Manatee County

PAVEMENT DESIGN

FOR

6107860

Manatee County

63rd Avenue E.

0.000
to
0.971

Tony Russo, PE
Design Project Manager

PAVEMENT DESIGN PACKAGE

63rd Avenue East
US 301 to Tuttle Avenue
Project Number: 6107860

Manatee County

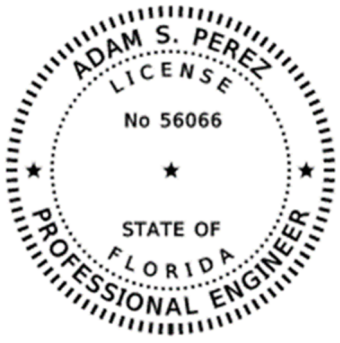
Prepared for:

Manatee County Public Works
2101 47th Terrace East
Bradenton, Florida 34203

Prepared by:

Patel, Greene & Associates, LLC
12570 Telecom Dr.
Temple Terrace, Florida 33637

This item has been digitally signed by:
Adam S. Perez, PE No. 56066
Patel, Greene & Associates, LLC
Vendor Number: F452209743-001



This item has been digitally signed and sealed by

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.

The Official record of this document has been electronically signed and sealed using a digital signature as required by rule 61G 15-23.004, F.A.C.

PAVEMENT DESIGN PACKAGE

FINANCIAL PROJECT ID :	**6107860**
WPI NO.:	**N/A**
STATE PROJECT NO.:	**N/A**
COUNTY SECTION NO.:	**N/A**
FEDERAL AID PROJECT NO.:	**TBD**
COUNTY:	**Manatee**
PROJECT NAME:	**63rd Avenue E.**
FROM:	**US 301**
TO:	**Tuttle Avenue**

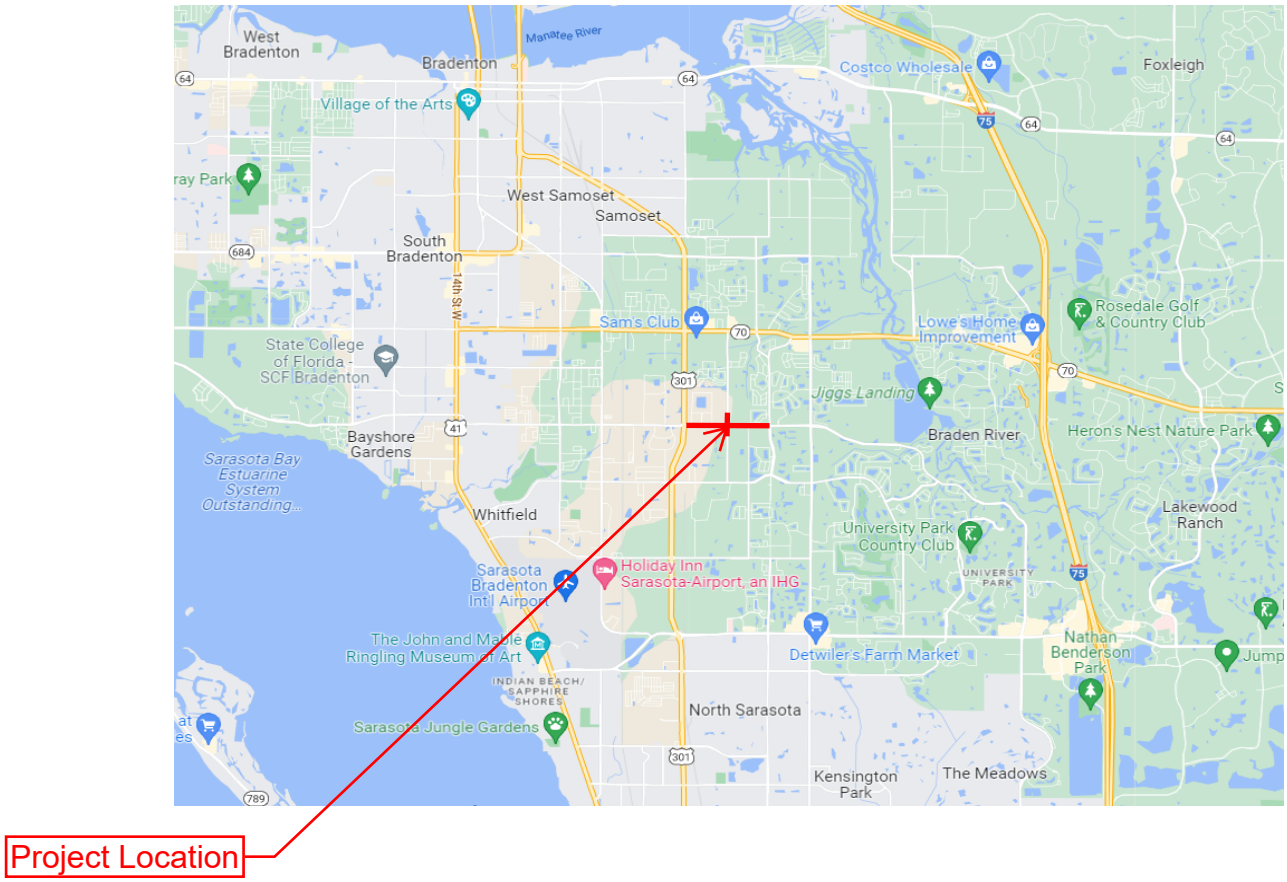
Table of Contents

Project Description

The purpose of this project is to reconstruct 63rd Avenue E. from US 301 to Tuttle Avenue, in Manatee County. The approximate project length is 0.971 miles. 63rd Avenue E. will be reconstructed to a divided urban arterial with a design and posted speed of 40 MPH.

The need for this project was identified by Manatee County in a Project Development and Corridor Study Report in order to provide additional roadway capacity and safety for the corridor by completing the four-lane roadway connection between US 301 and Tuttle Avenue. There are two typical sections. The first includes a five-lane, curb and gutter section with a two-way left-turn lane for the western section of the corridor from US 301 to Prospect Road. The second typical section includes a four-lane divided, curb and gutter section from Prospect Road to Tuttle Avenue. Sidwalks will be provided throughout the length of the project on both sides of the roadway.

Project Location



Analysis

Pavement cores were obtained for the existing roadway to the west and east of the existing bridge, east of 33rd Street, to confirm the pavement structure use for salvaging through milling and resurfacing instead of reconstruction. The pavement cores showed that the existing pavement was not sufficient for the required structural capacity of the reconstructed roadway projected design year. Pavement cores were also obtained along 33rd Street for this same purpose. Widening and overbuild will be included along 33rd Street to accommodate the new typical section and roadway grades for drainage purposes.

Due to high Seasonal Ground Water Elevations along the project length, the Modulus of Resilience has been reduced by 50%, per the FDOT Flexible Pavement Design Manual, to allow for a one-foot Base Water Clearance Elevation. This will support the typical section fitting within the proposed right of way designated by the Corridor Study.

MANATEE COUNTY
FLEXIBLE PAVEMENT DESIGN SUMMARY SHEET

Prepared by:	Adam Perez, PE	**Date Prepared:**	5/8/2023	
Financial Project No.	6107860	**Project Name:**	63rd Avenue E.	
WPI No.	N/A	**From:**	US 301	
State Project No.	N/A	**To:**	Tuttle Avenue	
County Section No.	N/A	**Begin MP:**	0	
FAP No.	N/A	**End MP:**	0.971	
County:	Manatee	**Project Length (Mi)**	0.971	
Type Work:	Reconstruction			
Opening Year:	2025	**% R:**	90	
Design Year:	2045	**M_R:**	5,375	PSI
$ESAL_D$ - Mainline	2,997,000	**Design Speed:**	40	MPH
$ESAL_D$ - Shoulder	N/A	**Functional Class:**	Urban Arterial	
SN_R - Mainline	4.66	**Design Seq. No.:**	N/A	
SN_R - Shoulder	N/A	**Cross Slope Correction**	No	

63rd Avenue

EXISTING TRAVEL LANE/TURN LANE PAVEMENT (Fair Condition):

Layer	Thickness	Coef.	SN
TYPE SP (Traffic C)	4.50	0.25	1.13
Bank Run Shell	11.50	0.18	2.07
		Design Total SN=	3.20

RECOMMENDED RECONSTRUCTION DESIGN:

Layer	Thickness	Coef.	SN
FC 12.5 (Traffic C)(PG 76-22)	1.50	0.44	0.66
TYPE SP (Traffic C)	3.00	0.44	1.32
OBG 9	10.00	0.18	1.80
TYPE B STABILIZATION (LBR 60)	12.00	0.08	0.96
		Design Total SN=	4.74

RECOMMENDED TRAVEL LANE/TURN LANE WIDENING PAVEMENT DESIGN:

Layer	Thickness	Coef.	SN
FC 12.5 (Traffic C)(PG 76-22)	1.50	0.44	0.66
TYPE SP (Traffic C)	3.00	0.44	1.32
OBG 9	10.00	0.18	1.80
TYPE B STABILIZATION (LBR 60)	12.00	0.08	0.96
		Design Total SN=	4.74

MANATEE COUNTY
FLEXIBLE PAVEMENT DESIGN SUMMARY SHEET

Prepared by:	Adam Perez, PE	**Date Prepared:**	5/8/2023	
Financial Project No.	6107860	**Project Name:**	63rd Avenue E.	
WPI No.	N/A	**From:**	US 301	
State Project No.	N/A	**To:**	Tuttle Avenue	
County Section No.	N/A	**Begin MP:**	0	
FAP No.	N/A	**End MP:**	0.971	
County:	Manatee	**Project Length (Mi)**	0.971	
Type Work:	Reconstruction			
Opening Year:	2025	**% R:**	92	
Design Year:	2045	**M_R:**	10.750	PSI
$ESAL_D$ - Mainline	2,997,000	**Design Speed:**	45	MPH
$ESAL_D$ - Shoulder	N/A	**Functional Class:**	Urban Arterial	
SN_R - Mainline	3.70	**Design Seq. No.:**	N/A	
SN_R - Shoulder	N/A	**Cross Slope Correction**	No	

33rd Street

EXISTING TRAVEL LANE PAVEMENT:
33RD STREET **MILLING 3.00**

Layer	Thickness	Coef.		SN
Type S Asphalt	3.15	0.25		0.79
Bank Run Shell	9.90	0.18		1.78
			Total SN:	2.57

RECOMMENDED TRAVEL LANE M & R PAVEMENT DESIGN:
33RD STREET

Layer	Thickness	Coef.		SN
FC 12.5 (Traffic C)(PG 76-22)	1.5	0.44		0.66
TYPE SP (Traffic C)	3	0.44		1.32
Type S Asphalt	0.15*	0.00		0.00
Bank Run Shell	9.90	0.18		1.78
			Total SN:	3.76

* It is assumed that this thin layer will be removed with the milling process

RECOMMENDED WIDENING PAVEMENT DESIGN:
33RD STREET

Layer	Thickness	Coef.		SN
FC 12.5 (Traffic C)(PG 76-22)	1.5	0.44		0.66
TYPE SP (Traffic C)	3	0.44		1.32
OBG 9	10.00	0.18		1.80
TYPE B STABILIZATION (LBR 60)	12.00	0.08		0.96
			Total SN:	4.74

MANATEE COUNTY
FLEXIBLE PAVEMENT DESIGN SUMMARY SHEET

Prepared by:	Adam Perez, PE	**Date Prepared:**	8/26/2022	
Financial Project No.	6107860	**Project Name:**	63rd Avenue E.	
WPI No.	N/A	**From:**	US 301	
State Project No.	N/A	**To:**	Tuttle Avenue	
County Section No.	N/A	**Begin MP:**	0	
FAP No.	N/A	**End MP:**	0.971	
County:	Manatee	**Project Length (Mi)**	0.971	
Type Work:	Reconstruction			
Opening Year:	2025	**% R:**	90	
Design Year:	2045	**M_R:**	5,375	PSI
$ESAL_D$ - Mainline	2,997,000	**Design Speed:**	40	MPH
$ESAL_D$ - Shoulder	N/A	**Functional Class:**	Urban Arterial	
SN_R - Mainline	4.66	**Design Seq. No.:**	N/A	
SN_R - Shoulder	N/A	**Cross Slope Correction**	No	

RECOMMENDED TRAVEL LANE AND SHOULDER M & R PAVEMENT DESIGN:
FUNCTIONAL RESURFACING ONLY FOR TTCP LIMITS **MILLING 1.50**

Layer	Thickness	Coef.	SN
FC 12.5 (Traffic C)(PG 76-22)	1.50	0.44	0.66

DESIGN SKETCH

(Not Drawn To Scale)

63rd Avenue Travel Lanes/Turn Lanes

FPID: 6107860 **DATE: 8/26/2022**

SNR Required:	**4.66**	**4.66**
SNR Provided:	**4.74**	**4.74**

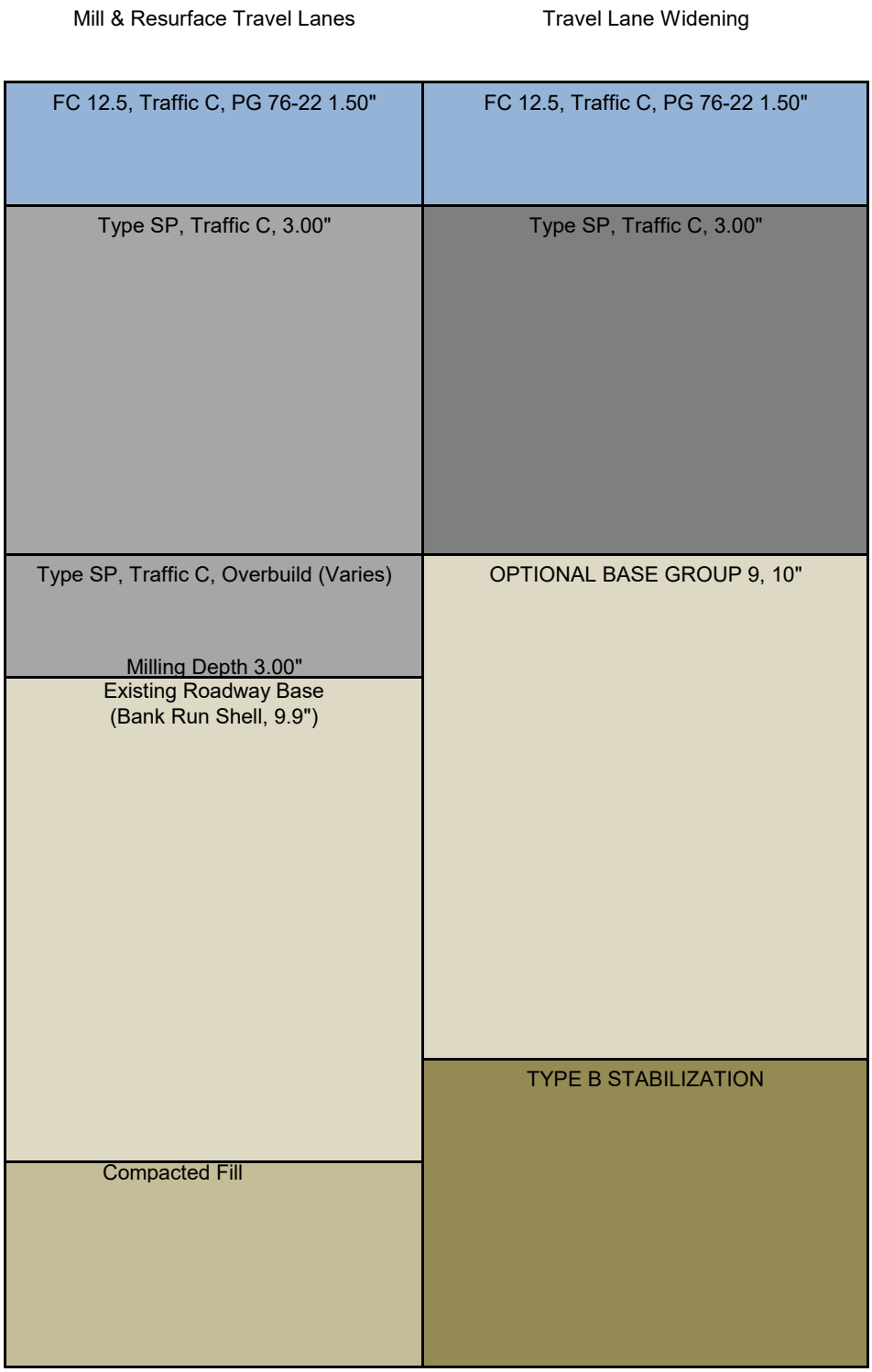
Mill & Resurfaced Travel Lanes (Functional Resurfacing)	Travel Lane/Turn Lane Widening	Reconstruction
FC 12.5, Traffic C, PG 76-22 1.50" Milling Depth 1.50"	FC 12.5, Traffic C, PG 76-22 1.50"	FC 12.5, Traffic C, PG 76-22 1.50"
Existing Structural Course, 3.00"	Type SP, Traffic C, 3.00"	Type SP, Traffic C, 3.00"
Existing Roadway Base (Bank Run Shell, 11.5")	OPTIONAL BASE GROUP 9, 10"	OPTIONAL BASE GROUP 9, 10"
Compacted Fill	TYPE B STABILIZATION, 12"	TYPE B STABILIZATION, 12"

DESIGN SKETCH

(Not Drawn To Scale)
33rd Street Travel Lanes

FPID: 6107860 **DATE: 8/26/2022**

SNR Required:	**3.70**	**3.70**
SNR Provided:	**3.76**	**4.74**



DESIGN NOTES

The Pavement Descriptions in the plans should read:

63rd Avenue E. Reconstruction and Widening
Optional Base Group 9 with
Type SP Structural Course (Traffic C) (3") and
Friction Course FC-12.5 (Traffic C) (1 1/2") (PG 76-22)

33rd Street Widening
Optional Base Group 9 with
Type SP Structural Course (Traffic C) (3") and
Friction Course FC-12.5 (Traffic C) (1 1/2") (PG 76-22)

33rd Street Travel Lanes Milling and Resurfacing
Milling
Mill Existing Asphalt Pavement (3") (For Depth)

Resurfacing
Type SP Overbuild (Traffic C) (Varies) with
Type SP Structural Course (Traffic C) (3") and
Friction Course FC-12.5 (Traffic C) (1 1/2") (PG 76-22)

TTC Functional Resurfacing
Milling
Mill Existing Asphalt Pavement (1 1/2") (For Depth)

Resurfacing
Friction Course FC-12.5 (Traffic C) (1 1/2") (PG 76-22)

1. This pavement design is in accordance with the Manatee County Highway and Traffic Standards Manual Part 3 (Adopted April 26, 2022) and the FDOT Flexible Pavement Design Manual (FPDM) dated January 2023.
2. The widening pavement design was developed to match the thickness of the existing pavement structure on 63rd Avenue at US 301. The 63rd Avenue widening pavement design will also be used for 33rd Street in order to match the final pavement structure after milling and resurfacing.
3. The Temporary Traffic Control functional resurfacing is to provide a new surface for pavement markings where traffic shifts occur outside the limits of the reconstruction.
4. A Reliability of 90% was chosen for the reconstruction pavement design using engineering judgement per the FPDM Table 5.2 for urban arterials, new construction. A Reliability of 92% was chosen for the milling and resurfacing design along 33rd Street using engineering judgement per the FPDM Table 5.2 for urban arterials, rehabilitation.
5. The Modulus of Resilience for the project limits was determined to be 10,750 psi through geotechnical testing (See Appendix E). This was reduced for 63rd Avenue reconstruction by 50% per the FPDM, section 5.2.2 to accommodate a one-foot base clearance. No reduction is needed for 33rd Street pavement since the pavement is being widened.

FLEXIBLE PAVEMENT DESIGN
QUALITY CONTROL CHECKLIST

Financial Project ID: 6107860 Federal Aid No.: N/A

WPI No.: N/A County: Manatee

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

Comments(by Ref. No.)

QA by: Joe Hitterman Date: 6/27/23

Appendix A

Notes/Correspondence

Appendix B

Design Traffic and 18-Kip Information

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS

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

PIN #: 6107860
COUNTY: Manatee
ROADWAYID: N/A

PROJECT DESCRIPTION: 63rd Ave. E. - US 301 to Tuttle Ave.

LOCATION #: 1

LOCATION DESCRIPTION: 63rd Ave. E. Study

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

DESIGN INFORMATION

		AADT
Existing Year	2021	11000
Opening Year	2025	N/A
Mid-Design Year	2035	N/A
Design Year	2045	15000

Note: AADT values have been rounded to the nearest 100

Daily Direction Split (50% or 100%): 50%
Lanes in One Direction: 2

T24 values

Existing to Opening Year: 8.20%
Opening to Mid-Year: 8.20%
Mid-Year to Design-Year: 8.20%

1995 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 July 2, 1998.
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.

	Name	Title	Org. Unit or Firm	Date
Prepared by:	Adam S. Perez, PE	PE No. 56066	PGA	8/2/2022
	Signature			
Reviewed by:				
	Name	Title	Org. Unit or Firm	Date
	Signature			

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 1

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

YEARS: *2021 to 2045*

SECTION #: N/A **COUNTY:** Manatee **PIN #:** 6107860

FLEXIBLE PAVEMENT URBAN HIGHWAY 0.890

SN=5/THICK 63rd Ave. E. - US 301 to Tuttle Ave. A

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2021	11000	126	0	0.5	8.20%	0.856	0.890
2022	11100	127	0	0.5	8.20%	0.855	0.890
2023	11300	129	0	0.5	8.20%	0.853	0.890
2024	11500	131	0	0.5	8.20%	0.852	0.890
2025	11600	132	132	0.5	8.20%	0.851	0.890
2026	11800	134	266	0.5	8.20%	0.850	0.890
2027	12000	136	402	0.5	8.20%	0.848	0.890
2028	12100	137	539	0.5	8.20%	0.848	0.890
2029	12300	139	678	0.5	8.20%	0.846	0.890
2030	12500	141	819	0.5	8.20%	0.845	0.890
2031	12600	142	961	0.5	8.20%	0.844	0.890
2032	12800	144	1105	0.5	8.20%	0.843	0.890
2033	13000	146	1251	0.5	8.20%	0.842	0.890
2034	13100	147	1398	0.5	8.20%	0.841	0.890
2035	13300	149	1547	0.5	8.20%	0.840	0.890
2036	13500	151	1698	0.5	8.20%	0.839	0.890
2037	13600	152	1850	0.5	8.20%	0.838	0.890
2038	13800	154	2004	0.5	8.20%	0.837	0.890
2039	14000	156	2160	0.5	8.20%	0.836	0.890
2040	14100	157	2317	0.5	8.20%	0.835	0.890
2041	14300	159	2476	0.5	8.20%	0.834	0.890
2042	14500	161	2637	0.5	8.20%	0.833	0.890
2043	14600	162	2799	0.5	8.20%	0.832	0.890
2044	14800	164	2963	0.5	8.20%	0.831	0.890
2045	15000	166	3129	0.5	8.20%	0.830	0.890

Opening to Mid-Design Year ESAL Accumulation (1000s): 1415

Opening to Design Year ESAL Accumulation (1000s): 2997

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: Adam S. Perez, PE — PE No. 56066 — PGA — 8/2/2022

Name — Title — Org.Unit or F — Date

Signature

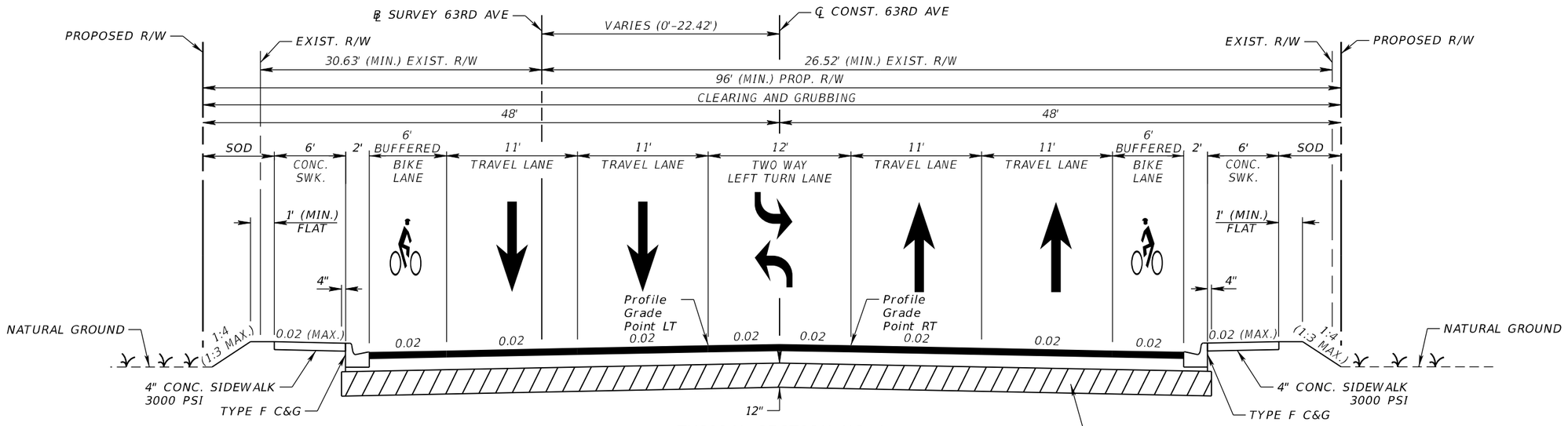
Reviewed By:

Name — Title — Org.Unit or F — Date

Signature

Appendix C

Typical Sections



TYPICAL SECTION NO. 1
63RD AVENUE EAST
FROM STA. 161+30.00 TO STA. 193+92.36
EXISTING BRIDGE STA. 193+92.36 TO STA. 194+51.92

TRAVEL LANES RECONSTRUCTION / WIDENING

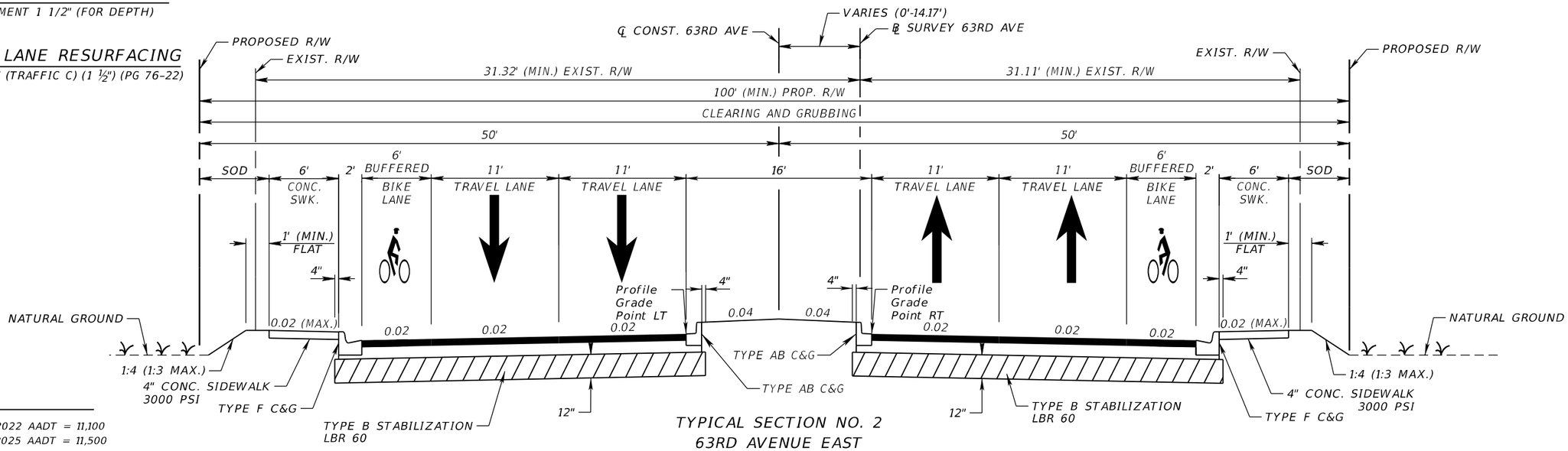
OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3")
AND FRICTION COURSE FC-12.5 (TRAFFIC C) (1 ½") (PG 76-22)

TRAVEL / TURN LANE MILLING

MILL EXISTING PAVEMENT 1 1/2" (FOR DEPTH)

TRAVEL / TURN LANE RESURFACING

FRICTION COURSE FC-12.5 (TRAFFIC C) (1 ½") (PG 76-22)



TYPICAL SECTION NO. 2
63RD AVENUE EAST
FROM STA. 194+51.92 TO STA. 210+40.00

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 11,100
ESTIMATED OPENING YEAR = 2025 AADT = 11,500
ESTIMATED DESIGN YEAR = 2045 AADT = 15,000
K = 9% D = 55% T = 8.2% (24 HOUR)
DESIGN HOUR T = 4.1%

DESIGN SPEED = 40 MPH
POSTED SPEED = 40 MPH

NUMBER	DESCRIPTION	DATE

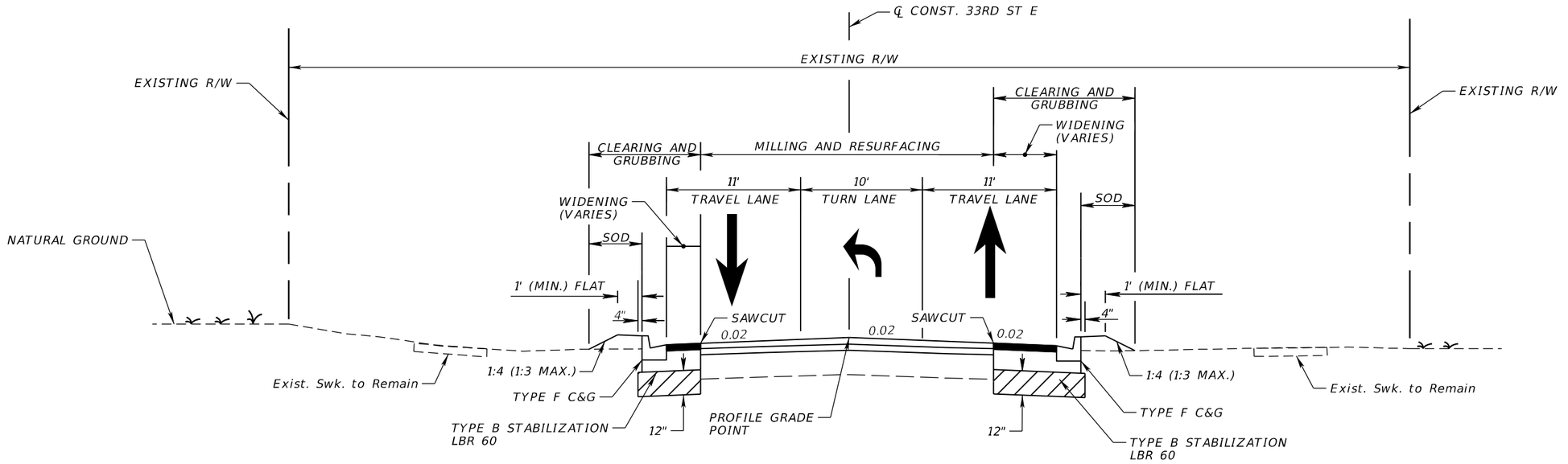
SCALE	AS NOTED	DATE
DESIGNED BY	ASP	03/2023
DRAWN BY	JM	PROJECT NO.
CHECKED BY	JPH	6107860

ADAM S. PEREZ, P.E.
LICENSE NUMBER 56066
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East
Bradenton, FL 34208

TYPICAL SECTION (1)

SHEET NO.



TYPICAL SECTION NO. 3
33RD STREET EAST
FROM STA. 401+34.00 TO STA. 403+66.00

TRAVEL / TURN LANE WIDENING

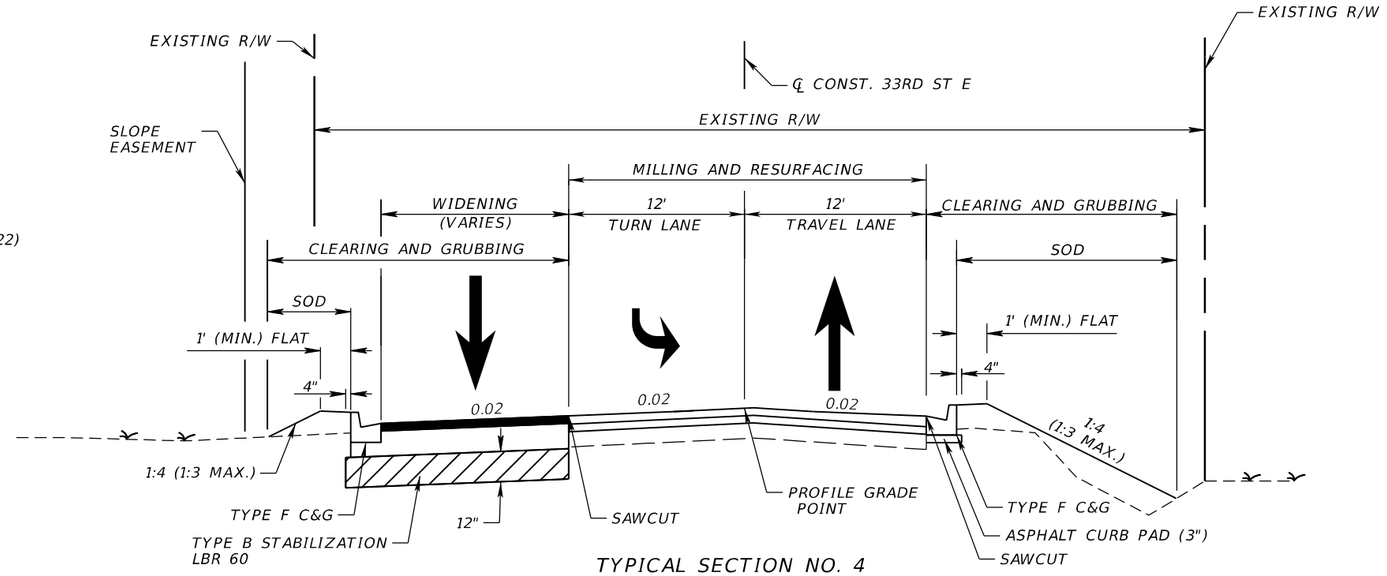
OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3")
AND FRICTION COURSE FC-12.5 (TRAFFIC C) (1 ½") (PG 76-22)

TRAVEL/TURN LANE MILLING

MILL EXISTING ASPHALT PAVEMENT (3")

TRAVEL/TURN LANE RESURFACING

TYPE SP OVERBUILD (TRAFFIC C) (THICKNESS VARIES)
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3")
AND FRICTION COURSE FC-12.5 (TRAFFIC C) (1 ½") (PG 76-22)



TYPICAL SECTION NO. 4
33RD STREET EAST
*FROM STA. 404+34.00 TO STA. 409+31.26**

DESIGN SPEED = 45 MPH
POSTED SPEED = 40 MPH
**NOTE: MILLING AND RESURFACING ENDS AT STA. 409+50.04.*

NUMBER	DESCRIPTION	DATE

SCALE	AS NOTED	DATE
DESIGNED BY	ASP	03/2023
DRAWN BY	JM	PROJECT NO.
CHECKED BY	JPH	6107860

ADAM S. PEREZ, P.E.
LICENSE NUMBER 56066
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East
Bradenton, FL 34208

TYPICAL SECTION (2)

SHEET NO.

USER: dwayne.allgire 2/15/2023 4:09:20 PM pw:\\patelgreene-pw.bentley.com:patelgreene-pw-01\Documents\Design\MANC0\Projects\6107860\roadway\TYPSRD01.dgn

Appendix D

Existing Pavement Cores

PAVEMENT DATA TABLE

63rd Ave E from U.S. 301 to Tuttle Avenue

Manatee County, Florida

CIP Project No. 6107860

Tierra Project No.: 6511-22-126

Core No.	Approximate Core Location[1] (Station Along Roadway of core)	Roadway Alignment	Lane Designation	Wheel Path	Asphalt Pavement[2]		Base for Paved Roadway		Subgrade		Crack Depth (inches)	Pavement Condition[4]	Groundwater Depth[3] (feet)	Comments
					Type S/SP	Total Asphalt Core Length (inches)	Type	Thickness (inches)	Type	Depth[3] (feet)				
C-161L1	160+95	CL 63rd Ave E	L1	RWP	4.5	4.5	Bank Run Shell	11.5	A-3	0.0 to 3.7	---[5]	Fair	>3.7	
C-193R1	193+22	CL 63rd Ave E	R1	RWP	1.8	1.8	Crush Concrete	7.1	A-3	0.0 to 4.3	---[5]	Fair	>4.3	
C-193OR	193+00	CL 63rd Ave E	OR	RWP	2.3	2.3	Crush Concrete	8.3	A-3	0.0 to 4.1	---[5]	Fair	>4.1	
C-196L1	195+98	CL 63rd Ave E	L1	RWP	1.4	1.4	Crush Concrete	8.1	A-3/ A-2-4	0.0 to 2.7	1.4[6]	Fair	>4.2	Asphalt Core taken within Crack; Full Depth Crack Within Core.
									A-3	2.7 to 4.2				
C-196OL	196+01	CL 63rd Ave E	OL	RWP	1.6	1.6	Crush Concrete	8.6	A-2-4	0.0 to 3.1	---[5]	Fair	>3.1	
C-400L1	400+05	CL. 33 Street E	L1	RWP	3.3	3.3	Bank Run Shell	7.8	A-2-4	0.0 to 3.6	3.3[6]	Fair to Poor	3.7	Asphalt Core taken within Crack; Full Depth Crack Within Core.
									A-3 with shell	3.6 to 4.1				
C-410R1	409+96	CL. 33 Street E	R1	RWP	3.0	3.0	Bank Run Shell	12.0	A-3	0.0 to 3.5	3.0[6]	Fair	>3.5	Asphalt Core taken within Crack; Full Depth Crack Within Core.

Notes:

[1] Pavement core locations were obtained by Tierra, Inc. in the field using hand-held, non-survey grade GPS equipment with a manufacturer's reported accuracy of ± 10 feet should be considered approximate.

[2] Pavement layer identification based on visual review using FDOT Mixture nomenclature. Actual pavement may be a local mix.

[3] Depth measured from bottom of base material.

[4] Pavement condition based on visual observatoin only: Good, Fair or Poor.

[5] No cracks were observed within the pavement cores at these locations.

[6] Full depth cracking observed within the pavement core at these locations.

33rd Street				
CORE #	**MP**	**LANE**	**TYPE S**	**Bank Run Shell**
C-400L1	400+05	L1	3.30	7.80
C-410R1	409+96	R1	3.00	12.00
AVERAGE			**3.15**	**9.90**

Appendix E

Modulus of Resilience Analysis

Design LBR Calculation
63rd street from US 301 to Tuttle Road
Manatee County, Florida
Manatee County Project No.: 22-TA004126CD
Tierra Project No.: 6511-22-126
2% of Optimum Method

Test No.	Bulk Sample Location	Maximum LBR	LBR at Moisture Contents (of Optimum LBR):	
			- 2%	+ 2%
LBR #1	LBR-SH-163R	43	37	30
LBR #2	LBR-SH-175R	37	32	32
LBR #3	LBR-SH-185R	67	~~58~~ 40	~~43~~ 40
LBR #4	LBR-SH-200R	32	29	23
Mean LBR Value		44	35	31
Design LBR = 33				
Design M_R (Resilent Modulus)[(1)] = 10,750 psi				

(1) Based on 2022 FDOT Flexible Pavement Manual Table 5.1 for relationship of LBR to MR.

Appendix F

Review Comments

63rd Ave E - US 301 to Tuttle

Design Review:#4

Submitted By:	Uptegraff, Richard, Patel Greene and Associates, LLC
Submittal Type:	60% Design
Description:	Plans and Documentation
Date Submitted:	11.30.2022 10:36PM

Comments (from comments tab)

Comment By: Gil Bullock, Manatee County Public Works, 1/9/2023 4:07:47 PM

Roadway Plans:

1. On sheet 36, is test level TL-2 appropriate when sidewalk and curb is present in front of the guardrail and end treatment? Provide additional details of the removal limits of the existing taper tapered walls and how the proposed 32" traffic railing is incorporated into the existing sidewalk and approach slab.

Response: TL-2 guardrail is allowed to be placed between 4 feet and 12 feet behind the face of curb for design speeds of 45 mph or less per the FDOT Design Manual, section 215.4.6.1.

2. On sheet 129, x-section at Sta. 184+50, does the gravity wall need to extend beyond Sta. 184+50? It doesn't appear that a 1:2 or 1:3 slope would be inside the existing R/W once the gravity wall ends at Sta. 184+50.

Response: Agree, the limits of gravity wall will be extended 10 feet to within the limits of the County owned property.

3. On Sheet 186 for MOT (TTCP 22), looks like there is road closed signs going in both directions at the bridge. Is the road being closed. If not, should Type K temporary barriers be installed for the approach slab barrier upgrades.

Response: Yes, the portion of the newly constructed roadway just east of the bridge, will remain closed until Phase II.

Comment By: Neil Byrne, Manatee County Public Works, 1/6/2023 4:40:47 PM

See Traffic Engineering comments attached.

Response: Comment files received.

Comment By: Paul Haas, Manatee County Public Works, 12/30/2022 10:04:38 AM

The wastewater master plans for the County are currently being developed and a possible upgrade to the force mains along this project have possibly been flagged for upgrades. The connection for the force main into the gravity sewer at the intersection of 63rd and Tuttle may need to be included in to this projects road design. Further coordination will need to be completed with the Utilities Department to ensure any upgrades can be completed. This information should be available within a couple of weeks from the start of the new year.

Response: Continued coordination for the utility upgrades will be performed throughout the next phase.

Comment By: James Renneberg, Manatee County Public Works, 12/28/2022 9:10:12 AM

Response to James Renneberg's external comment request from Gary Hinton II, Manatee County Public Works (gary.hinton@mymanatee.org):

COMMENTS (63RD ROADWAY PLANS):

1. Property Acquisition Parcel List not submitted. Include in 60% submittal.
The comment was not addressed.

Response: A property acquisition parcel list has been submitted outside of this review. For the 90% submittal we will include it along with the submittal.

2. 30% Deliverables, (3. Special Provisions) not submitted. Include in 60% submittal.
The comment was not addressed.

Response: A specifications package, including Special Provisions, will be provided for this project.

3. On the Roadway Plans from Sheets 29-42, call out all construction easements including offsets where applicable.

Response: Construction easements will be called out with offsets.

4. Please provide contract specifications for this project.

Response: Contract specifications will be provided for this project.

5. Provide BMP plans according to project needs.

Response: BMP plans, notes and/or details will be added to the plans.

6. For the typical sections on Sheets 9, 10 & 13 provide the speed limit.

Response: Typical sections on Sheets 9, 10 & 13 will be revised to provide the speed limit.

7. For the typical sections on Sheets 9, 12 & 13, use "buffered" bike lanes as per MC Detail 401.2 and the Signing & Pavement Marking Plans.

Response: Typical sections on Sheets 9, 12 & 13, will be revised to "buffered" bike lane call outs.

8. For the typical sections on Sheet 10, call out 33rd as 33rd Street East.

Response: Typical sections on Sheet 10, will be revised to call out 33rd as 33rd Street East.

9. For the typical sections on Sheets 9, 10, 12 & 13, please extend the proposed optional base to below all curbs as per MC Detail 401.2.

Response: Typical sections on Sheets 9, 10, 12 & 13 will be revised to extend the proposed optional base to below all curbs as per MC Detail 401.2.

10. 63rd Ave. East and 33rd St. East are thoroughfares. Please use LBR-60 Type B Stabilization for the subbase for the typical sections on Sheet 9, 10, 12 & 13 as per MC Detail 401.2.

Response: Typical sections on Sheet 9, 10, 12 & 13 will be revised to use LBR-60 Type B Stabilization for the subbase.

11. For the typical sections on Sheet 9, show the existing R/W.

Response: Existing R/W will be shown on the typical sections on sheet 9 in addition to the Proposed R/W.

12. Sheet 31 Roadway Plan (3): Call out the radii for the driveway at Sta. 171+16.

Response: Radii callouts will be added to the driveway at Sta. 171+16.

13. Sheet 30 Roadway Plan (2): At the intersection of 63rd & 28th, use minimum curb radii of 50' as per MC Detail 402.0. 63rd is an arterial roadway and 28th is a local roadway and there is no proposed right turn lane at this intersection.

Response: Radii will be revised to be 50' per MC Detail 402.0 for 28th St. E.

14. On Sheets 43-56, please provide elevations along with stations and offsets on the Drainage and Grading Plans.

Response: The elevations, stations and offsets for the drainage structures and pipes shown on the Drainage and Grading Plan are shown in the Drainage Structure Sections. The title of these sheets will be revised to Drainage Plan.

15. Sheets 113-153 Cross Sections: Please provide areas and volumes for the regular excavation and embankment quantities.

Response: Earthwork areas and volumes will be included on all cross-section sheets for quantity calculations.

16. Sheets 113-153 Cross Sections: Call out EOP elevations for all cross sections.

Response: It is preferred to not include EOP elevations and allow the typical section pavement cross slopes and profile grade line to dictate the pavement elevations to avoid redundant information.

17. Sheets 122-123 Cross Sections: Call out any missing sidewalk cross slopes where applicable.

Response: Missing sidewalk cross slopes will be added on sheets 121-123 of the cross sections.

18. Sheet 149 Cross Sections: Call out the sidewalk cross slopes for the cross section for Sta. 403+50.

Response: The sidewalk at Sta 403+50 is at a skew to the cross section. It is preferred not to include the cross slope and allow the roadway typical section and curb ramp standards dictate the slopes.

19. Sheet 150 Cross Sections: Call out the sidewalk cross slopes for the cross section for Sta. 404+50.

Response: The sidewalk at Sta 404+50 is at a skew to the cross section. It is preferred not to include the cross slope and allow the roadway typical section and curb ramp standards dictate the slopes.

20. Please provide cross sections for Drainage Structures S-200 through S-306.

Response: Cross sections for Drainage Structures S-200 through S-306 will be provided.

21. On the Summary of Pay Items Sheet in the Roadway Plans, please update all quantities for all pay items so that they match the quantities in the cost estimate.

Response: The Summary of Pay Items Sheet will be updated so all quantities and pay items will match the cost estimate.

Comment By: Jerry Varghese, Manatee County Public Works, 12/27/2022 2:07:13 PM
Response to Jerry Varghese's external comment request from Frank Meola, Southern Manatee Fire Rescue (fmeola@smfr.com):

No issues or concerns note with proposed information provided.

Frank A. Meola
Deputy Fire Marshal
Southern Manatee Fire Rescue
2451 Trailmate Drive
P.O. Box 20216
Bradenton, FL 34204
941-751-7675 EXT 303
Email: fmeola@smfr.com
"Pride Through Performance"

Response: Noted, thank you.

Comment By: Jerry Varghese, Manatee County Public Works, 12/27/2022 1:37:11 PM
Requested comment on step Review & Comment from ladent@southernmanateefd.org, Jason.Starr@hdrinc.com, fmeola@smfr.com with a respond by date of 01.11.2023.

Response: Noted, thank you.