACING A

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2019	42000	170	0	0.5	4.00%	0.621	0.890
2020	42200	171	0	0.5	4.00%	0.621	0.890
2021	42500	172	0	0.5	4.00%	0.620	0.890
2022	42700	172	0	0.5	4.00%	0.620	0.890
2023	43000	174	0	0.5	4.00%	0.619	0.890
2024	43200	174	0	0.5	4.00%	0.619	0.890
2025	43500	175	175	0.5	4.00%	0.618	0.890
2026	43700	176	351	0.5	4.00%	0.618	0.890
2027	44000	177	528	0.5	4.00%	0.617	0.890
2028	44200	178	706	0.5	4.00%	0.617	0.890
2029	44500	179	885	0.5	4.00%	0.616	0.890
2030	44700	179	1064	0.5	4.00%	0.616	0.890
2031	45000	180	1244	0.5	4.00%	0.616	0.890
2032	45300	182	1426	0.5	4.00%	0.615	0.890
2033	45500	182	1608	0.5	4.00%	0.615	0.890
2034	45800	183	1791	0.5	4.00%	0.614	0.890
2035	46000	184	1975	0.5	4.00%	0.614	0.890
2036	46300	185	2160	0.5	4.00%	0.613	0.890
2037	46500	186	2346	0.5	4.00%	0.613	0.890
2038	46800	187	2533	0.5	4.00%	0.612	0.890
2039	47000	187	2720	0.5	4.00%	0.612	0.890
2040	47300	188	2908	0.5	4.00%	0.611	0.890
2041	47500	189	3097	0.5	4.00%	0.611	0.890
2042	47800	190	3287	0.5	4.00%	0.611	0.890
2043	48000	191	3478	0.5	4.00%	0.610	0.890
2044	48300	192	3670	0.5	4.00%	0.610	0.890
2045	48600	193	3863	0.5	4.00%	0.609	0.890

Opening to Mid-Design Year ESAL Accumulation (1000s): 1800

Opening to Design Year ESAL Accumulation (1000s): 3688

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: Brittany Nichols | Traffic Analyst Consultant | ATKINS

Name | Title | Org. Unit or Firm

DocuSigned by: Brittany Nichols 3491A225DF874FE...

3/9/2021 | 8:10 PM EST

Signature | Date

Reviewed by: Kyle Purvis | District Statistics Administrator | FDOT

Name | e | Org. Unit or Firm

DocuSigned by: Kyle Purvis 35E9D52E12B14A4...

3/16/2021 | 10:27 AM EDT

Signature | Date

County: 03
Station: 0014
Description: SR 90/US 41, NORTHWEST OF SR 951 CC571
Start Date: 07/22/2020
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	9	21	7	5	42	15	16	10	10	51	93
0100	6	6	12	8	32	8	10	7	6	31	63
0200	6	12	8	12	38	7	4	7	7	25	63
0300	2	7	8	12	29	5	8	6	5	24	53
0400	10	8	16	24	58	8	11	11	29	59	117
0500	21	34	49	54	158	24	25	50	58	157	315
0600	66	79	135	185	465	74	99	136	134	443	908
0700	142	178	206	221	747	166	191	187	200	744	1491
0800	185	180	205	220	790	178	197	189	190	754	1544
0900	183	184	186	193	746	173	207	204	224	808	1554
1000	184	197	248	235	864	214	203	233	271	921	1785
1100	244	245	261	271	1021	230	219	262	257	968	1989
1200	226	285	246	244	1001	266	275	271	294	1106	2107
1300	228	272	280	269	1049	242	289	251	239	1021	2070
1400	227	249	259	259	994	260	263	231	269	1023	2017
1500	266	253	268	312	1099	255	242	270	265	1032	2131
1600	292	292	265	260	1109	271	266	248	264	1049	2158
1700	279	256	238	236	1009	281	238	236	199	954	1963
1800	221	171	174	182	748	190	182	152	158	682	1430
1900	143	155	173	112	583	160	144	128	118	550	1133
2000	91	123	102	78	394	109	93	101	84	387	781
2100	72	89	77	58	296	82	64	65	51	262	558
2200	55	59	35	42	191	67	63	59	39	228	419
2300	30	32	30	12	104	35	42	28	18	123	227
24-Hour Totals:					13567					13402	26969

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	730	792	845	774	745	1555
P.M.	1530	1164	1200	1106	1530	2236
Daily	1530	1164	1200	1106	1530	2236

Truck Percentage 5.14 5.02 5.08

Classification Summary Database

Dir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TotTrk	TotVol
E	20	9579	3271	9	320	93	23	213	34	3	0	0	2	0	0	697	13567
W	24	9653	3052	9	320	114	9	186	27	5	0	0	3	0	0	673	13402

Generated by SPS 5.0.49P

County: 03
Station: 0014
Description: SR 90/US 41, NORTHWEST OF SR 951 CC571
Start Date: 02/26/2019
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	25	18	18	14	75	26	19	18	16	79	154
0100	8	8	6	8	30	8	4	9	8	29	59
0200	3	11	8	8	30	8	8	6	8	30	60
0300	10	7	20	9	46	5	6	16	10	37	83
0400	12	16	17	38	83	7	13	21	18	59	142
0500	36	35	52	73	196	30	41	64	62	197	393
0600	66	101	143	199	509	77	105	198	266	646	1155
0700	231	292	296	270	1089	256	275	311	301	1143	2232
0800	261	264	301	308	1134	289	337	317	330	1273	2407
0900	278	254	289	308	1129	332	317	358	382	1389	2518
1000	320	277	307	318	1222	371	358	435	406	1570	2792
1100	364	352	346	402	1464	397	416	420	424	1657	3121
1200	359	382	390	370	1501	399	461	454	439	1753	3254
1300	376	377	398	349	1500	424	400	426	352	1602	3102
1400	413	425	439	421	1698	407	384	389	408	1588	3286
1500	389	438	424	421	1672	408	415	451	406	1680	3352
1600	420	466	432	430	1748	416	436	405	388	1645	3393
1700	403	376	272	415	1466	389	458	401	383	1631	3097
1800	392	295	268	315	1270	344	322	253	289	1208	2478
1900	246	244	185	217	892	249	227	210	177	863	1755
2000	199	207	177	220	803	162	159	134	139	594	1397
2100	145	157	178	131	611	138	104	101	82	425	1036
2200	125	88	95	78	386	96	119	78	67	360	746
2300	47	32	38	22	139	58	56	19	32	165	304
24-Hour Totals:					20693					21623	42316

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	815	1151	845	1337	815	2467
P.M.	1600	1748	1215	1778	1530	3440
Daily	1600	1748	1215	1778	1530	3440

Truck Percentage 3.32 2.95 3.13

Classification Summary Database

Dir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TotTrk	TotVol
E	48	16301	3658	39	365	60	8	178	26	4	1	0	5	0	0	686	20693
W	65	16832	4088	37	367	53	3	148	20	5	2	0	3	0	0	638	21623

Generated by SPS 5.0.48P

County: 03
Station: 0014
Description: SR 90/US 41, NORTHWEST OF SR 951 CC571
Start Date: 03/07/2018
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	18	9	10	14	51	25	28	23	12	88	139
0100	10	8	10	5	33	24	10	22	11	67	100
0200	12	4	7	7	30	10	5	9	6	30	60
0300	10	13	16	5	44	11	10	11	4	36	80
0400	12	14	18	25	69	10	9	17	19	55	124
0500	31	45	59	63	198	31	44	51	72	198	396
0600	89	112	160	182	543	68	122	212	244	646	1189
0700	250	241	266	253	1010	230	240	283	285	1038	2048
0800	271	261	301	262	1095	271	303	301	291	1166	2261
0900	266	248	303	268	1085	260	308	336	339	1243	2328
1000	278	314	313	309	1214	371	333	336	362	1402	2616
1100	308	328	335	352	1323	406	385	386	402	1579	2902
1200	335	337	349	343	1364	369	403	396	384	1552	2916
1300	339	340	326	367	1372	425	386	378	428	1617	2989
1400	381	389	398	416	1584	404	394	357	362	1517	3101
1500	362	392	397	406	1557	354	376	406	427	1563	3120
1600	415	446	460	427	1748	413	432	406	360	1611	3359
1700	437	394	368	393	1592	412	376	405	375	1568	3160
1800	310	304	339	257	1210	343	284	295	250	1172	2382
1900	261	244	256	218	979	226	209	188	184	807	1786
2000	217	198	204	166	785	173	166	133	139	611	1396
2100	173	137	135	108	553	111	121	114	92	438	991
2200	91	112	78	58	339	86	103	85	61	335	674
2300	48	40	33	24	145	59	42	37	24	162	307
24-Hour Totals:					19923					20501	40424

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	800	1095	845	1195	845	2274
P.M.	1615	1770	1530	1678	1545	3405
Daily	1615	1770	1530	1678	1545	3405

Truck Percentage 4.22 3.56 3.88

Classification Summary Database

Dir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TotTrk	TotVol
E	61	14529	4492	39	524	44	5	196	25	3	0	0	5	0	0	841	19923
W	53	15307	4412	34	496	33	1	132	27	1	1	0	4	0	0	729	20501

Generated by SPS 5.0.48P

County: 03
Station: 0015
Description: SR 90/US 41 SE OF CR 864/RATTLESNAKE HAMMOCK CC572
Start Date: 07/01/2020
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	34	16	16	14	80	23	13	17	8	61	141
0100	10	10	15	10	45	14	9	13	8	44	89
0200	9	6	8	11	34	8	7	4	11	30	64
0300	7	6	5	7	25	2	9	13	11	35	60
0400	7	10	13	13	43	14	17	31	40	102	145
0500	17	23	31	41	112	35	52	85	123	295	407
0600	44	74	134	146	398	121	190	275	255	841	1239
0700	173	185	227	197	782	248	308	339	314	1209	1991
0800	193	209	224	220	846	288	297	288	292	1165	2011
0900	262	243	236	282	1023	261	279	325	258	1123	2146
1000	207	256	265	278	1006	300	296	328	319	1243	2249
1100	269	298	311	318	1196	311	288	291	321	1211	2407
1200	318	311	287	307	1223	316	336	319	336	1307	2530
1300	282	331	283	365	1261	339	338	291	333	1301	2562
1400	331	337	329	339	1336	346	352	313	299	1310	2646
1500	338	317	376	393	1424	339	310	305	324	1278	2702
1600	398	388	383	353	1522	283	318	319	264	1184	2706
1700	368	358	377	316	1419	276	312	273	254	1115	2534
1800	304	286	254	232	1076	272	231	227	173	903	1979
1900	194	229	185	182	790	200	182	187	148	717	1507
2000	186	162	176	167	691	149	135	127	86	497	1188
2100	171	147	94	99	511	109	76	80	71	336	847
2200	107	90	80	70	347	55	62	46	50	213	560
2300	50	46	54	38	188	34	43	25	21	123	311
24-Hour Totals:					17378					17643	35021

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	961	715	1249	845	2118
P.M.	1545	1562	1345	1344	1545	2806
Daily	1545	1562	1345	1344	1545	2806

Truck Percentage 4.37 4.39 4.38

Classification Summary Database

Dir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TotTrk	TotVol
E	67	12573	3979	10	430	61	11	213	25	6	0	0	3	0	0	759	17378
W	58	12751	4060	12	432	86	5	207	24	6	0	0	2	0	0	774	17643

Generated by SPS 5.0.49P

County: 03
Station: 0015
Description: SR 90/US 41 SE OF CR 864/RATTLESNAKE HAMMOCK CC572
Start Date: 01/16/2019
Start Time: 0600

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	29	17	24	24	94	25	17	8	13	63	157
0100	18	15	12	8	53	7	8	7	3	25	78
0200	6	15	6	8	35	8	4	9	10	31	66
0300	7	12	6	8	33	7	7	23	21	58	91
0400	7	17	17	15	56	19	17	50	33	119	175
0500	17	28	29	58	132	36	64	82	134	316	448
0600	69	92	148	187	496	145	220	293	326	984	1480
0700	169	235	216	236	856	356	384	463	442	1645	2501
0800	251	270	253	274	1048	381	417	421	373	1592	2640
0900	288	282	276	273	1119	352	383	440	390	1565	2684
1000	281	327	328	357	1293	372	410	418	438	1638	2931
1100	363	378	376	366	1483	410	413	431	479	1733	3216
1200	429	411	443	436	1719	457	427	480	446	1810	3529
1300	442	458	423	431	1754	432	489	444	430	1795	3549
1400	424	486	522	470	1902	429	473	459	415	1776	3678
1500	507	514	499	556	2076	456	379	439	429	1703	3779
1600	525	535	510	619	2189	395	421	424	408	1648	3837
1700	540	519	547	460	2066	418	400	402	359	1579	3645
1800	430	419	343	332	1524	347	342	300	279	1268	2792
1900	330	315	276	242	1163	277	200	165	151	793	1956
2000	274	245	230	251	1000	140	117	100	93	450	1450
2100	174	215	220	185	794	87	95	85	72	339	1133
2200	147	165	99	70	481	83	56	59	55	253	734
2300	82	87	53	41	263	55	41	28	16	140	403
24-Hour Totals:					23629					23323	46952

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	1120	730	1703	730	2676
P.M.	1645	2225	1230	1847	1615	3875
Daily	1645	2225	1230	1847	1615	3875

Truck Percentage 2.92 3.10 3.01

Classification Summary Database

Dir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TotTrk	TotVol
E	68	18539	4332	23	394	59	5	176	17	9	0	0	7	0	0	690	23629
W	66	18215	4318	21	418	64	5	190	23	2	0	0	1	0	0	724	23323

Generated by SPS 5.0.48P

County: 03
Station: 0015
Description: SR 90/US 41 SE OF CR 864/RATTLESNAKE HAMMOCK CC572
Start Date: 06/05/2018
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	32	24	20	24	100	31	12	13	9	65	165
0100	19	13	20	13	65	11	11	7	7	36	101
0200	9	4	9	6	28	6	6	5	10	27	55
0300	13	7	11	8	39	8	10	14	17	49	88
0400	3	12	18	21	54	11	21	37	36	105	159
0500	23	33	40	34	130	46	51	88	114	299	429
0600	44	76	124	146	390	134	193	290	251	868	1258
0700	163	165	220	194	742	279	334	372	373	1358	2100
0800	196	177	211	230	814	328	341	339	284	1292	2106
0900	230	205	230	231	896	297	296	345	273	1211	2107
1000	225	200	248	234	907	300	306	292	320	1218	2125
1100	252	257	303	266	1078	279	287	365	287	1218	2296
1200	261	321	296	337	1215	350	289	315	325	1279	2494
1300	303	299	307	297	1206	275	327	338	319	1259	2465
1400	324	312	314	349	1299	315	306	306	278	1205	2504
1500	343	358	353	398	1452	320	307	315	314	1256	2708
1600	378	387	444	387	1596	292	278	326	305	1201	2797
1700	371	436	432	311	1550	277	253	276	290	1096	2646
1800	328	283	248	235	1094	263	264	249	194	970	2064
1900	235	201	212	196	844	214	198	172	174	758	1602
2000	221	213	191	223	848	162	148	117	130	557	1405
2100	221	165	165	160	711	127	111	100	93	431	1142
2200	127	101	87	76	391	70	71	55	47	243	634
2300	65	65	45	24	199	37	44	31	30	142	341
24-Hour Totals:					17648					18143	35791

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	895	730	1414	730	2201
P.M.	1630	1638	1315	1299	1545	2817
Daily	1630	1638	730	1414	1545	2817

Truck Percentage 3.84 4.06 3.95

Classification Summary Database

Dir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TotTrk	TotVol
E	74	13296	3601	11	393	51	7	167	47	1	0	0	0	0	0	677	17648
W	73	13636	3697	17	430	59	1	190	36	3	0	0	1	0	0	737	18143

Generated by SPS 5.0.48P

APPENDIX B

Resilient Modulus Information

Florida Department of Transportation

RON DESANTIS
GOVERNOR

STATE MATERIALS OFFICE
5007 Northeast 39th Avenue, Gainesville, Florida 32609
Telephone: (352) 955-6341, Fax: (850) 412-8160

JARED W. PERDUE, P.E.
SECRETARY

TO: Marlene Hebert, District 1 Pre-Design Coordinator

FROM: Guangming Wang, P.E., State Pavement Performance Evaluation Engineer

DATE: August 2, 2022

COPIES:

SUBJECT: Resilient Modulus Recommendation

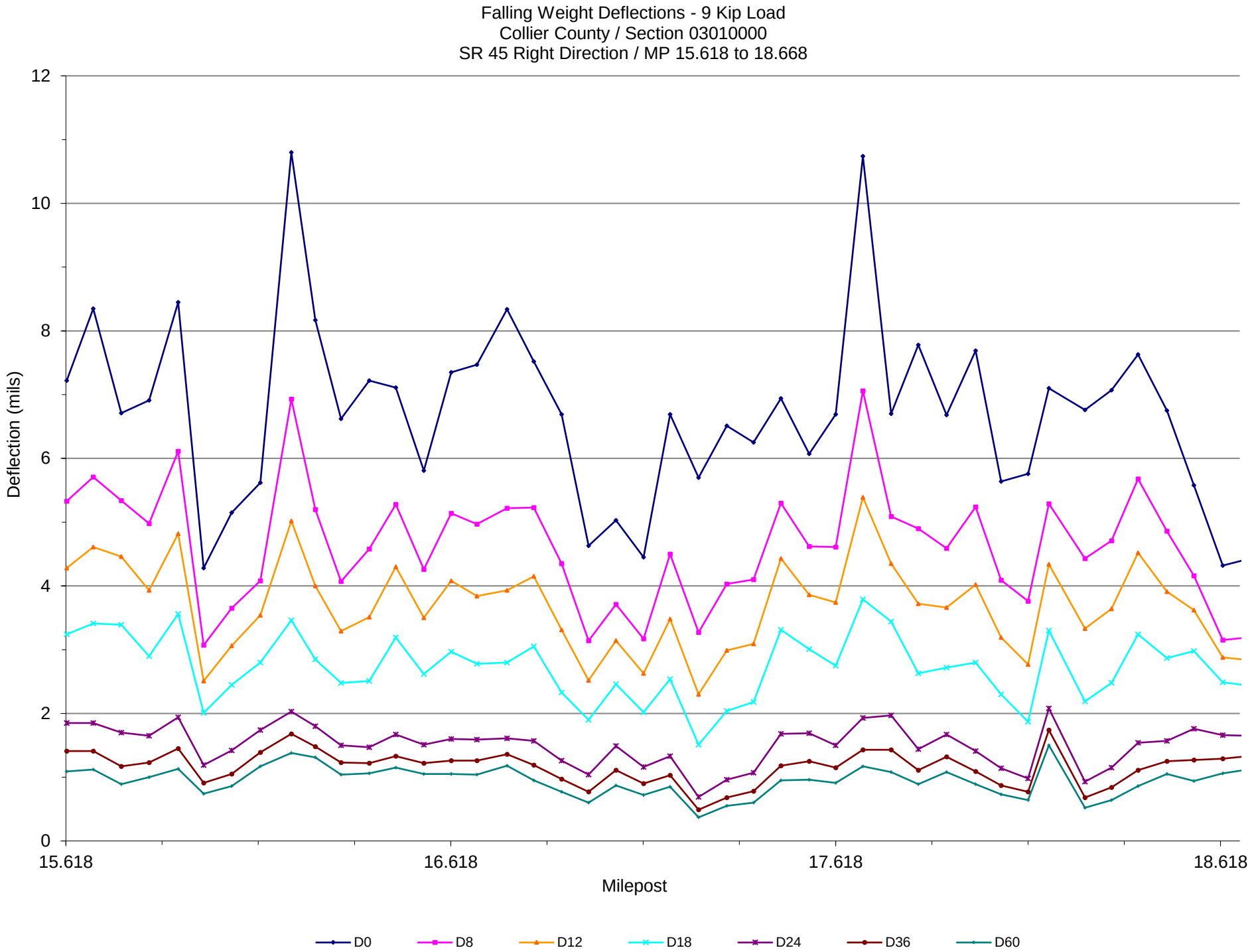
Project Description:	SR 45 / US 41 MP 15.618 to 18.668
Project Number:	3010000
FIN No.:	448930
County:	Collier

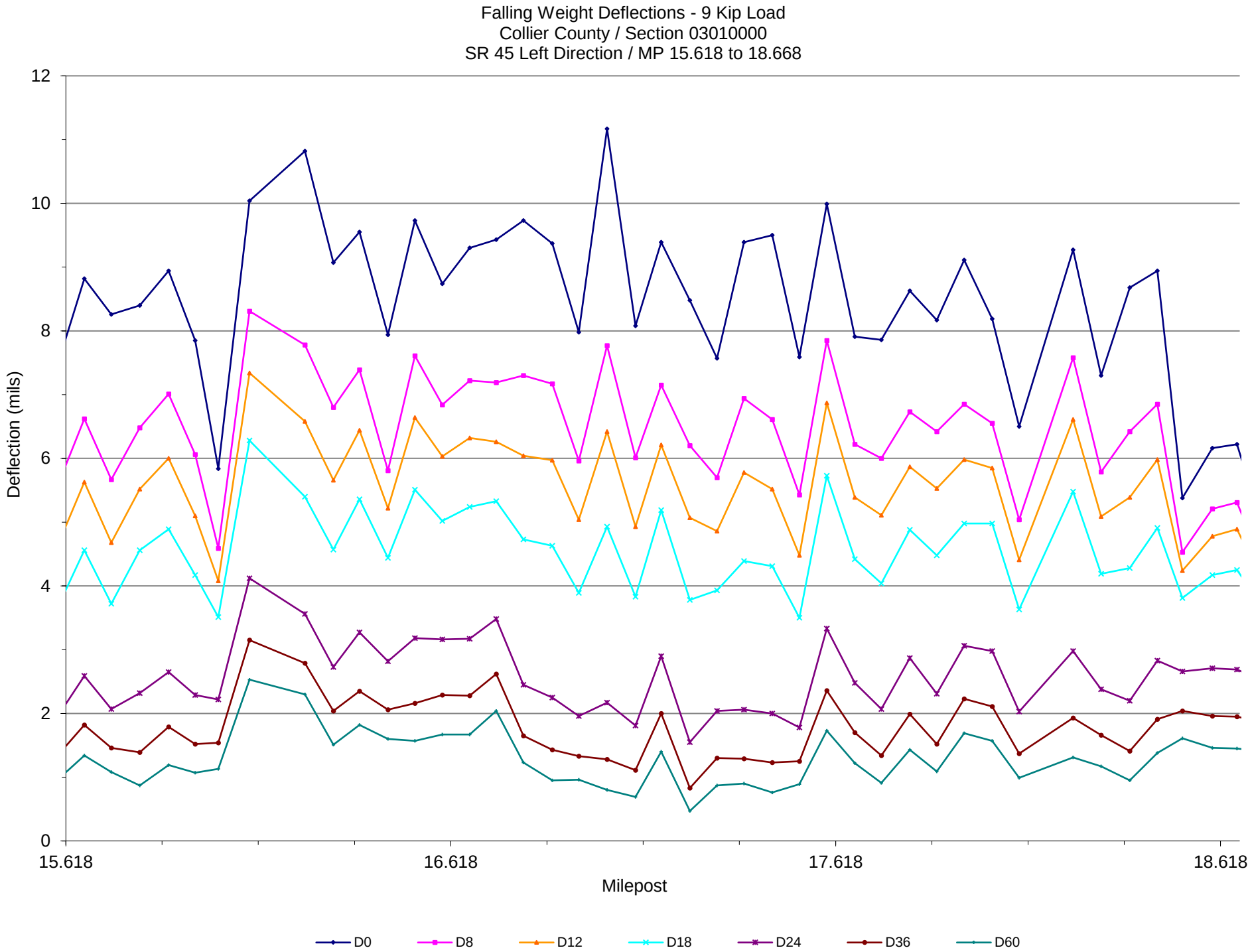
On July 25, 2022 deflection tests were conducted in the right and left traffic lanes of SR 45 / US 41. Evaluation of the data and resulting deflection plots indicate the following Resilient Modulus values are representative of the existing pavement system and are hereby recommended for this project.

Travel Direction	Beginning Milepost	Ending Milepost	Modulus (psi)	Modulus (MPa)
Right	15.618	18.668	32,000	221
Left	15.618	18.668	21,000	145

Please let me know if you need further assistance.

GW
Attachment: Deflection Plots


Falling Weight Deflections - 9 Kip Load
Collier County / Section 03010000
SR 45 Right Direction / MP 15.618 to 18.668
Deflection (mils)
0
2
4
6
8
10
12
15.618
16.618
17.618
18.618
Milepost
D0
D8
D12
D18
D24
D36
D60


Falling Weight Deflections - 9 Kip Load
Collier County / Section 03010000
SR 45 Left Direction / MP 15.618 to 18.668
Deflection (mils)
12
10
8
6
4
2
0
15.618
16.618
17.618
18.618
Milepost
D0
D8
D12
D18
D24
D36
D60

APPENDIX C

Pavement Survey and Evaluation Report

Florida Department of
TRANSPORTATION

Pavement Survey and Evaluation Report

State Road 90 (US 41)

Collier County

Financial Project Number 448930-1

Milepost 15.618 to 18.668

District 1 & 7 Materials

Authors
Marlene Hebert
Taylor F. Smith, PE

Date of Report
April 10, 2023

PAVEMENT SURVEY AND EVALUATION REPORT
SR 90 (US 41) FROM NORTH OF THOMASSON DRIVE TO SOUTH OF SOUTHWEST BLVD.

INTRODUCTION

In response to your request, the District Materials Office conducted a pavement survey and evaluation on SR 90 (US 41) in Collier County for the subject project. We understand this project involves milling and resurfacing from north of Thomasson Drive to south of Southwest Blvd.

The objective of this work was to identify the existing pavement composition, assess the pavement conditions, and to make recommendations for the milling depth and resurfacing plan. This work involves a field review, pavement coring, data analysis, and reporting.

FIELD REVIEW

The objective of the field review is to gain a good understanding of the overall pavement condition, and to help determine the layout of the core locations. This review was performed on January 19, 2022, by Anthony Brown, Materials Pavement Assessment Specialist with Madrid Engineering Group, and the results of this review are included in Appendix 1.

Typical Section

The typical section consists of six-lane divided asphalt pavement structure with paved shoulders and turn lanes.

Pavement Condition

The pavement has a dense-graded friction course. The overall condition of this section is fair with light to moderate cracking and minimal rutting.

The 2023 pavement condition survey was performed by the State Materials Office and the results are included in the table below.

		LEFT ROADWAY			RIGHT ROADWAY		
Mile Post	Age	Crack	Ride	Rut	Crack	Ride	Rut
15.795 – 18.668	20				6.5	8.3	8.0
15.967 – 18.883	20	7.0	8.1	9.0			

CORING INFORMATION

The pavement coring was performed on February 24, 2023 by Professional Services Industries, Inc. (PSI/Intertek), according to Section 3.2 of the Materials Manual- *Flexible Pavement Coring and Evaluation*.

A total of seventy-three (73) cores were extracted, thirty-four (34) from the mainline, eleven (11) cores from the shoulders, and twenty-eight (28) cores from the turn lanes. The core layout and the coring data, including cross slope and the type of base materials, are presented in Appendix 2. Pictures of core samples and locations are presented in Appendix 3.

REHABILITATION RECOMMENDATIONS

Considering the existing pavement conditions, we render the following recommendations for milling and resurfacing.

MAINLINE (*EXCEPTION BELOW)*

- Mill 3.75 inches
- Resurface with 3.00 inches of SP-12.5 and 0.75 inches of FC-5 with PG 76-22 on all layers.

MAINLINE L1

- *Mill 2.25 inches*
- *Resurface with 1.50 inches of SP-12.5 and 0.75 inches of FC-5 with PG 76-22 on all layers.*

SHOULDERS AND TURN LANES

- Mill 2.25 inches
- Resurface with 1.50 inches of SP-12.5 and 0.75 inches of FC-5 with PG 76-22.

Appendix 4 provides an illustration of the milling and resurfacing recommendations.

COMMENTS AND GENERAL NOTES

In addition to the recommendations made within this report, the following items should be considered when preparing the contract documents for the subject project:

<u>Notes to the Designer</u>

1. Milling may need to be adjusted at the beginning and end of the project, side streets, bridge deck, approach/departure slabs or areas in which constraints dictate. Appropriate plan details need to be illustrated in the plans in accordance with the FDOT Flexible Pavement Design Manual (FPDM).

2. Due to the variable asphalt pavement thickness, and the frequency in which the preliminary pavement cores were taken, isolated areas of the base may be exposed. Areas of exposed base material should be cared in accordance with FDOT specification prior to the application of the bituminous material.

If the recommendations in this report are not used within three years, please contact this office as the milling depth/proposed pavement structure may increase.

The identification of the different pavement layers is based on visual classification as well as familiarity with the site. The actual classification may be different due to variability in asphalt mixes and roadway construction. The information in this report is based on the conditions specific only at the locations cored at the time of the investigation. The Engineer shall notify the District Materials Office if the work proposed for the project changes and/or existing conditions change prior to the letting of the project. This report is based on the understanding that the project will be designed and constructed in accordance with Department standards and requirements unless stated otherwise within this report.

Please contact this office if additional service is required or if there are any questions regarding this report at D1-D7Pavement@dot.state.fl.us

Marlene Hebert

Marlene Hebert
District Materials Pavement Coordinator

Taylor F. Smith, PE 88746
District Pavement Evaluations Engineer

APPENDIX

1. Field Review Findings

2. Core Data and Layout

3. Core Sample and Location Pictures

4. Illustration of Milling and Resurfacing Recommendations

5. Asphalt Survey Request

APPENDIX 1

Field Review Findings

448930-1

Naples, Collier County

SR 45 from N of Thomasson Drive to S of Southwest Boulevard, MP 15.618 – 18.668

6 Lane Urban Principal Arterial Roadway

Inspected by: Anthony Brown 1/19/22

Rdwy Id # - 03010000
No PCS data available

Lane Width: 12'
Inside C&G: Y
Outside C&G: N
Inside Pave Shoulder: N
Outside Paved Shoulder: Y
Median: Y, Concrete and Grass
Sidestreets: Y, 21 Total
Turn Lanes: Y, 40 Total
Center Turn Lane: N

Right Roadway

R1
MP 15.618 – 16.142 is in fair condition.
MP 16.142 – 16.163 is a concrete bridge deck.
MP 16.163 – 16.409 is in fair condition.
MP 16.409 – 18.668 is in mostly fair condition with some intermittent light transverse cracking.

R2
MP 15.618 – 15.700 is in fair condition.
MP 15.700 – 16.038 has intermittent light longitudinal and transverse cracking.
MP 16.038 – 16.142 is in mostly fair condition with some intermittent light longitudinal cracking.
MP 16.142 – 16.163 is a concrete bridge deck.
MP 16.163 – 16.355 is in fair condition.
MP 16.355 – 16.780 is in mostly fair condition with some intermittent light longitudinal cracking.
MP 16.780 – 17.250 has intermittent light longitudinal and transverse cracking.
MP 17.250 – 18.668 is in mostly fair condition with some intermittent light longitudinal cracking.

R3
MP 15.618 – 16.038 has intermittent light branch cracking.
MP 16.038 – 16.142 is in mostly fair condition with some intermittent light longitudinal cracking.
MP 16.142 – 16.163 Is a concrete bridge deck.
MP 16.163 – 16.356 is in mostly fair condition with some intermittent light transverse cracking.
MP 16.356 – 16.435 has intermittent light longitudinal and transverse cracking.

MP 16.435 – 16.476 has light block and branch cracking.
MP 16.476 – 18.319 has intermittent light longitudinal and transverse cracking.
MP 18.319 – 18.339 has light block cracking.
MP 18.339 – 18.668 has intermittent light longitudinal and transverse cracking.

Shoulder
The shoulder has intermittent light longitudinal and transverse cracking.

Turn Lanes
The turn lanes on the right roadway are in fair condition.

Left Roadway

L1
MP 18.668 – 17.352 is in mostly fair condition with some intermittent light longitudinal cracking.
MP 17.352 – 17.323 is a patch that is in fair condition.
MP 17.323 – 16.163 is in mostly fair condition with some intermittent light longitudinal cracking. There is also moderate transverse cracking at MP 17.043 **(Picture 1)** and 16.989.
MP 16.163 – 16.142 is a concrete bridge deck.
MP 16.142 – 15.618 is in mostly fair condition with some intermittent light longitudinal cracking.

L2
MP 18.668 – 18.314 is in mostly fair condition with some intermittent light longitudinal cracking.
MP 18.314 – 18.149 has intermittent light longitudinal cracking.
MP 18.149 – 17.352 has intermittent light longitudinal and transverse cracking.
MP 17.352 – 17.323 is a patch that is in fair condition.
MP 17.323 – 17.218 is in mostly fair condition with some intermittent light longitudinal cracking.
MP 17.218 – 16.163 has intermittent light longitudinal and transverse cracking. There is moderate transverse cracking at MP 17.043 **(Picture 1)** and 16.989.
MP 16.163 – 16.142 is a concrete bridge deck.
MP 16.142 – 15.618 is in mostly fair condition with some intermittent light longitudinal cracking.

L3
MP 18.668 – 18.488 is in mostly fair condition with some intermittent light branch cracking.
MP 18.488 – 18.180 has light to moderate branch cracking **(Picture 2)**.
MP 18.180 – 16.163 has intermittent light longitudinal and transverse cracking. There is moderate transverse cracking at MP 17.403 **(Picture 1)**.
MP 16.163 – 16.142 is a concrete bridge deck.
MP 16.142 – 15.618 has intermittent light longitudinal and transverse cracking.

Shoulder
The shoulder is in fair condition.

Turn Lanes

RT TL to Broward St has light longitudinal cracking.

RT TL to St. Andrew's Sq. has light longitudinal cracking.

FIELD REVIEW PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 45 from N of Thomasson Drive to S of Southwest Boulevard	
REVIEWED BY: Anthony Brown	DATE: 1/19/2022	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

Pic 01

Pic 02

APPENDIX 2

Core Data and Layout

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

PAVEMENT EVALUATION CORING AND CONDITION DATA

Cored By: Intertek- PSI | Coring Completion Date: 2/24/2023 | Typical Section:

W.P.I. No.:			Name:	SR 90 (US 41)				Lanes:	6 Lane Urban Principal Arterial Roadway
Fin. Proj. ID:	448930-1		From:	N of Thomasson Dr.				Shoulder Type and Condition:	Fair
F.A. Project No.:		Roadway ID: 03010000	To:	S of Southwest Blvd.				Inside:	None
County:	Collier	SR No.: 90	Beg MP:	15.618	End MP:	18.668	Length: 3.050	Outside:	Paved
Overall Pavement Condition (from DMO field review):	Fair		Median Curbed (Y/N):	Y	Paved: Y	Lawn: Y	Other: No CTL	Curb & Gutter (Y/N):	N

Mainline

CORE NO.	MILE POST[2]	LANE TYPE	LANE	WP (Y/N)	PAVEMENT LAYER (IN.)										TOTAL ASPHALT THICKNESS (IN.)	BASE				STABILIZED SUBGRADE[3]	CRACK				PAVEMENT CONDITION	RUT DEPTH - LWP (IN.)	RUT DEPTH - RWP (IN.)	CROSS SLOPE (%)[4]	COMMENTS
					FC12.5	FC9.5	SP9.5	T1	S2	S	T1	WC				LR	ABC-2				DEPTH (IN.)	TYPE	CLASS	EXTENT					
70	15.900	ML	L1	N		1.0	3.0								4.0		6.0				1.0	A	II	L	F	0.1	0.1	2.05	
66	16.145	ML	L1	Y		1.2	3.8								5.0		7.1								F	0.1	0.1	2.05	
56	17.260	ML	L1	Y		0.9	4.1								5.0		6.2			12.0	0.5	B	IB	L	F	0.1	0.1	1.45	
43	18.350	ML	L1	N		1.0	3.8								4.8		6.0			12.0	1.0	A	II	L	F	0.1	0.1	2.40	
38	18.637	ML	L1	N		1.2	3.6								4.8		6.2			12.0	1.9	A	II	M	F	0.1	0.1	2.25	
73	15.650	ML	L2	N		1.0	3.5								4.5		5.6				1.5	A	II	M	F	0.1	0.1	1.65	
58	16.910	ML	L2	N		1.0	3.0								4.0	12.0					1.2	B	IB	M	F	0.1	0.1	2.40	Possible Widening Crack
51	17.743	ML	L2	Y		0.8	2.1				0.8				3.7		4.3				3.7	A	IB	S	P	0.1	0.1	1.55	Possible Widening Crack, Base Crack
45	18.187	ML	L2	Y		1.0	2.0		0.7	2.5					6.2	12.0					6.2	C	III	M	P	0.2	0.2	1.55	Branch cracking
37	18.655	ML	L2	N		1.0	3.5								4.5		5.9			12.0					F	0.1	0.1	2.25	
65	16.172	ML	L3	Y		0.9	3.1			2.7					6.7	11.0					4.6	A	II	M	F	0.1	0.1	2.25	
62	16.488	ML	L3	Y		0.9	3.7			3.1	1.0				8.7	12.0					0.9	A	II	L	F	0.1	0.1	2.95	
54	17.470	ML	L3	Y		1.0	2.5			2.2	0.9	0.7			7.3	10.0					2.5	A	II	L	F	0.1	0.1	3.80	
49	17.990	ML	L3	Y		1.0	3.5			3.7	1.3	0.7			10.2	12.0					3.4	A	II	M	F	0.1	0.1	2.35	
39	18.627	ML	L3	N		1.0	3.5								4.5		5.6				1.6	C	II	M	F	0.1	0.1	2.70	
1	15.640	ML	R1	N		0.8	3.9								4.7		5.8				2.4	A	II	M	F	0.1	0.1	2.35	
7	16.250	ML	R1	Y		1.0	3.8								4.8		6.1				3.5	A	II	M	F	0.1	0.1	2.00	
11	16.687	ML	R1	Y		0.9	3.1								4.0	10.0					3.1	C	II	M	P	0.1	0.1	1.60	
20	18.040	ML	R1	Y		0.9	4.0								4.9		6.1				0.9	A	II	L	F	0.2	0.2	1.45	
35	18.660	ML	R1	N		1.5	1.8								3.3		6.9								F	0.1	0.1	2.25	
3	15.934	ML	R2	N		0.8	7.1								7.9	12.0					1.5	A	II	L	F	0.1	0.1	2.00	
6	16.172	ML	R2	N		0.9	2.9								3.8	11.0					0.9	A	II	L	F	0.1	0.1	2.05	
13	17.120	ML	R2	N		1.0	2.5		0.8	2.1					6.4	11.0					1.7	A	II	L	F	0.2	0.2	1.10	
19	17.800	ML	R2	N		1.0	2.6		0.8	1.7					6.1	10.0					1.5	A	II	L	F	0.1	0.1	2.25	
27	18.382	ML	R2	N		0.9	4.6								5.5	12.0					0.7	A	II	L	P	0.2	0.2	2.20	Longitudinal cracking
28	18.382	ML	R2	Y		0.9	3.2		1.4						5.5	11.0					2.4	A	II	M	P	0.2	0.2	2.20	Longitudinal cracking
34	18.650	ML	R2	N		0.9	3.6								4.5		6.8			12.0	0.4	B	IB	L	F	0.1	0.1	1.45	
5	16.145	ML	R3	N		0.8	2.2								3.0	12.0					2.0	A	IB	M	F	0.1	0.1	1.80	
9	16.490	ML	R3	Y		1.0	4.4								5.4	11.0					2.8	A	IB	M	F	0.1	0.1	2.50	
15	17.332	ML	R3	Y		1.0	4.5								5.5	12.0									F	0.1	0.1	2.00	Patched Area
18	17.585	ML	R3	Y		1.0	2.5			2.1					5.6	10.0					2.6	A	II	M	F	0.1	0.1	2.25	
23	18.240	ML	R3	N		1.0	2.3			2.2					5.5	11.0					5.5	C	II	S	F	0.1	0.1	1.85	
26	18.321	ML	R3	Y		0.9	4.6								5.5	10.0					5.5	C	II	S	P	0.1	0.2	1.65	
33	18.640	ML	R3	Y		1.0	4.0								5.0		6.2								F	0.1	0.2	2.25	
AVERAGE						***0.97***	***3.42***		***0.93***	***2.48***	***1.00***	***0.70***			***5.32***	***11.16***	***6.05***			***12.00***	***2.32***					***0.1***	***0.1***	***2.08***	
MAX						***1.50***	***7.10***		***1.40***	***3.70***	***1.30***	***0.70***			***10.20***	***12.00***	***7.10***			***12.00***	***6.20***					***0.2***	***0.2***	***3.80***	
MIN						***0.80***	***1.80***		***0.70***	***1.70***	***0.80***	***0.70***			***3.00***	***10.00***	***4.30***			***12.00***	***0.40***					***0.1***	***0.1***	***1.10***	
LAYER COEF.					***0.25***	***0.25***	***0.25***	***0.23***	***0.25***	***0.25***	***0.23***	***UNKW***				***0.18***	***0.16***			***0.08***									

Notes:

1. The data presented on this table is specific only at the locations cored at the time of the investigation. Should questions arise regarding the pavement composition, it is incumbent upon those raising the question to perform additional exploration as necessary.
2. Mile posts are approximate based on field recorded measurements using a Distance Measuring Instrument (DMI) or a GPS unit.
3. Stabilization thickness was checked on 10% of the coring locations. For pavement design, assume 12 inches of thickness for stabilization.
4. The cross slope is approximate and measured in the center of the lane.
5. A blank cell indicates measurement was not recorded.
6. A value of "UNK" indicates material was encountered but the total thickness was not determined.

Lane Designations - Decreasing MP	Lane Designations - Increasing MP	Lane Type		Crack Type	Crack Rating	Extent	Pavement Condition
OL/IL - Outside/Inside Shoulder	OR/IR - Outside/Inside Shoulder	ML - Mainline	S - Shoulder	A - Alligator	Class IB - Hairline cracks that are ≤ 1/8 inch wide	L - Light	G - Good
L1 - 1st Lane Left of Centerline	R1 - 1st Lane Right of Centerline	TL - Turn Lane	SS - Side Street	B - Block	Class II - Cracks > than 1/8 inch and ≤ 1/4 inch	M - Moderate	F - Fair
LL/LR - Left/Right Turn Lane	RL/RR - Left/Right Turn Lane	CO - Crossover	BR - Bridge Approach/Departure	C - Combination	Class III - Cracks > 1/4 inch	S - Severe	P - Poor

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

PAVEMENT EVALUATION CORING AND CONDITION DATA

Cored By: Intertek- PSI | Coring Completion Date: 2/24/2023 | Typical Section:

W.P.I. No.:				Name:	SR 90 (US 41)							Lanes:	6 Lane Urban Principal Arterial Roadway		
Fin. Proj. ID:	448930-1			From:	N of Thomasson Dr.							Shoulder Type and Condition: Fair			
F.A. Project No.:		Roadway ID:	03010000	To:	S of Southwest Blvd.							Inside:	None		
County:	Collier	SR No.:	90	Beg MP:	15.618	End MP:	18.668	Length:	3.050			Outside:	Paved		
Overall Pavement Condition (from DMO field review):		Fair		Median Curbed (Y/N):	Y	Paved: Y		Lawn: Y		Other: No CTL		Curb & Gutter (Y/N):	N		

Shoulders

CORE NO.	MILE POST[2]	LANE TYPE	LANE	WP (Y/N)	PAVEMENT LAYER (IN.)									TOTAL ASPHALT THICKNESS (IN.)	BASE				STABILIZED SUBGRADE[3]	CRACK				PAVEMENT CONDITION	RUT DEPTH - LWP (IN.)	RUT DEPTH - RWP (IN.)	CROSS SLOPE (%)[4]	COMMENTS
					FC12.5	FC9.5	SP9.5	T1	S2	S	T1	WC			LR	ABC-2				DEPTH (IN.)	TYPE	CLASS	EXTENT					
61	16.572	S	OL	N		1.2	3.8			3.3	0.8	0.6			9.7	12.0									F			2.35	
53	17.515	S	OL	N		1.1	3.9			2.9	1.0	0.6			9.5	12.0									F			2.60	
48	18.164	S	OL	N		1.0	2.0								3.0		5.5			12.0					F			2.25	
42	18.445	S	OL	N		0.8	4.7				0.8	0.5			6.8	12.0									F			2.95	
36	18.665	S	OL	N		0.8	3.6								4.4		6.0			18.0					F			3.65	
10	16.552	S	OR	N		0.9	4.1								5.0	12.0									F			2.35	
16	17.422	S	OR	N		1.1	2.5	0.8	0.8	2.2					7.4	12.0					0.6	B	IB	L	F			1.80	
22	18.210	S	OR	N		0.9	2.0	0.7	1.1	2.5					7.2	12.0									F			1.70	
24	18.260	S	OR	N		0.5	4.9								5.4	12.0									F			2.85	ADDITIONAL FOR TREETOPS DR
30	18.525	S	OR	N		1.0	3.0								4.0	12.0									P			2.05	
32	18.630	S	OR	N		1.2	3.8								5.0		6.8			12.0	0.6	C	II	L	F			1.45	Bike Lane. Longitudinal cracking
AVERAGE						***0.95***	***3.48***	***0.75***	***0.95***	***2.73***	***0.87***	***0.57***			***6.13***	***12.00***	***6.10***			***14.00***	***0.60***							***2.36***	
MAX						***1.20***	***4.90***	***0.80***	***1.10***	***3.30***	***1.00***	***0.60***			***9.70***	***12.00***	***6.80***			***18.00***	***0.60***							***3.65***	
MIN						***0.50***	***2.00***	***0.70***	***0.80***	***2.20***	***0.80***	***0.50***			***3.00***	***12.00***	***5.50***			***12.00***	***0.60***							***1.45***	
LAYER COEF.					***0.25***	***0.25***	***0.25***	***0.23***	***0.25***	***0.25***	***0.23***	***UNKW***				***0.18***	***0.16***			***0.08***									

Notes:

1. The data presented on this table is specific only at the locations cored at the time of the investigation. Should questions arise regarding the pavement composition, it is incumbent upon those raising the question to perform additional exploration as necessary.
2. Mile posts are approximate based on field recorded measurements using a Distance Measuring Instrument (DMI) or a GPS unit.
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

PAVEMENT EVALUATION CORING AND CONDITION DATA

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W.P.I. No.:			Name:	SR 90 (US 41)				Lanes:	6 Lane Urban Principal Arterial Roadway
Fin. Proj. ID:	448930-1		From:	N of Thomasson Dr.				Shoulder Type and Condition:	Fair
F.A. Project No.:		Roadway ID: 03010000	To:	S of Southwest Blvd.				Inside:	None
County:	Collier	SR No.: 90	Beg MP:	15.618	End MP:	18.668	Length: 3.050	Outside:	Paved
Overall Pavement Condition (from DMO field review):	Fair		Median Curbed (Y/N):	Y	Paved: Y	Lawn: Y	Other: No CTL	Curb & Gutter (Y/N):	N

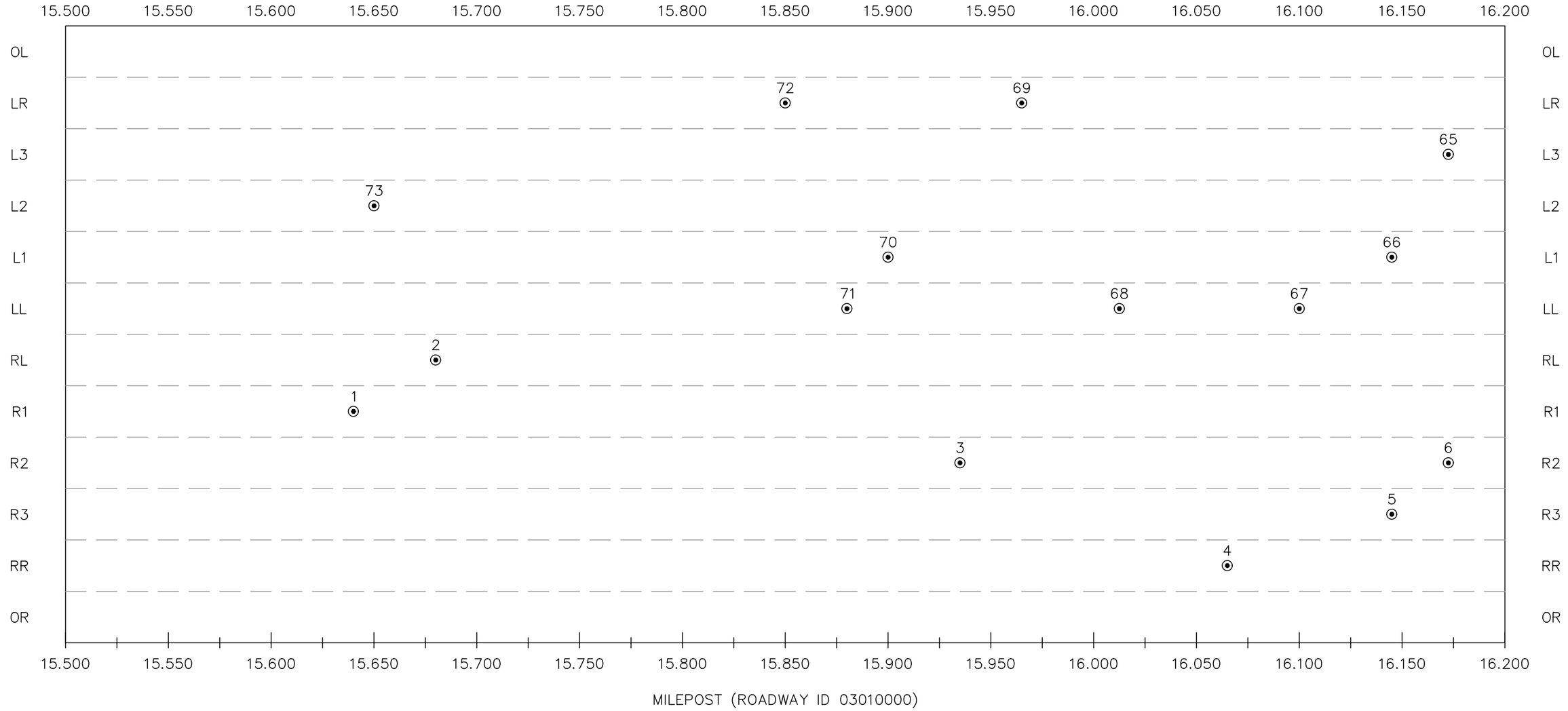
Turn Lanes

CORE NO.	MILE POST[2]	LANE TYPE	LANE	WP (Y/N)	PAVEMENT LAYER (IN.)									TOTAL ASPHALT THICKNESS (IN.)	BASE				STABILIZED SUBGRADE[3]	CRACK				PAVEMENT CONDITION	RUT DEPTH - LWP (IN.)	RUT DEPTH - RWP (IN.)	CROSS SLOPE (%)[4]	COMMENTS
					FC12.5	FC9.5	SP9.5	T1	S2	S	T1	WC			LR	ABC-2				DEPTH (IN.)	TYPE	CLASS	EXTENT					
71	15.880	TL	LL	Y		1.2	2.4							3.6		7.3				2.0	B	II	M	F	0.1	0.1	2.50	LLTL (1st)
68	16.014	TL	LL	Y		1.1	4.1							5.2		6.3			12.0	1.2	A	II	L	F	0.1	0.1	3.40	
67	16.108	TL	LL	N		1.2	3.8							5.0		8.5				1.0	A	II	L	F	0.1	0.1	1.20	
63	16.375	TL	LL	N	1.7		4.0							5.7	10.0									F	0.1	0.1	1.45	
57	17.115	TL	LL	N		1.3	2.9							4.2	12.0									F	0.1	0.1	1.30	
55	17.395	TL	LL	N		0.9	3.5							4.4		6.3				0.7	B	IB	L	F	0.1	0.1	2.25	
52	17.670	TL	LL	N		1.2	2.8							4.0		7.1			12.0	0.5	B	IB	L	P	0.1	0.1	2.05	Pavement distressed.
50	17.910	TL	LL	N		0.8	3.9							4.7		6.3								F	0.1	0.1	2.25	
46	18.175	TL	LL	N		1.0	3.5							4.5		6.4								F	0.1	0.1	1.80	
44	18.310	TL	LL	N		1.0	3.3							4.3		7.3			12.0	0.3	A	II	L	P	0.1	0.1	1.55	Pavement Distressed.
40	18.600	TL	LL	N		1.2	3.8							5.0		6.7			12.0	2.0	A	II	M	F	0.1	0.1	2.70	
72	15.850	TL	LR	N		1.0	3.8	1.0		6.2				12.0	12.0					0.4	B	II	L	F	0.1	0.1	1.80	
69	15.964	TL	LR	Y		1.1	2.5			1.1				4.7	12.0					1.5	A	II	L	F	0.1	0.1	1.30	
64	16.250	TL	LR	Y		1.1	3.1							4.2	10.0									F	0.1	0.1	3.10	
60	16.706	TL	LR	Y		0.8	4.3			3.5	1.2	0.6		10.4	11.0					2.7	A	II	L	F	0.1	0.1	2.70	
59	16.870	TL	LR	Y		0.8	4.9							5.7	12.0									F	0.1	0.1	3.30	
47	18.170	TL	LR	N		1.1	3.9							5.0		6.8								F	0.1	0.1	3.65	
41	18.582	TL	LR	Y		0.9	3.1							4.0		5.0								F	0.1	0.1	3.05	Bottom 1-inch unretrievable (included in measurments)
2	15.680	TL	RL	Y		1.1	3.4							4.5		7.0				1.1	A	II	L	F	0.1	0.1	0.95	RLTL (2nd)
8	16.300	TL	RL	N	1.6		3.9							5.5	11.0									F	0.1	0.1	1.90	
12	16.793	TL	RL	N		1.1	4.1							5.2		6.8			10.0	0.5	A	II	L	F	0.2	0.2	1.70	
17	17.557	TL	RL	N		1.2	3.6							4.8		6.4			12.0					F	0.1	0.1	2.25	
21	18.100	TL	RL	N		1.0	4.2							5.2		9.4								F	0.1	0.1	2.25	
29	18.500	TL	RL	N		1.1	2.9							4.0		7.5								F	0.1	0.2	2.50	
4	16.065	TL	RR	N		1.8	2.2							4.0		7.1			20.0					F	0.1	0.1	1.80	
14	17.310	TL	RR	N		1.2	3.1							4.3	12.0									F	0.1	0.1	4.15	
25	18.270	TL	RR	N		1.1	3.8							4.9	10.0									P	0.1	0.1	1.80	ADDITIONAL FOR TREETOPS DR, DISTRESS
31	18.535	TL	RR	N		0.6	2.8							3.4	11.0									F	0.1	0.1	4.25	
AVERAGE					***1.65***	***1.07***	***3.49***	***1.00***		***3.60***	***1.20***	***0.60***		***5.09***	***11.18***	***6.95***			***12.86***	***1.16***					***0.1***	***0.1***	***2.32***	
MAX					***1.70***	***1.80***	***4.90***	***1.00***		***6.20***	***1.20***	***0.60***		***12.00***	***12.00***	***9.40***			***20.00***	***2.70***					***0.2***	***0.2***	***4.25***	
MIN					***1.60***	***0.60***	***2.20***	***1.00***		***1.10***	***1.20***	***0.60***		***3.40***	***10.00***	***5.00***			***10.00***	***0.30***					***0.1***	***0.1***	***0.95***	
LAYER COEF.					***0.25***	***0.25***	***0.25***	***0.23***	***0.25***	***0.25***	***0.23***	***UNKW***			***0.18***	***0.16***			***0.08***									

Notes:

1. The data presented on this table is specific only at the locations cored at the time of the investigation. Should questions arise regarding the pavement composition, it is incumbent upon those raising the question to perform additional exploration as necessary.
2. Mile posts are approximate based on field recorded measurements using a Distance Measuring Instrument (DMI) or a GPS unit.
3. Stabilization thickness was checked on 10% of the coring locations. For pavement design, assume 12 inches of thickness for stabilization.
4. The cross slope is approximate and measured in the center of the lane.
5. A blank cell indicates measurement was not recorded.
6. A value of "UNK" indicates material was encountered but the total thickness was not determined.

Lane Designations - Decreasing MP	Lane Designations - Increasing MP	Lane Type		Crack Type	Crack Rating	Extent	Pavement Condition
OL/IL - Outside/Inside Shoulder	OR/IR - Outside/Inside Shoulder	ML - Mainline	S - Shoulder	A - Alligator	Class IB - Hairline cracks that are ≤ 1/8 inch wide	L - Light	G - Good
L1 - 1st Lane Left of Centerline	R1 - 1st Lane Right of Centerline	TL - Turn Lane	SS - Side Street	B - Block	Class II - Cracks > than 1/8 inch and ≤ 1/4 inch	M - Moderate	F - Fair
LL/LR - Left/Right Turn Lane	RL/RR - Left/Right Turn Lane	CO - Crossover	BR - Bridge Approach/Departure	C - Combination	Class III - Cracks > 1/4 inch	S - Severe	P - Poor



NOTE:

1. MILE POSTS AND CORE LOCATIONS ARE APPROXIMATE.

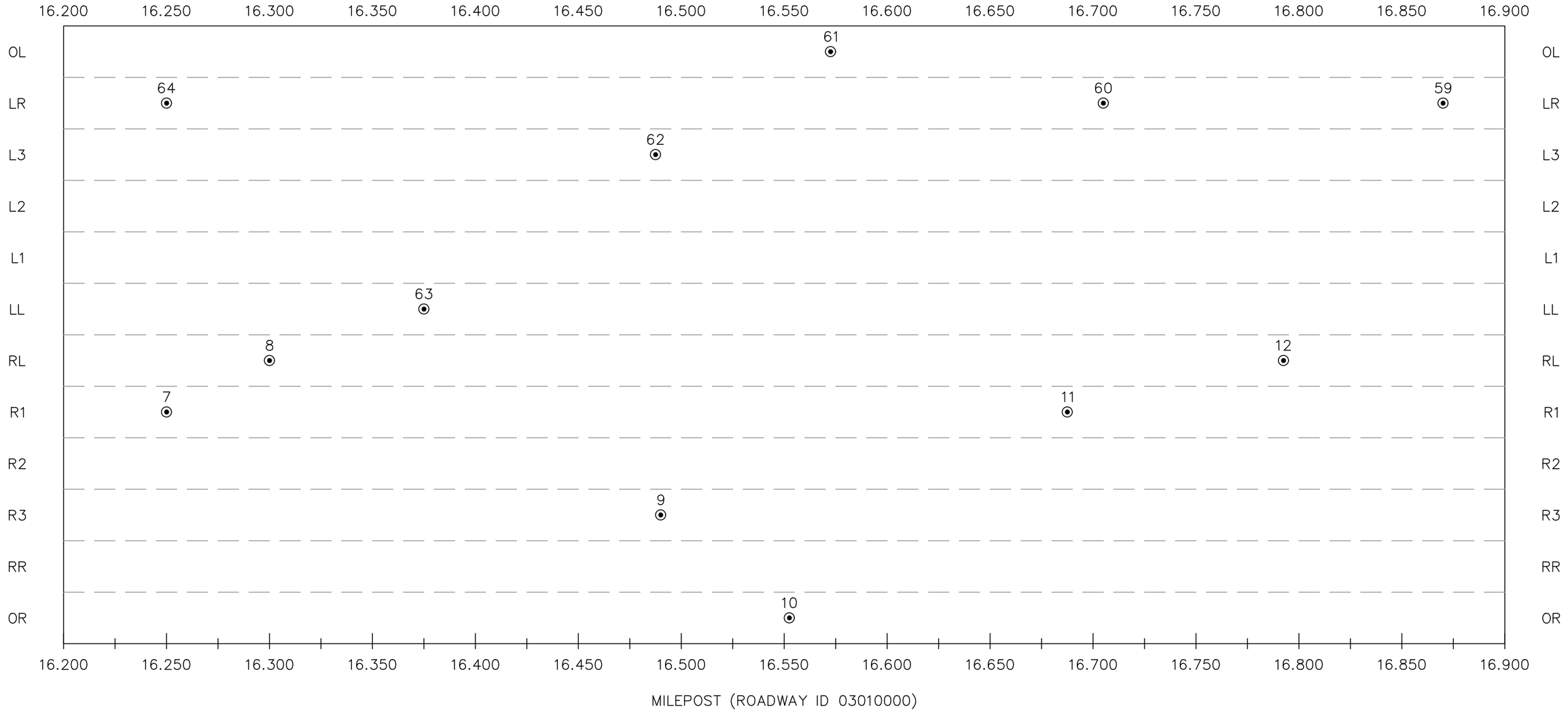
DRAWN	DJG
CHECKED	CA
APPROVED	NS
SCALE	NOTED

PAVEMENT CORING LAYOUT PLAN

448930-1 SR 90

COLLIER COUNTY, FLORIDA

DATE	PROJ. NO.	SHEET
FEB 23	07753455	1



NOTE:

1. MILE POSTS AND CORE LOCATIONS ARE APPROXIMATE.

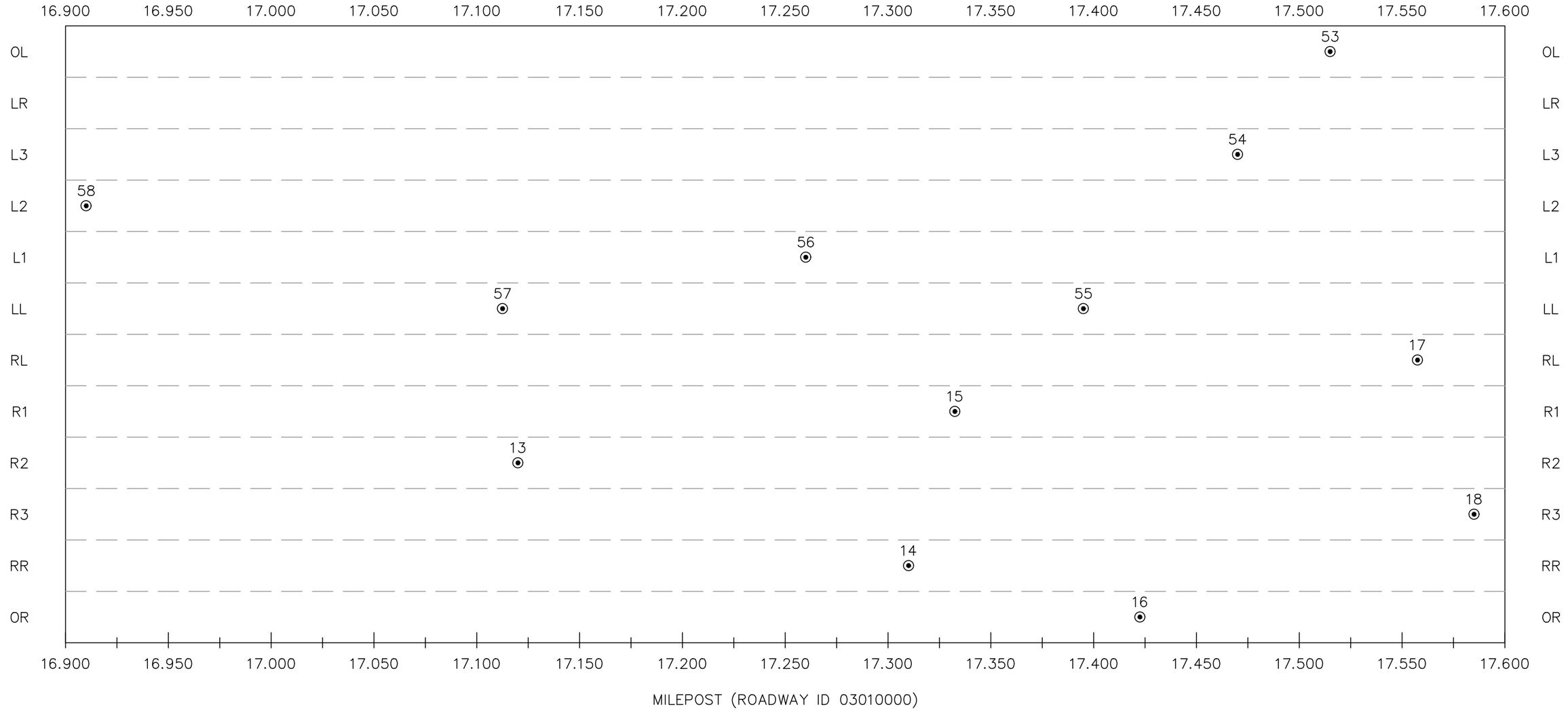
DRAWN	DJG
CHECKED	CA
APPROVED	NS
SCALE	NOTED

PAVEMENT CORING LAYOUT PLAN

448930-1 SR 90

COLLIER COUNTY, FLORIDA

DATE	PROJ. NO.	SHEET
FEB 23	07753455	2



NOTE:

1. MILE POSTS AND CORE LOCATIONS ARE APPROXIMATE.

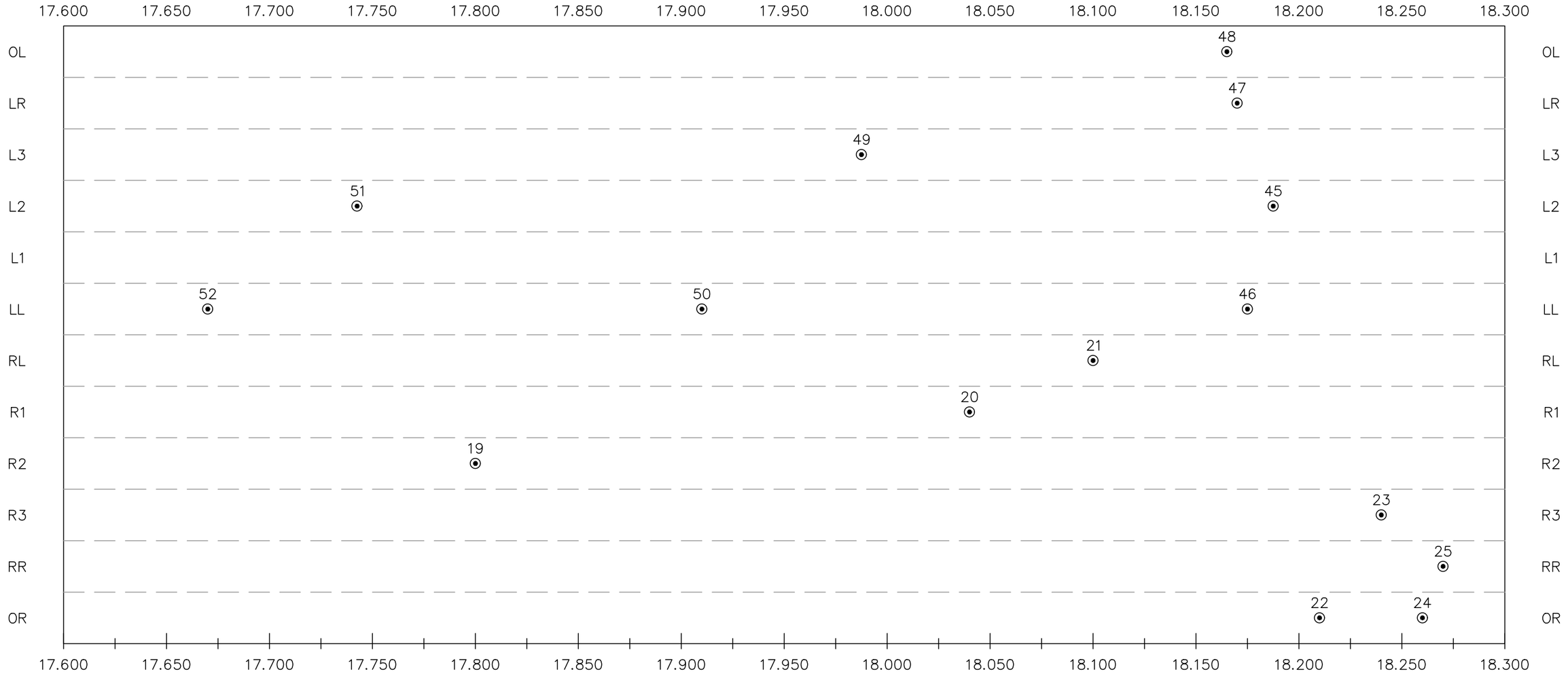
DRAWN	DJG
CHECKED	CA
APPROVED	NS
SCALE	NOTED

PAVEMENT CORING LAYOUT PLAN

448930-1 SR 90

COLLIER COUNTY, FLORIDA

DATE	PROJ. NO.	SHEET
FEB 23	07753455	3



NOTE:

1. MILE POSTS AND CORE LOCATIONS ARE APPROXIMATE.

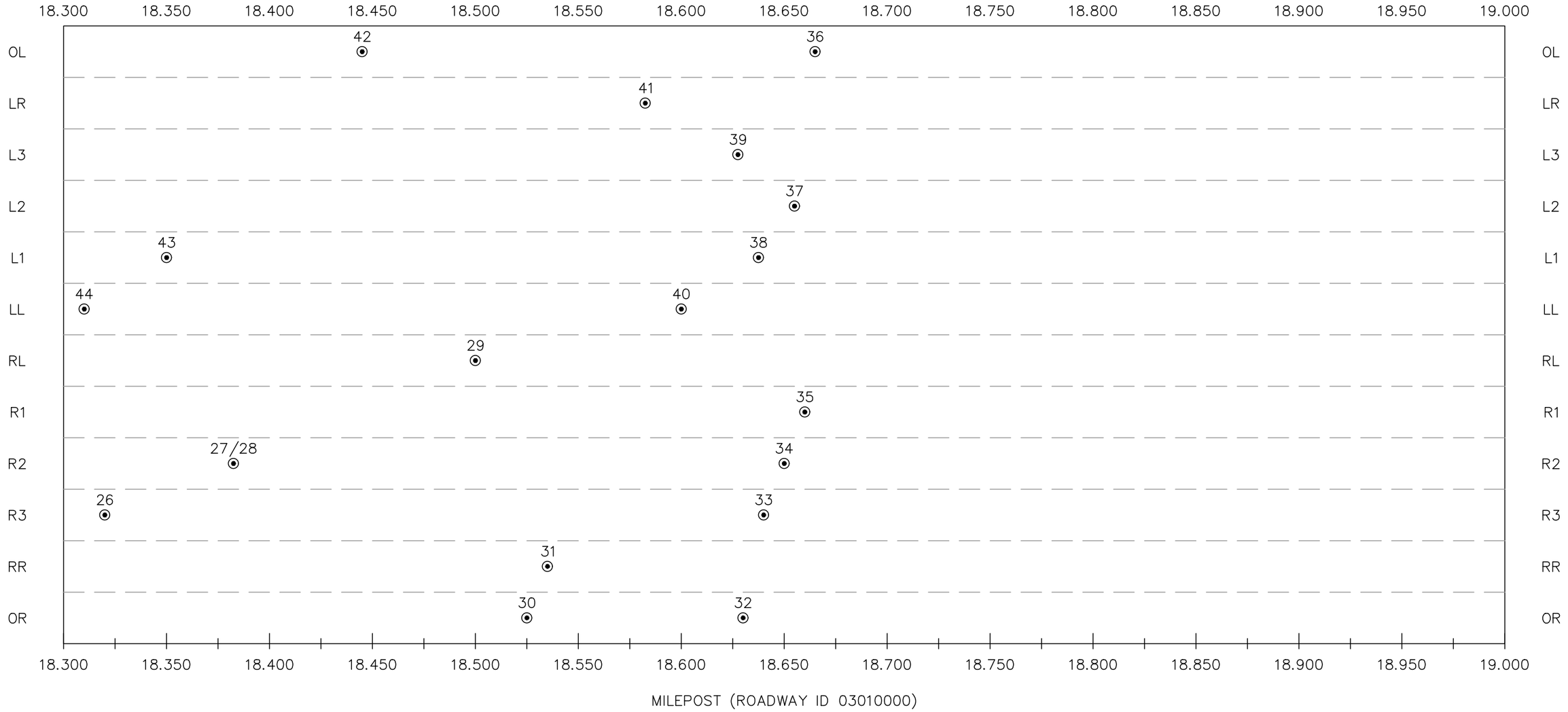
DRAWN	DJG
CHECKED	CA
APPROVED	NS
SCALE	NOTED

PAVEMENT CORING LAYOUT PLAN

448930-1 SR 90

COLLIER COUNTY, FLORIDA

DATE	PROJ. NO.	SHEET
FEB 23	07753455	4



NOTE:

1. MILE POSTS AND CORE LOCATIONS ARE APPROXIMATE.

DRAWN	DJG
CHECKED	CA
APPROVED	NS
SCALE	NOTED

PAVEMENT CORING LAYOUT PLAN

448930-1 SR 90

COLLIER COUNTY, FLORIDA

DATE	PROJ. NO.	SHEET
FEB 23	07753455	5

APPENDIX 3

Core Sample and Location Pictures

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 1

Field 1

CORE 2

Field 2

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 3

Field 3

CORE 4

Field 4

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 5

Field 5

CORE 6

Field 6

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 7

Field 7

CORE 8

Field 8

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 9

Field 9

CORE 10

Field 10

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 11

Field 11

CORE 12

Field 12

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 13

Field 13

CORE 14

Field 14

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 15

Field 15

CORE 16

Field 16

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 17

Field 17

CORE 18

Field 18

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 19

Field 19

CORE 20

Field 20

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 21

Field 21

CORE 22

Field 22

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 23

Field 23

CORE 24

Field 24

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 25

Field 25

CORE 26

Field 26

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 27

Field 27

CORE 28

Field 28

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 29

Field 29

CORE 30

Field 30

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 31

Field 31

CORE 32

Field 32

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 33

Field 33

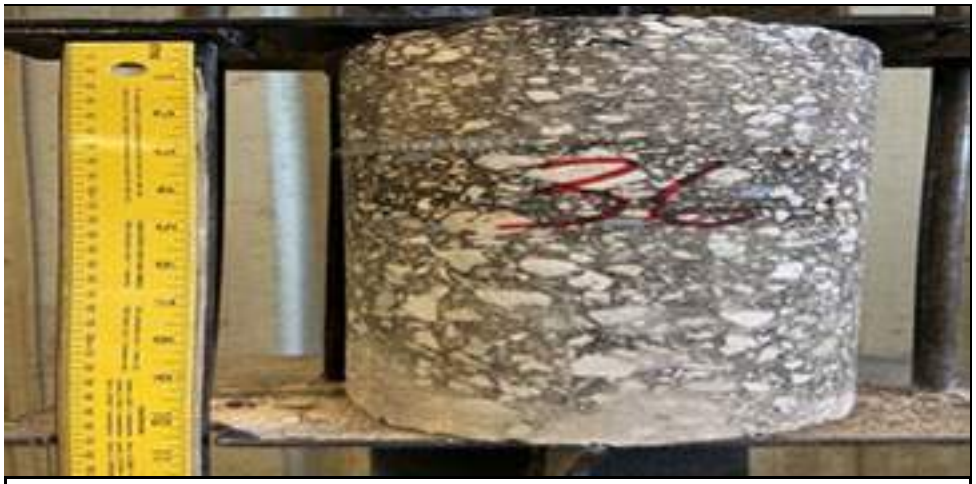
CORE 34

Field 34

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 35

Field 35



CORE 36

Field 36

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 37

Field 37

CORE 38

Field 38

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 39

Field 39

CORE 40

Field 40

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 41

Field 41

CORE 42

Field 42

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 43

Field 43

CORE 44

Field 44

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 45

Field 45

CORE 46

Field 46

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 47

Field 47

CORE 48

Field 48

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 49

Field 49

CORE 50

Field 50

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 51

Field 51

CORE 52

Field 52

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 53

Field 53

CORE 54

Field 54

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 55

Field 55

CORE 56

Field 56

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 57

Field 57

CORE 58

Field 58

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 59

Field 59

CORE 60

Field 60

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 61

Field 61

CORE 62

Field 62

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 63

Field 63

CORE 64

Field 64

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 65

Field 65

CORE 66

Field 66

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 67

Field 67

CORE 68

Field 68

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 69

Field 69

CORE 70

Field 70

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 71

Field 71

CORE 72

Field 72

PAVEMENT CORE PHOTO PAGES		FPID: 448930-1	PROJECT DESCRIPTION: SR 90 (US 41) from N of Thomasson Dr. to S of Southwest Blvd.	
CORED BY: Intertek PSI	DATE: 2/24/2023	BEGIN MP: 15.618	END MP: 18.668	COUNTY / ROADWAY ID: Collier / 03010000

CORE 73

Field 73

CORE 74

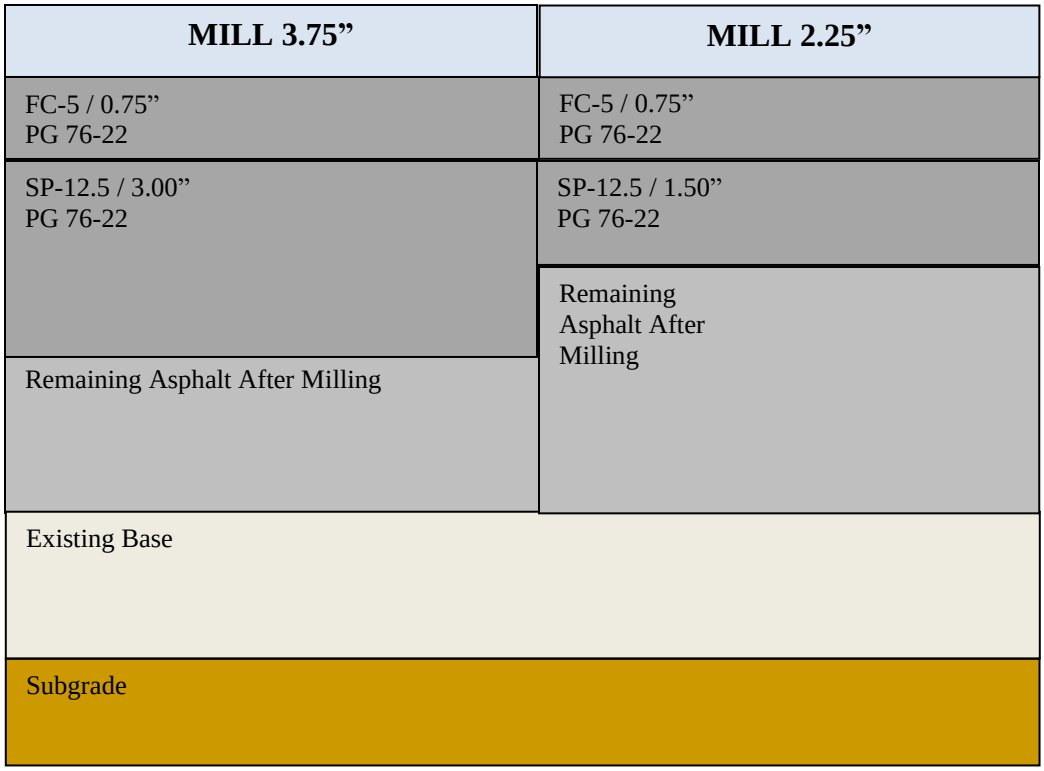
Field 74

APPENDIX 4

Illustration of Milling and Resurfacing Recommendations

Illustration of Milling and Resurfacing Recommendation

Design Sketch Not Drawn To Scale



Note:

- **Structural requirements were not calculated in this design.**
- **If the depicted pavement design will not be adequate based on structural calculations, overbuild thickness should be adjusted to meet the required structural number and/or other constructability purposes. If modification to the milling depth will be necessary to meet the required structural number contact this office for a revised recommendation.**

APPENDIX 5

Pavement Survey Request

Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

MEMORANDUM

Date: 1/11/2023
To: Pavement Evaluations
From: David Agacinski
Subject: Request for Asphalt Survey
FM No.: 448930-1
County/Section: Collier
Begin MP: 15.618 End MP: 18.668
Description: SR 90 (US 41) FROM N OF THOMASSON DR TO S OF SOUTHWEST BLVD
Coring Scope Responsibility: Design Consultant
Responsible Consultant for Coring Scope: Albert Smidebush, The Balmorl Group

---

These attached items are for your information in obtaining the necessary asphalt data needed for our preparation of the pavement design package: Scope, Concept Report and/or PPR/LRE; Proposed Typical Sections; Old Pavement Typical; ESAL's; As Builts; FWD;

Please specify if the project has any realignment involved and/or locations of widening/reconstruction:

Potential widening for keyholes for right turn lanes at Broward St Nbd, Treetops Dr Sbd, and Whistlers Cove Nbd.

Review of Project by Project Manager: David Agacinski
Letting Date: 07/2024
Friction Course Type:

Areas of Concern:

The Scope recommends using FC-12.5, but currently the proposed design speed is 50 mph. Abutting project to the east, 441561-1, used FC-5. As-builts are provided for widening from 2-lanes to 4-lanes (1973), and for widening from 4-lanes to 6-lanes (metric, 1994 and 2002).

Is this a 'Goes With' project? No If so, Lead Project Number:
To keep our project on schedule, we are requesting a return date of: 4/12/2023
If you have any questions, please contact me at: David.Agacinski@dot.state.fl.us

APPENDIX D

Typical Section Package

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 448930-1-52-01

COLLIER COUNTY (03010)

STATE ROAD NO. 90 (US 41)

RESURFACING SR. 90 FROM N. OF THOMASSON DR.
TO S. OF SOUTHWEST BLVD.

FDOT DISTRICT DESIGN ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS
TARGET SPEED
DESIGN & POSTED SPEEDS

FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER

CONCURRING WITH:
TARGET SPEED
DESIGN & POSTED SPEEDS

FDOT DISTRICT INTERMODAL SYSTEMS DEVELOPMENT MANAGER

CONCURRING WITH:
CONTEXT CLASSIFICATION
TARGET SPEED

FDOT DISTRICT STRUCTURES DESIGN ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

FHWA TRANSPORTATION ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

LOCAL TRANSPORTATION ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

NOT USED

CONCURRING WITH:

NOT USED

CONCURRING WITH:

PROJECT LOCATION URL:	https://tinyurl.com/3xd5epf2
PROJECT DESCRIPTION:	RESURFACING
PROJECT LIMITS:	BEGIN MP 15.634 NB/ MP 15.618 SB END MP 18.668
EXCEPTIONS:	NONE
BRIDGE LIMITS:	(030310) MP 16.142 - MP 16.163 (030193) MP 16.142 - MP 16.163
RAILROAD CROSSING:	NONE

APPROVED BY:

MELISSA M. SLATER
LICENSE
No 72156
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

Melissa Slater
Melissa Slater
2022.04.11
10:20:01 -04'00'

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

FLORIDA DEPARTMENT OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33830-3809
CERTIFICATE OF AUTHORIZATION: NA
MELISSA M. SLATER, P.E. NO. 72156

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

TYPICAL SECTION PACKAGE

SHEET NO. 1

3/17/2022 10:03:30 AM

PROJECT CONTROLS

CONTEXT CLASSIFICATION

( )	C1 : NATURAL	( )	C3C : SUBURBAN COMM.
( )	C2 : RURAL	( )	C4 : URBAN GENERAL
( )	C2T : RURAL TOWN	( )	C5 : URBAN CENTER
(X)	C3R : SUBURBAN RES.	( )	C6 : URBAN CORE
( )	N/A : L.A. FACILITY		

FUNCTIONAL CLASSIFICATION

( )	INTERSTATE	( )	MAJOR COLLECTOR
( )	FREEWAY/EXPWY.	( )	MINOR COLLECTOR
(X)	PRINCIPAL ARTERIAL	( )	LOCAL
( )	MINOR ARTERIAL		

HIGHWAY SYSTEM

(X)	NATIONAL HIGHWAY SYSTEM
( )	STRATEGIC INTERMODAL SYSTEM
(X)	STATE HIGHWAY SYSTEM
( )	OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( )	1 - FREEWAY
( )	2 - RESTRICTIVE w/Service Roads
(X)	3 - RESTRICTIVE w/660 ft. Connection Spacing
( )	4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( )	5 - RESTRICTIVE w/440 ft. Connection Spacing
( )	6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( )	7 - BOTH MEDIAN TYPES

CRITERIA

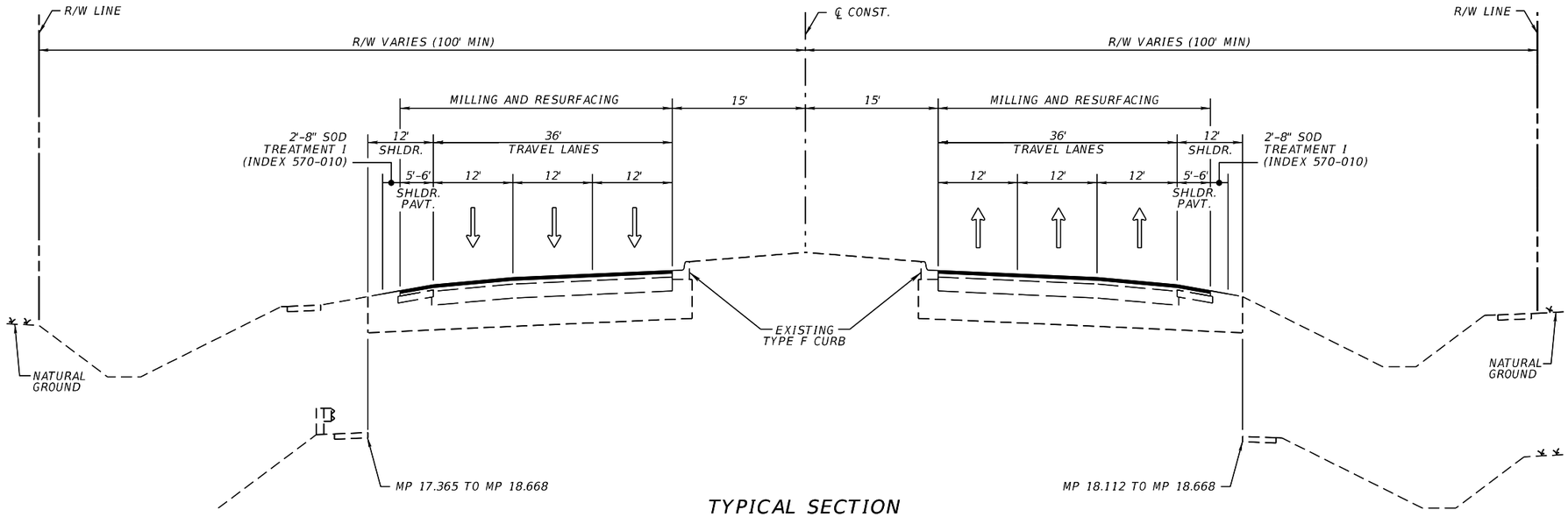
( )	NEW CONSTRUCTION / RECONSTRUCTION
( )	RESURFACING (LA FACILITIES)
(X)	RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

DESIGN VARIATIONS:
MEDIAN C&G OFFSET WITH TYPE F CURB

DESIGN EXCEPTIONS:
NONE

TYPICAL SECTION No. 01



TYPICAL SECTION
SR 90 (US 41)
MP 15.618 SB & MP 15.634 NB TO MP 16.142 (BEGIN BRIDGE)
MP 16.163 (END BRIDGE) TO MP 18.668

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 42000
ESTIMATED OPENING YEAR = 2024 AADT = 43500
ESTIMATED DESIGN YEAR = 2045 AADT = 48600
K = 9.0% D = 55.9% T = 4.0% (24 HOUR)
DESIGN HOUR T = 2.0%
DESIGN SPEED = 50 MPH (REDUCED FROM 65 IN TARGET SPEED MEETING 12/10/21)
POSTED SPEED = 45 MPH NB (MP 15.795 TO MP 16.262)
= 50 MPH NB (MP 16.262 TO MP 18.668)
= 50 MPH SB (MP 15.795 TO MP 18.668)
TARGET SPEED = 45 MPH NB (MP 15.795 TO MP 16.262)
= 50 MPH NB (MP 16.262 TO MP 18.668)
= 50 MPH SB (MP 15.795 TO MP 18.668)

NOT TO SCALE

FINANCIAL PROJECT ID	SHEET NO.
448930-1-52-01	2

3/17/2022 10:03:30 AM

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

PROJECT CONTROLS

CONTEXT CLASSIFICATION

( )	C1 : NATURAL	( )	C3C : SUBURBAN COMM.
( )	C2 : RURAL	( )	C4 : URBAN GENERAL
( )	C2T : RURAL TOWN	( )	C5 : URBAN CENTER
(X)	C3R : SUBURBAN RES.	( )	C6 : URBAN CORE
( )	N/A : L.A. FACILITY		

FUNCTIONAL CLASSIFICATION

( )	INTERSTATE	( )	MAJOR COLLECTOR
( )	FREEWAY/EXPWY.	( )	MINOR COLLECTOR
(X)	PRINCIPAL ARTERIAL	( )	LOCAL
( )	MINOR ARTERIAL		

HIGHWAY SYSTEM

(X) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
(X) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

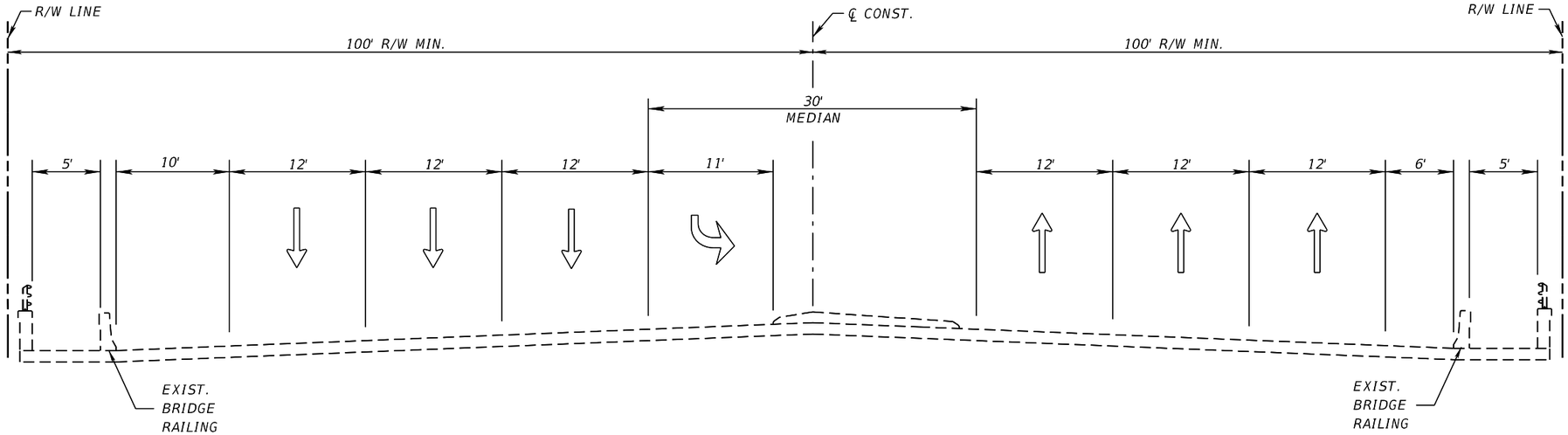
( ) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
(X) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

DESIGN VARIATIONS:
NONE

DESIGN EXCEPTIONS:
NONE

TYPICAL SECTION No. 02



TYPICAL SECTION
SR 90 (US 41)
BRIDGE NO. 030310 & BRIDGE NO. 030193
MP 16.142 TO MP 16.163

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 42000
ESTIMATED OPENING YEAR = 2024 AADT = 43500
ESTIMATED DESIGN YEAR = 2045 AADT = 48600
K = 9.0% D = 55.9% T = 4.0% (24 HOUR)
DESIGN HOUR T = 2.0%
DESIGN SPEED = 50 MPH (REDUCED FROM 65 IN TARGET SPEED MEETING 12/10/21)
POSTED SPEED = 45 MPH NB
= 50 MPH SB
TARGET SPEED = 45 MPH NB
= 50 MPH SB

NOT TO SCALE

FINANCIAL PROJECT ID	SHEET NO.
448930-1-52-01	3

3/17/2022 10:03:31 AM

APPENDIX E

Existing Pavement Coring
Information and Computed Averages

EXISTING PAVEMENT CORING INFORMATION AND COMPUTED AVERAGES

General Methodology: Existing pavement coring information has been utilized to compute existing pavement structural number and thickness averages.

Mainline Northbound

				Pavement Layer Information												Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-9.5	Coeff.	SP-9.5	Coeff.	S2	Coeff.	S	Coeff.	T1	Coeff.	WC	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-37	18.655	L2	4.50	1.0	0.25	3.5	0.25		0.25		0.25		0.23		0.00		0.18	5.8	0.25	12	0.08	3.535
C-38	18.637	L1	4.80	1.2	0.25	3.6	0.25		0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.320
C-39	18.627	L3	4.50	1.0	0.25	3.5	0.25		0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.245
C-43	18.350	L1	4.80	1.0	0.25	3.8	0.25		0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	4.140
C-45	18.187	L2	6.20	1.0	0.25	2.0	0.25	0.7	0.25	2.5	0.25		0.23		0.00		0.18	6.1	0.25	12	0.08	4.035
C-49	17.990	L3	10.20	1.0	0.25	3.5	0.25		0.25	3.7	0.25	1.3	0.23	0.7	0.00	11.0	0.18		0.25	12	0.08	5.289
C-51	17.743	L2	3.70	0.8	0.25	2.1	0.25		0.25		0.25	0.8	0.23		0.00	10.0	0.18		0.25	12	0.08	3.669
C-54	17.470	L3	7.30	1.0	0.25	2.5	0.25		0.25	2.2	0.25	0.9	0.23	0.7	0.00	11.0	0.18		0.25	12	0.08	4.572
C-56	17.260	L1	5.00	0.9	0.25	4.1	0.25		0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.370
C-58	16.910	L2	4.00	1.0	0.25	3.0	0.25		0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.760
C-62	16.488	L3	8.70	0.9	0.25	3.7	0.25		0.25	3.1	0.25	1.0	0.23		0.00	10.0	0.18		0.25	12	0.08	4.915
C-65	16.172	L3	6.70	0.9	0.25	3.1	0.25		0.25	2.7	0.25		0.23		0.00		0.18	6.1	0.25	12	0.08	4.160
C-66	16.145	L1	5.00	1.2	0.25	3.8	0.25		0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	4.190
C-70	15.900	L1	4.00	1.0	0.25	3.0	0.25		0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.760
C-73	15.650	L2	4.50	1.0	0.25	3.5	0.25		0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.245
Averages			5.59	0.99	0.25	3.25	0.25	0.70	0.25	2.84	0.25	1.00	0.23	0.70	0.00	11.00	0.18	6.00	0.25	12.00	0.08	4.214
Standard Deviation Range			3.71	0.89		2.62		#DIV/0!		2.26		0.78		0.70		10.15		5.83		12.00		3.749
			to	to		to		to		to		to		to		to		to		to		to
			7.47	1.09		3.88		#DIV/0!		3.42		1.22		0.70		11.85		6.17		12.00		4.678

Note: Per Pavement Evaluation Coring and Condition Data, Stabilization was checked for only 10% of coring locations. Assume 12" of thickness for stabilization
Cores C-49, C-62 are considered outliers on the high side of core length and have been removed from the final existing averages calculations.

Final Existing Averages Mainline Northbound

				Pavement Layer Information												Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-9.5	Coeff.	SP-9.5	Coeff.	S2	Coeff.	S	Coeff.	T1	Coeff.	WC	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-37	18.655	L2	4.50	1.0	0.25	3.5	0.25		0.25		0.25		0.23		0.00		0.18	5.8	0.25	12	0.08	3.535
C-38	18.637	L1	4.80	1.2	0.25	3.6	0.25		0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.320
C-39	18.627	L3	4.50	1.0	0.25	3.5	0.25		0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.245
C-43	18.350	L1	4.80	1.0	0.25	3.8	0.25		0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	4.140
C-45	18.187	L2	6.20	1.0	0.25	2.0	0.25	0.7	0.25	2.5	0.25		0.23		0.00		0.18	6.1	0.25	12	0.08	4.035
C-51	17.743	L2	3.70	0.8	0.25	2.1	0.25		0.25		0.25	0.8	0.23		0.00	10.0	0.18		0.25	12	0.08	3.669
C-54	17.470	L3	7.30	1.0	0.25	2.5	0.25		0.25	2.2	0.25	0.9	0.23	0.7	0.00	11.0	0.18		0.25	12	0.08	4.572
C-56	17.260	L1	5.00	0.9	0.25	4.1	0.25		0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.370
C-58	16.910	L2	4.00	1.0	0.25	3.0	0.25		0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.760
C-65	16.172	L3	6.70	0.9	0.25	3.1	0.25		0.25	2.7	0.25		0.23		0.00		0.18	6.1	0.25	12	0.08	4.160
C-66	16.145	L1	5.00	1.2	0.25	3.8	0.25		0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	4.190
C-70	15.900	L1	4.00	1.0	0.25	3.0	0.25		0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.760
C-73	15.650	L2	4.50	1.0	0.25	3.5	0.25		0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.245
Averages			5.00	1.00	0.25	3.19	0.25	0.70	0.25	2.47	0.25	0.85	0.23	0.70	0.00	11.10	0.18	6.00	0.25	12.00	0.08	4.077
Standard Deviation Range			3.91	0.89		2.53		#DIV/0!		2.22		0.78		#DIV/0!		10.22		5.83		12.00		3.770
			to	to		to		to		to		to		to		to		to		to		to
			6.09	1.11		3.85		#DIV/0!		2.72		0.92		#DIV/0!		11.98		6.17		12.00		4.384

Representative Average Mainline Northbound

To model the typical pavement section, sporadic structural lifts have been reassigned (to maintain equivalent structural number) to the closes structure layer:
SP-9.5 combined with S2, S, T1, AND WC. Base layers have been reassigned to the predominate material type: ABC-2 combined with LBR

Representative Average			4.94	1.00	0.25	3.9	0.25									10.5	0.18			12	0.08	4.080

EXISTING PAVEMENT CORING INFORMATION AND COMPUTED AVERAGES

General Methodology: Existing pavement coring information has been utilized to compute existing pavement structural number and thickness averages.

Mainline Southbound

				Pavement Layer Information								Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-9.5	Coeff.	SP-9.5	Coeff.	S2	Coeff.	S	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-1	15.640	R1	4.70	0.8	0.25	3.9	0.25		0.25		0.25		0.18	5.8	0.25	12	0.08	3.585
C-3	15.934	R2	7.90	0.8	0.25	7.1	0.25		0.25		0.25	12.0	0.18		0.25	12	0.08	5.095
C-5	16.145	R3	3.00	0.8	0.25	2.2	0.25		0.25		0.25	12.0	0.18		0.25	12	0.08	3.870
C-6	16.172	R2	3.80	0.9	0.25	2.9	0.25		0.25		0.25	11.0	0.18		0.25	12	0.08	3.890
C-7	16.250	R1	4.80	1.0	0.25	3.8	0.25		0.25		0.25		0.18	6.1	0.25	12	0.08	3.685
C-9	16.490	R3	5.40	1.0	0.25	4.4	0.25		0.25		0.25	11.0	0.18		0.25	12	0.08	4.290
C-11	16.687	R1	4.00	0.9	0.25	3.1	0.25		0.25		0.25	10.0	0.18		0.25	12	0.08	3.760
C-13	17.120	R2	6.40	1.0	0.25	2.5	0.25	0.8	0.25	2.1	0.25	11.0	0.18		0.25	12	0.08	4.540
C-15	17.332	R3	5.50	1.0	0.25	4.5	0.25		0.25		0.25	12.0	0.18		0.25	12	0.08	4.495
C-18	17.585	R3	5.60	1.0	0.25	2.5	0.25		0.25	2.1	0.25	10.0	0.18		0.25	12	0.08	4.160
C-19	17.800	R2	6.10	1.0	0.25	2.6	0.25	0.8	0.25	1.7	0.25	10.0	0.18		0.25	12	0.08	4.285
C-20	18.040	R1	4.90	0.9	0.25	4.0	0.25		0.25		0.25		0.18	6.1	0.25	12	0.08	3.710
C-23	18.240	R3	5.50	1.0	0.25	2.3	0.25		0.25	2.2	0.25	11.0	0.18		0.25	12	0.08	4.315
C-26	18.321	R3	5.50	0.9	0.25	4.6	0.25		0.25		0.25	10.0	0.18		0.25	12	0.08	4.135
C-27	18.382	R2	5.50	0.9	0.25	4.6	0.25		0.25		0.25	12.0	0.18		0.25	12	0.08	4.495
C-28	18.382	R2	5.50	0.9	0.25	3.2	0.25	1.4	0.25		0.25	11.0	0.18		0.25	12	0.08	4.315
C-33	18.640	R3	5.00	1.0	0.25	4.0	0.25		0.25		0.25		0.18	6.2	0.25	12	0.08	3.760
C-34	18.650	R2	4.50	0.9	0.25	3.6	0.25		0.25		0.25		0.18	6.8	0.25	12	0.08	3.785
C-35	18.660	R1	3.30	1.5	0.25	1.8	0.25		0.25		0.25		0.18	6.9	0.25	12	0.08	3.510
Averages			5.10	0.96	0.25	3.56	0.25	1.00	0.25	2.03	0.25	11.00	0.18	6.32	0.25	12.00	0.08	4.088
Standard Deviation Range			3.97	0.81		2.33		0.65		1.81		10.18		5.88				3.678
			to	to		to		to		to		to		to				to
			6.23	1.11		4.79		1.35		2.25		11.82		6.76				4.498

Note: Per Pavement Evaluation Coring and Condition Data, Stabilization was checked for only 10% of coring locations. Assume 12" of thickness for stabilization
Core C-3 and C-13 are considered outliers on the high side of core length and have been removed from the final existing averages calculations.

Final Existing Averages Mainline Southbound

				Pavement Layer Information								Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-9.5	Coeff.	SP-9.5	Coeff.	S2	Coeff.	S	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-1	15.640	R1	4.70	0.8	0.25	3.9	0.25		0.25		0.25		0.18	5.8	0.25	12	0.08	3.585
C-5	16.145	R3	3.00	0.8	0.25	2.2	0.25		0.25		0.25	12.0	0.18		0.25	12	0.08	3.870
C-6	16.172	R2	3.80	0.9	0.25	2.9	0.25		0.25		0.25	11.0	0.18		0.25	12	0.08	3.890
C-7	16.250	R1	4.80	1.0	0.25	3.8	0.25		0.25		0.25		0.18	6.1	0.25	12	0.08	3.685
C-9	16.490	R3	5.40	1.0	0.25	4.4	0.25		0.25		0.25	11.0	0.18		0.25	12	0.08	4.290
C-11	16.687	R1	4.00	0.9	0.25	3.1	0.25		0.25		0.25	10.0	0.18		0.25	12	0.08	3.760
C-15	17.332	R3	5.50	1.0	0.25	4.5	0.25		0.25		0.25	12.0	0.18		0.25	12	0.08	4.495
C-18	17.585	R3	5.60	1.0	0.25	2.5	0.25		0.25	2.1	0.25	10.0	0.18		0.25	12	0.08	4.160
C-19	17.800	R2	6.10	1.0	0.25	2.6	0.25	0.8	0.25	1.7	0.25	10.0	0.18		0.25	12	0.08	4.285
C-20	18.040	R1	4.90	0.9	0.25	4.0	0.25		0.25		0.25		0.18	6.1	0.25	12	0.08	3.710
C-23	18.240	R3	5.50	1.0	0.25	2.3	0.25		0.25	2.2	0.25	11.0	0.18		0.25	12	0.08	4.315
C-26	18.321	R3	5.50	0.9	0.25	4.6	0.25		0.25		0.25	10.0	0.18		0.25	12	0.08	4.135
C-27	18.382	R2	5.50	0.9	0.25	4.6	0.25		0.25		0.25	12.0	0.18		0.25	12	0.08	4.495
C-28	18.382	R2	5.50	0.9	0.25	3.2	0.25	1.4	0.25		0.25	11.0	0.18		0.25	12	0.08	4.315
C-33	18.640	R3	5.00	1.0	0.25	4.0	0.25		0.25		0.25		0.18	6.2	0.25	12	0.08	3.760
C-34	18.650	R2	4.50	0.9	0.25	3.6	0.25		0.25		0.25		0.18	6.8	0.25	12	0.08	3.785
C-35	18.660	R1	3.30	1.5	0.25	1.8	0.25		0.25		0.25		0.18	6.9	0.25	12	0.08	3.510
Averages			4.86	0.96	0.25	3.41	0.25	1.10	0.25	2.00	0.25	10.91	0.18	6.32	0.25	12.00	0.08	4.003
Standard Deviation Range			3.98	0.81		2.50		0.68		1.74		10.08		5.88				3.678
			to	to		to		to		to		to		to				to
			5.74	1.11		4.32		1.52		2.26		11.74		6.76				4.327

Representative Average Mainline Southbound

To model the typical pavement section, sporadic structural lifts have been reassigned (to maintain equivalent structural number) to the closes structure layer:
SP-9.5 combined with S2 and S. Base layers have been reassigned to the predominate material type: ABC-2 combined with LBR.

Representative Average			4.86	1.0	0.25	3.9	0.25					10.2	0.18			12	0.08	4.001

EXISTING PAVEMENT CORING INFORMATION AND COMPUTED AVERAGES

General Methodology: Existing pavement coring information has been utilized to compute existing pavement structural number and thickness averages.

Northbound Shoulder

				Pavement Layer Information										Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-9.5	Coeff.	SP-9.5	Coeff.	S	Coeff.	T1	Coeff.	WC	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-36	18.665	OL	4.40	0.8	0.25	3.6	0.25		0.25		0.23		0.00		0.18	6.0	0.25	12	0.08	3.560
C-42	18.445	OL	6.80	0.8	0.25	4.7	0.25		0.25	0.8	0.23	0.50	0.00	12.0	0.18		0.25	12	0.08	4.679
C-48	18.164	OL	3.00	1.0	0.25	2.0	0.25		0.25		0.23		0.00		0.18	5.5	0.25	12	0.08	3.085
C-53	17.515	OL	9.50	1.1	0.25	3.9	0.25	2.9	0.25	1.0	0.23	0.60	0.00	12.0	0.18		0.25	12	0.08	5.325
C-61	16.572	OL	9.70	1.2	0.25	3.8	0.25	3.3	0.25	0.8	0.23	0.60	0.00	12.0	0.18		0.25	12	0.08	5.379
Averages			6.68	0.98		3.60		3.10		0.87				12.00						4.406
Standard Deviation Range			3.69	0.80		2.61		2.82		0.75				12.00						3.366
			to	to		to		to		to				to						to
			9.67	1.16		4.59		3.38		0.99				12.00						5.446

Note: Per Pavement Evaluation Coring and Condition Data, Stabilization was checked for only 10% of coring locations. Assume 12" of thickness for stabilization
Cores C-53, C-16 are considered an outlier on the high side of core length and have been removed from the final existing averages calculations.

Final Existing Averages Northhbound Shoulder

				Pavement Layer Information										Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-9.5	Coeff.	SP-9.5	Coeff.	S	Coeff.	T1	Coeff.	WC	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-36	18.665	OL	4.40	0.8	0.25	3.6	0.25		0.25		0.23		0.00		0.18	6.0	0.25	12	0.08	3.560
C-42	18.445	OL	6.80	0.8	0.25	4.7	0.25		0.25	0.8	0.23	0.50	0.00	12.0	0.18		0.25	12	0.08	4.679
C-48	18.164	OL	3.00	1.0	0.25	2.0	0.25		0.25		0.23		0.00		0.18	5.5	0.25	12	0.08	3.085
Averages			4.73	0.87	0.25	3.43	0.25	0.00	0.25	0.80	0.23	0.50	0.00	12.00	0.18	5.75	0.25	12.00	0.08	3.775
Standard Deviation Range			2.81	0.75		2.07														2.956
			to	to		to														to
			6.65	0.99		4.79														4.593

Representative Average Northbound Shoulder

To model the typical pavement section, sporadic structural lifts have been reassigned (to maintain equivalent structural number) to the closes structure layer:
SP-9.5 combined with S, T1, AND WC. Base layers have been reassigned to the predominate material type: ABC-2 combined with LBR

Representative Average			4.55	0.9	0.25	3.7	0.25							9.3	0.18			12	0.08	3.772

EXISTING PAVEMENT CORING INFORMATION AND COMPUTED AVERAGES

General Methodology: Existing pavement coring information has been utilized to compute existing pavement structural number and thickness averages.

Southbound Shoulder

				Pavement Layer Information										Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-9.5	Coeff.	SP-9.5	Coeff.	S2	Coeff.	S	Coeff.	T1	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-10	16.552	OR	5.00	0.9	0.25	4.1	0.25		0.25		0.25		0.23	12.0	0.18		0.25	12	0.08	4.370
C-16	17.422	OR	6.60	1.1	0.25	2.5	0.25	0.8	0.25	2.2	0.25	0.8	0.23	12.0	0.18		0.25	12	0.08	4.954
C-22	18.210	OR	6.50	0.9	0.25	2.0	0.25	1.1	0.25	2.5	0.25	0.7	0.23	12.0	0.18		0.25	12	0.08	4.906
C-24	18.260	OR	5.40	0.5	0.25	4.9	0.25		0.25		0.25		0.23	12.0	0.18		0.25	12	0.08	4.470
C-30	18.525	OR	4.00	1.0	0.25	3.0	0.25		0.25		0.25		0.23	12.0	0.18		0.25	12	0.08	4.120
C-32	18.630	OR	5.00	1.2	0.25	3.8	0.25		0.25		0.25		0.23		0.18	6.8	0.25	12	0.08	3.910
Averages			5.42	0.93		3.38		0.95		2.35		0.75		12.00						4.455
Standard Deviation Range			4.43	0.69		2.30		0.74		2.14		0.68		12.00						4.038
			to	to		to		to		to		to		to						to
			6.41	1.17		4.46		1.16		2.56		0.82		12.00						4.872

Note: Per Pavement Evaluation Coring and Condition Data, Stabilization was checked for only 10% of coring locations. Assume 12" of thickness for stabilization
Cores C-16, C-22 are considered outliers on the high side of core length and have been removed from the final existing averages calculations.

Final Existing Averages Southbound Shoulder

				Pavement Layer Information										Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-9.5	Coeff.	SP-9.5	Coeff.	S2	Coeff.	S	Coeff.	T1	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-10	16.552	OR	5.00	0.9	0.25	4.1	0.25		0.25		0.25		0.23	12.0	0.18		0.25	12	0.08	4.370
C-24	18.260	OR	5.40	0.5	0.25	4.9	0.25		0.25		0.25		0.23	12.0	0.18		0.25	12	0.08	4.470
C-30	18.525	OR	4.00	1.0	0.25	3.0	0.25		0.25		0.25		0.23	12.0	0.18		0.25	12	0.08	4.120
C-32	18.630	OR	5.00	1.2	0.25	3.8	0.25		0.25		0.25		0.23		0.18	6.8	0.25	12	0.08	3.910
Averages			4.85	0.90		3.95								12.00						4.218
Standard Deviation Range			4.25	0.61		3.16								12.00						3.965
			to	to		to								to						to
			5.45	1.19		4.74								12.00						4.470

Representative Average Southbound Shoulder

To model the typical pavement section, sporadic structural lifts have been reassigned (to maintain equivalent structural number) to the closes structure layer:
SP-9.5 combined with S2, S, AND T1. Base layers have been reassigned to the predominate material type: ABC-2 combined with LBR

Representative Average			4.85	0.90	0.25	4.0	0.25							11.4	0.18			12	0.08	4.216

EXISTING PAVEMENT CORING INFORMATION AND COMPUTED AVERAGES

General Methodology: Existing pavement coring information has been utilized to compute existing pavement structural number and thickness averages.

Turn Lanes Northbound

Core #	MP	Lane	Core Length	FC-12.5	Coeff.	FC-9.5	Coeff.	SP-9.5	Coeff.	S	Coeff.	T1	Coeff.	WC	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-40	18.600	LL	3.80		0.25	1.2	0.25	3.8	0.25		0.25		0.23		0.00		0.18	5.8	0.25	12	0.08	3.360
C-41	18.582	LR	3.10		0.25	0.9	0.25	3.1	0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	3.895
C-44	18.310	LL	3.30		0.25	1.0	0.25	3.3	0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	3.945
C-46	18.175	LL	3.50		0.25	1.0	0.25	3.5	0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.815
C-47	18.170	LR	3.90		0.25	1.1	0.25	3.9	0.25		0.25		0.23		0.00		0.18	6.1	0.25	12	0.08	3.460
C-50	17.910	LL	3.90		0.25	0.8	0.25	3.9	0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.915
C-52	17.670	LL	2.80		0.25	1.2	0.25	2.8	0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.460
C-55	17.395	LL	3.50		0.25	0.9	0.25	3.5	0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.815
C-57	17.115	LL	2.90		0.25	1.3	0.25	2.9	0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	3.845
C-59	16.870	LR	4.90		0.25	0.8	0.25	4.9	0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.985
C-60	16.706	LR	8.40		0.25	0.8	0.25	4.3	0.25	3.5	0.25	1.2	0.23	0.6	0.00	10.0	0.18		0.25	12	0.08	4.710
C-63	16.375	LL	5.70	1.7	0.25		0.25	4.0	0.25		0.25		0.23		0.00		0.18	6.1	0.25	12	0.08	3.910
C-64	16.250	LR	3.10		0.25	1.1	0.25	3.1	0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.715
C-67	16.108	LL	3.80		0.25	1.2	0.25	3.8	0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.710
C-68	16.014	LL	4.10		0.25	1.1	0.25	4.1	0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.145
C-69	15.964	LR	3.60		0.25	1.1	0.25	2.5	0.25	1.1	0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.840
C-71	15.880	LL	2.40		0.25	1.2	0.25	2.4	0.25		0.25		0.23		0.00		0.18	6.2	0.25	12	0.08	3.110
C-72	15.850	LR	10.00		0.25	1.0	0.25	3.8	0.25	6.2	0.25	1.0	0.23		0.00		0.18	6.8	0.25	12	0.08	5.160
Averages			4.26	1.70		1.04		3.53		3.60		1.10		0.60		11.00	0.18	6.20		12.00		3.878
Standard Deviation Range			2.29			0.88		2.88		1.05		0.96				10.18		5.83				3.411
			to			to		to		to		to				to		to				to
			6.23			1.20		4.18		6.15		1.24				11.82		6.57				4.344

Note: Per Pavement Evaluation Coring and Condition Data, Stabilization was checked for only 10% of coring locations. Assume 12" of thickness for stabilization
Core C-60, C-72. C-63 is considered an outlier on the high side of core length and has been removed from the final existing averages calculations.

Final Existing Averages Turn Lanes Northbound

				Pavement Layer Information												Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-12.5	Coeff.	FC-9.5	Coeff.	SP-9.5	Coeff.	S	Coeff.	T1	Coeff.	WC	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-40	18.600	LL	3.80		0.25	1.2	0.25	3.8	0.25		0.25		0.23		0.00		0.18	5.8	0.25	12	0.08	3.360
C-41	18.582	LR	3.10		0.25	0.9	0.25	3.1	0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	3.895
C-44	18.310	LL	3.30		0.25	1.0	0.25	3.3	0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	3.945
C-46	18.175	LL	3.50		0.25	1.0	0.25	3.5	0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.815
C-47	18.170	LR	3.90		0.25	1.1	0.25	3.9	0.25		0.25		0.23		0.00		0.18	6.1	0.25	12	0.08	3.460
C-50	17.910	LL	3.90		0.25	0.8	0.25	3.9	0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.915
C-52	17.670	LL	2.80		0.25	1.2	0.25	2.8	0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.460
C-55	17.395	LL	3.50		0.25	0.9	0.25	3.5	0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.815
C-57	17.115	LL	2.90		0.25	1.3	0.25	2.9	0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	3.845
C-59	16.870	LR	4.90		0.25	0.8	0.25	4.9	0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.985
C-64	16.250	LR	3.10		0.25	1.1	0.25	3.1	0.25		0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.715
C-67	16.108	LL	3.80		0.25	1.2	0.25	3.8	0.25		0.25		0.23		0.00	10.0	0.18		0.25	12	0.08	3.710
C-68	16.014	LL	4.10		0.25	1.1	0.25	4.1	0.25		0.25		0.23		0.00	12.0	0.18		0.25	12	0.08	4.145
C-69	15.964	LR	3.60		0.25	1.1	0.25	2.5	0.25	1.1	0.25		0.23		0.00	11.0	0.18		0.25	12	0.08	3.840
C-71	15.880	LL	2.40		0.25	1.2	0.25	2.4	0.25		0.25		0.23		0.00		0.18	6.2	0.25	12	0.08	3.110
Averages			3.51			1.06		3.43		1.10						11.08	0.18	6.03		12.00		3.734
Standard Deviation Range			2.90			0.91		2.77								10.29		5.82				3.460
			to			to		to								to		to				to
			4.12			1.21		4.09								11.87		6.24				4.008

Representative Average Turn Lanes Northbound

To model the typical pavement section, sporadic structural lifts have been reassigned (to maintain equivalent structural number) to the closest structure layer:
SP-9.5 combined with S2, S, T1, AND WC. Base layers have been reassigned to the predominate material type: ABC-2 combined with LBR

Representative Average			4.63			1.1	0.25	3.5	0.25							10.6	0.18			12	0.08	4.002

EXISTING PAVEMENT CORING INFORMATION AND COMPUTED AVERAGES

General Methodology: Existing pavement coring information has been utilized to compute existing pavement structural number and thickness averages.

Turn Lanes Southbound

				Pavement Layer Information						Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-12.5	Coeff.	FC-9.5	Coeff.	SP-9.5	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-2	15.680	RL	4.50		0.25	1.1	0.25	3.4	0.25		0.18	5.8	0.25	12	0.08	3.260
C-4	16.065	RR	4.00		0.25	1.8	0.25	2.2	0.25	12.0	0.18		0.25	12	0.08	3.670
C-8	16.300	RL	5.50	1.6	0.25		0.25	3.9	0.25	12.0	0.18		0.25	12	0.08	4.495
C-12	16.793	RL	5.20		0.25	1.1	0.25	4.1	0.25	11.0	0.18		0.25	12	0.08	3.965
C-14	17.310	RR	4.30		0.25	1.2	0.25	3.1	0.25		0.18	6.1	0.25	12	0.08	3.260
C-17	17.557	RL	4.80		0.25	1.2	0.25	3.6	0.25	11.0	0.18		0.25	12	0.08	3.840
C-21	18.100	RL	5.20		0.25	1.0	0.25	4.2	0.25	10.0	0.18		0.25	12	0.08	3.810
C-25	18.270	RR	4.90		0.25	1.1	0.25	3.8	0.25	11.0	0.18		0.25	12	0.08	3.890
C-29	18.500	RL	4.00		0.25	1.1	0.25	2.9	0.25	12.0	0.18		0.25	12	0.08	3.845
C-31	18.535	RR	3.40		0.25	0.6	0.25	2.8	0.25	10.0	0.18		0.25	12	0.08	3.460
Averages			4.58	1.60		1.13		3.40		11.13		5.95		12.00		3.750
Standard Deviation Range			3.92			0.82		2.76		10.30		5.74				3.382
			to			to		to		to		to				to
			5.24			1.44		4.04		11.96		6.16				4.117

Note: Per Pavement Evaluation Coring and Condition Data, Stabilization was checked for only 10% of coring locations. Assume 12" of thickness for stabilization
Core C-8 is considered an outlier on the high side of core length and has been removed from the final existing averages calculations.

Final Existing Averages Turn Lanes Southbound

				Pavement Layer Information						Base Layer Information				Stabilization		
Core #	MP	Lane	Core Length	FC-12.5	Coeff.	FC-9.5	Coeff.	SP-9.5	Coeff.	LBR 100	Coeff.	ABC-2	Coeff.	Stabilization	Coeff.	Existing SN
C-2	15.680	RL	4.50		0.25	1.1	0.25	3.4	0.25		0.18	5.8	0.25	12	0.08	3.260
C-4	16.065	RR	4.00		0.25	1.8	0.25	2.2	0.25	12.0	0.18		0.25	12	0.08	3.670
C-12	16.793	RL	5.20		0.25	1.1	0.25	4.1	0.25	11.0	0.18		0.25	12	0.08	3.965
C-14	17.310	RR	4.30		0.25	1.2	0.25	3.1	0.25		0.18	6.1	0.25	12	0.08	3.260
C-17	17.557	RL	4.80		0.25	1.2	0.25	3.6	0.25	11.0	0.18		0.25	12	0.08	3.840
C-21	18.100	RL	5.20		0.25	1.0	0.25	4.2	0.25	10.0	0.18		0.25	12	0.08	3.810
C-25	18.270	RR	4.90		0.25	1.1	0.25	3.8	0.25	11.0	0.18		0.25	12	0.08	3.890
C-29	18.500	RL	4.00		0.25	1.1	0.25	2.9	0.25	12.0	0.18		0.25	12	0.08	3.845
C-31	18.535	RR	3.40		0.25	0.6	0.25	2.8	0.25	10.0	0.18		0.25	12	0.08	3.460
Averages			4.48			1.1		3.3		11.0	0.18	6.0		12.00		3.667
Standard Deviation Range			3.87			0.82		2.68		10.18		5.74				3.394
			to			to		to		to		to				to
			5.09			1.44		4.00		11.82		6.16				3.939

Representative Average Turn Lanes Southbound

To model the typical pavement section, sporadic structural lifts have been reassigned (to maintain equivalent structural number) to the closest structure layer:
Base layers have been reassigned to the predominate material type: ABC-2 combined with LBR.

Representative Average	4.48			1.1	0.25	3.3	0.25	10.4	0.18			12	0.08	4.0

APPENDIX F

Correspondence

From: Ingle, Kevin <Kevin.Ingle@dot.state.fl.us>
Sent: Friday, September 22, 2023 4:02 PM
To: Agacinski, David <David.Agacinski@dot.state.fl.us>; Blair, Amy <Amy.Blair@dot.state.fl.us>; Buitron, Michelle <Michelle.Buitron@dot.state.fl.us>; Burkhart, Doug <Doug.Burkhart@dot.state.fl.us>; Carvajal, Marie <Marie.Carvajal@dot.state.fl.us>; Clayton, Benjamin <Benjamin.Clayton@dot.state.fl.us>; Fernandez, Brandon <Brandon.Fernandez@dot.state.fl.us>; Freeman, Jennifer <Jennifer.Freeman@dot.state.fl.us>; Howard, Richard <Richard.Howard@dot.state.fl.us>; Johnson, Kaylene <Kaylene.Johnson@dot.state.fl.us>; Jones, Jeffrey M <JeffreyM.Jones@dot.state.fl.us>; Louis, Jacques <Jacques.Louis@dot.state.fl.us>; McCall, Scott <Scott.McCall@dot.state.fl.us>; McKinney, Jennifer <Jennifer.McKinney@dot.state.fl.us>; Mednick, Jeff <Jeffrey.Mednick@dot.state.fl.us>; Menke, Philip <Philip.Menke@dot.state.fl.us>; Nelson, Keri <Keri.Nelson@dot.state.fl.us>; Patterson, Ryan L <RyanL.Patterson@dot.state.fl.us>; Pugh, Sean <Sean.Pugh@dot.state.fl.us>; Rud, Michael <Michael.Rud@dot.state.fl.us>; Speese, Christopher <Christopher.Speese@dot.state.fl.us>; Weeks, Ryan <Ryan.Weeks@dot.state.fl.us>
Cc: Figueroa, Sergio <Sergio.Figueroa2@dot.state.fl.us>; Setchell, Amy <Amy.Setchell@dot.state.fl.us>
Subject: FY 25 3R Projects Pavement Designs
Importance: High

All,

Executive Management has decided to remove 1" of structural course for all 3R projects for FY 25 lettings (If possible, for instance if there was a 2.25" milling recommendations then it would become friction only and we are not doing that) Please get with your EOR's and have them look at their projects and see if it is possible to remove 1", if so change their TrnsPort or update their LRE by close of business Monday, 9/25/2023 to provide to D1 estimates. I will make myself available to answer any scenario questions on Monday. **This has to happen on Monday, no exceptions!** Please make this task your top priority as estimates have to be rerun and work program has to close next week.

Thanks,

Kevin S. Ingle, P.E.
District Design Engineer
FDOT, District One
801 North Broadway Avenue
Bartow, Fl 33830
(863) 519-2740
(863) 272-4366 Cell