



MEMORANDUM

To: Mario Bizzio, P.E.

From: Fred Burkett, P.E. and Clif Tate, P.E.
Kimley-Horn and Associates, Inc.

Date: December 11, 2019

Subject: Neptune Road PD&E – Osceola County, Florida
FPID: 445415-1
Design Variation Request
Segment 2: Old Canoe Creek Road to US 192

Description

Osceola County is conducting a Project Development and Environment (PD&E) study for improving Neptune Road, from Partin Settlement Road to US 192. While this is a county road, it is being processed similar to FDOT's Local Agency Program (LAP) with FDOT review throughout the process. Based on the LAP Manual (section 19.4), the FDOT Design Manual is to be used for design criteria and standards. This segment of the project meets all of these standards except for not providing bicycle lanes (in addition to a 10-foot shared use path on the north side of the road). **This design variation request is for the Department to approve providing a shared use path in lieu of bicycle lanes on this segment.**

Background

This section summarizes the County's decision-making process for determining the appropriate Typical Section for Neptune Road, from Old Canoe Creek Road to US 192.

Existing Conditions

- An 8-foot shared use path (Neptune Road Pathway) is on the north side of Neptune Road, from Old Canoe Creek Road to US 192 (0.5 miles).
- Current use of the pathway is a wide cross-section of users, including older walkers, joggers, parents with strollers, and younger bicyclists and pedestrians.
- No other bicycle or pedestrian facilities are located within this segment of Neptune Road.
- The existing right-of-way ranges from 40-feet to 60-feet; therefore, additional right-of-way will be needed for the improvements to Neptune Road.

- Osceola County has limited funding for improving their transportation system. Neptune Road is their highest priority; however, funds for full right-of-way needs and construction have not been identified.

Typical Sections Considered

- 4-lane undivided roadway, shared use path (10-foot) on the north side of the road and 6-foot sidewalk on the south side
 - This typical section meets the County's design standards.
 - This typical section meets the Florida Greenbook standards.
 - While minimizing additional right-of-way needed, there was a concern about left turning vehicles at driveways disrupting the flow of traffic.
- 5-lane roadway (including a center two way left turn lane), shared use path (10-foot) on the north side of the road and a 6-foot sidewalk on the south side.
 - This typical section meets the County's design standards.
 - This typical section meets the Florida Greenbook standards.
 - This typical section better accommodates vehicles turning left at driveways.
- 5-lane roadway (including a center two way left turn lane) with 7-foot buffered bicycle lanes, a shared use path (10-foot) on the north side of the road and a 6-foot sidewalk on the south side.
 - This typical section meets the Florida Design Manual standards.
- 5-lane roadway (including a center two way left turn lane) with 4-foot bicycle lanes, a shared use path (10-foot) on the north side of the road and a 6-foot sidewalk on the south side.
 - This typical section meets the County's design standards.
 - This typical section meets the Florida Greenbook standards.
 - The bicycle lane width matches the bicycle lanes provided to the west of Old Canoe Creek Road.

Preferred Typical Section

After considering the options, the County identified the typical section providing a 5-lane roadway (see note below), with a shared use path (10-foot) on the north side and a 6-foot sidewalk on the south side as the preferred typical section for Neptune Road, from Old Canoe Creek Road to US 192. The Typical Section Package is included in **Attachment A**.

Due to right-of-way constraints, the typical section will vary to minimize business damages and right-of-way costs associated with impacting the drive isle for the shopping center (see the discussion and exhibit under Right-of-Way Impacts). At this location, for approximately 700 feet, the center two way left turn lane will not be provided.

Design Variation Basis

This request is consistent with Section 122 Design Exceptions and Design Variations in the FDOT Design Manual.

Safety and Operational Performance

Given the right-of-way constraints, and the existing shared use path serving this segment, the Neptune Road PD&E Study Team concluded that providing a widened shared use path on the north side of Neptune Road (along with a sidewalk on the south side of Neptune Road) would provide better safety and operational conditions for bicyclists compared to providing bicycle lanes.

Level of Service

Per the FDOT Quality/Level of Service Handbook (2013), the level of service (LOS) for bicycles is based on two factors: 1) the existence of paved shoulders/bicycle lanes and 2) motorized vehicle volumes in the adjacent outside travel lane. Based on this methodology, the proposed 10-foot shared use path will provide the same LOS as 7-foot buffered bicycle lanes, as well as 4-foot bicycle lanes.

The LOS for vehicular traffic on the roadway will not be affected by the presence of the multi-use path or 7-foot buffered bicycle lanes or 4-foot bicycle lanes.

Right-of-Way Impacts

Osceola County desires to maintain the Neptune Road Pathway on the north side of the road in this segment. Thus, providing 7-foot buffered bicycle lanes will require an additional 14-feet of right-of-way. Similarly, providing 4-foot bicycle lanes will require an additional 8-feet of right-of-way. The preferred alternative is expected to impact three commercial properties. The additional 14-feet or 8-feet of right-of-way is expected to impact one additional commercial parcel.

The following exhibit illustrates the pinch point for the right-of-way on this segment of Neptune Road (designated by the red arrow). The preferred alternative has been developed to avoid impacting the adjacent parcel at this location because it would restrict the shopping center's internal circulation to access loading areas and additional parking (designated by the yellow circle). Providing bicycle lanes (either 7-foot buffered bicycle lanes or 4-foot bicycle lanes) on this segment of Neptune Road would create business damages for the shopping center.



Community Impacts

No community impacts are anticipated by providing a 10-foot shared use path compared to providing bicycle lanes.

Environmental Impacts

While providing bicycle lanes will have greater environmental impacts than not providing bicycle lanes, no significant environmental impacts are anticipated.

Costs

The construction costs for providing 7-foot buffered bicycle lanes is estimated to be \$440,000. The additional right-of-way costs for providing 7-foot buffered bicycle lanes is estimated to be \$7.49 million. Thus, the total cost for providing 7-foot buffered bicycle lanes is estimated to be \$7.93 million.

The construction costs for providing 4-foot bicycle lanes is estimated to be \$250,000. The additional right-of-way costs for providing 4-foot bicycle lanes is estimated to be \$6.92 million. Thus, the total cost for providing 4-foot bicycle lanes is estimated to be \$7.17

million.

Usability

This consideration includes usability by all modes of transportation, and long term and cumulative effects on adjacent sections of the roadway. Osceola County considered the

usability of all modes of travel in developing their preferred typical section. It is the opinion of the County that their preferred typical section provides the appropriate usability for the proposed improvement.

Conclusion and Recommendation

Based on the above reasons, the provision of a 10-foot shared use path on the north side of Neptune Road and a 6-foot sidewalk on the south side of Neptune Road while not providing bicycle lanes on Neptune Road from Old Canoe Creek Road to US 192 provides the appropriate balance of all design impacts. Furthermore, the provision of bicycle lanes is impractical due to the high ROW costs, as well as recognizing that the shared use path would serve bicyclists.

It is recommended that the Department approve this design variation request to provide a shared use path instead of on-road bicycle lanes on Neptune Road, from Old Canoe Creek Road to US 192.

This document has been digitally signed and sealed by:

**Leon F
Burkett** Digitally signed
by Leon F Burkett
Date: 2019.12.11
17:00:41 -05'00'

**Mario J
Bizzio** Digitally signed by
Mario J Bizzio
Date: 2019.12.18
09:51:40 -05'00'

Mario Bizzio, P.E.
FDOT District Design Engineer

Printed copies of this document are not considered signed and sealed. The signature must be verified on the electric documents.

Kimley-Horn
189 South Orange Ave., Suite 1000
Orlando, FL 32801
Tel: 407-898-1511
Certificate of Authorization 696
Vendor No: Fred Burkett, P.E. No. 45825



ATTACHMENT A

Typical Section Package

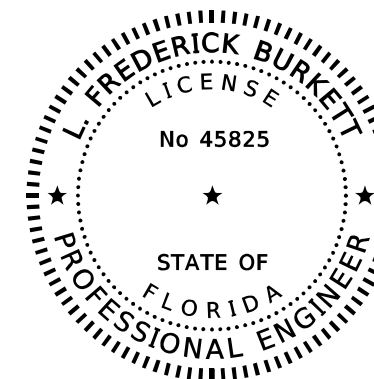
OSCEOLA COUNTY

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 445415-1
 OSCEOLA COUNTY (92550000) (92540000)
 CR 525 (NEPTUNE ROAD)
 RECONSTRUCTION OF NEPTUNE ROAD FROM 2-LANE TO 4-LANE

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY:

Leon F Burkett
 Digitally signed by Leon F Burkett
 Date: 2020.06.26 10:37:30 -04'00'



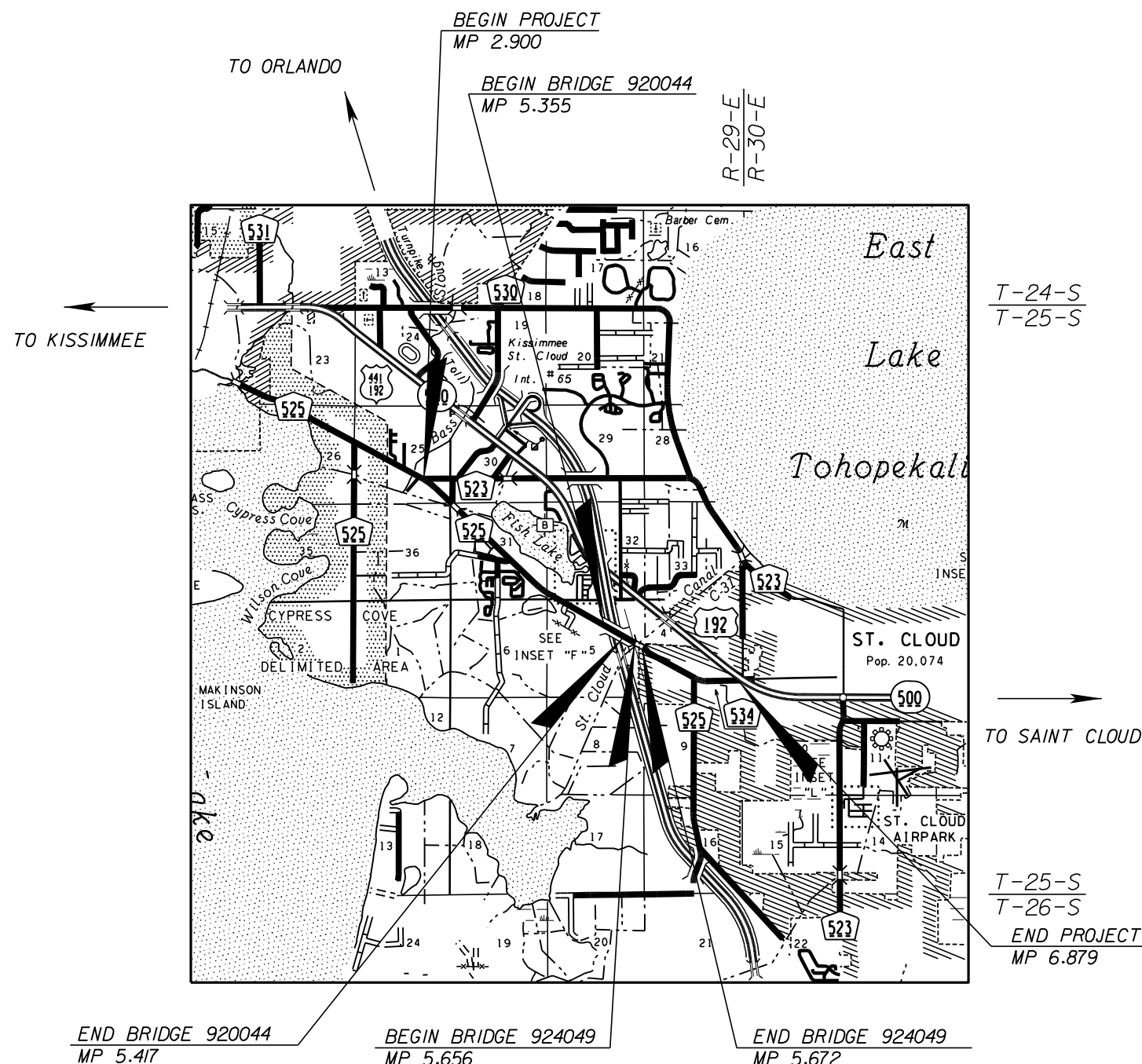
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. THE SIGNATURE MUST BE VERIFIED ON THE ELECTRIC DOCUMENTS.

KIMLEY-HORN
 189 SOUTH ORANGE AVE., SUITE 1000
 ORLANDO, FLORIDA 32801
 TEL: 407-898-1511
 CERTIFICATE OF AUTHORIZATION 696
 VENDOR NO:
 FRED BURKETT, P.E. NO. 45825

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.	SHEET DESCRIPTION
1	COVER SHEET
2	TYPICAL SECTION NO. 1
3	TYPICAL SECTION NO. 2
4	TYPICAL SECTION NO. 3



FDOT CONCURRENCE

Mario J Bizzio
 Digitally signed by Mario J Bizzio
 Date: 2020.08.12 09:59:56 -04'00'

MARIO BIZZIO, PE
 FDOT DISTRICT DESIGN ENGINEER

Digitally signed by: loreen.
 bobo@dot.state.fl.us
 DN: CN = loreen.
 bobo@dot.state.fl.us
 Date: 2020.08.12 10:36:03 -05'00'

LOREEN BOBO, PE
 FDOT DISTRICT DIRECTOR OF TRANSPORTATION DEVELOPMENT

James S Stroz
 Digitally signed by James S Stroz
 Date: 2020.08.12 10:26:22 -04'00'

JIM STROZ, PE
 FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER

OSCEOLA COUNTY APPROVAL

Tawny H. Olore
 Digitally signed by Tawny H. Olore
 Date: 2020.06.29 15:54:42 -04'00'

TAWNY OLORE, PE
 EXECUTIVE DIRECTOR
 TRANSPORTATION & TRANSIT

2020.06.29
 15:38:03
 -04'00'

B. TODD HUDSON, PE
 COUNTY TRANSPORTATION ENGINEER

Kathy Lee
 Digitally signed by Kathy Lee
 Date: 2020.06.30 16:21:59 -04'00'

KATHY LEE, PE
 COUNTY TRAFFIC OPERATIONS ENGINEER

FINANCIAL PROJECT ID	SHEET NO.
445415-1	1

PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

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

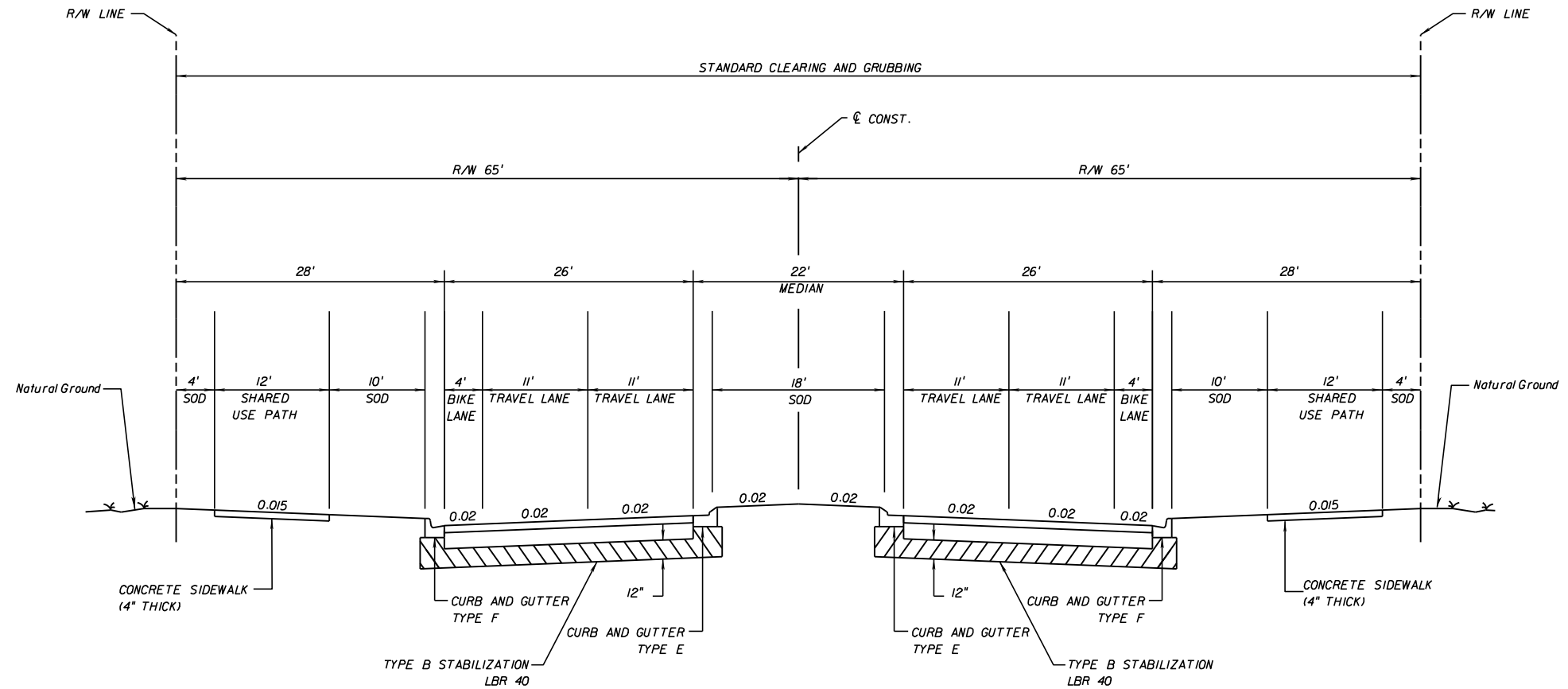
CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

7-FOOT BUFFERED BIKE LANES

TYPICAL SECTION NO.1 NEPTUNE ROAD



TYPICAL SECTION
CR 525
MP 2.9000 TO MP 6.342

TRAFFIC DATA

CURRENT YEAR = 2018 AADT = 26,000
 ESTIMATED OPENING YEAR = 2025 AADT = 30,000
 ESTIMATED DESIGN YEAR = 2045 AADT = 43,000
 K = 9% D = 57.9% T (24 HOUR) = 5.11%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

FINANCIAL PROJECT ID	SHEET NO.
445415-1	2

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 6IG15-23.004, F.A.C.

PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

- () 1 - FREEWAY
- () 2 - RESTRICTIVE W/Service Roads
- () 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
- (X) 7 - BOTH MEDIAN TYPES

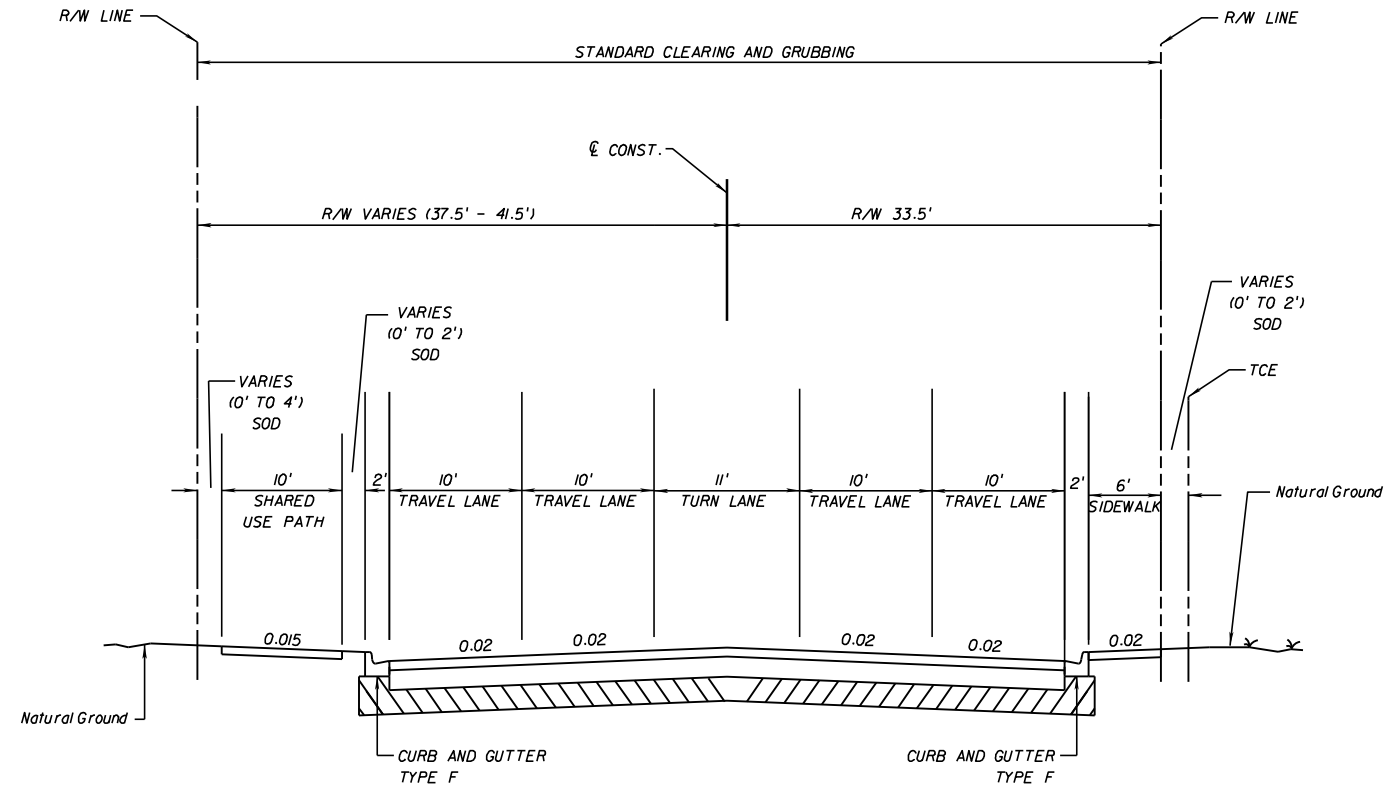
CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

7-FOOT BUFFERED BIKE LANES

TYPICAL SECTION NO.2 NEPTUNE ROAD



TYPICAL SECTION
CR 525
MP 6.342 TO MP 6.879

TRAFFIC DATA

CURRENT YEAR = 2018 AADT = 21,000
 ESTIMATED OPENING YEAR = 2025 AADT = 23,000
 ESTIMATED DESIGN YEAR = 2045 AADT = 27,000
 K = 9% D = 57.9% T (24 HOUR) = 5.11%
 DESIGN SPEED = 35 MPH
 POSTED SPEED = 35 MPH

FINANCIAL PROJECT ID	SHEET NO.
445415-1	3

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PROJECT CONTROLS

TYPICAL SECTION NO.3 NEPTUNE ROAD

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

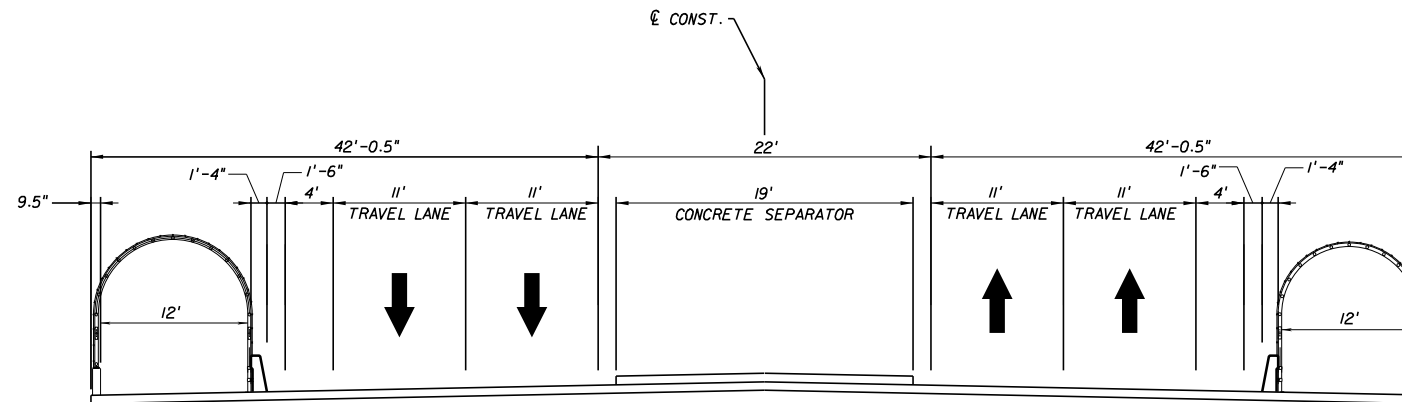
- () 1 - FREEWAY
- () 2 - RESTRICTIVE W/Service Roads
- () 3 - RESTRICTIVE W/660 ft. Connection Spacing
- () 4 - NON-RESTRICTIVE W/2640 ft. Signal Spacing
- (X) 5 - RESTRICTIVE W/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE W/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

7-FOOT BUFFERED BIKE LANES



BRIDGE 924049
MP 5.656 TO MP 5.672

TRAFFIC DATA

CURRENT YEAR = 2018 AADT = 26,000
 ESTIMATED OPENING YEAR = 2025 AADT = 30,000
 ESTIMATED DESIGN YEAR = 2045 AADT = 43,000
 K = 9% D = 57.9% T (24 HOUR) = 5.11%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

FINANCIAL PROJECT ID	SHEET NO.
445415-1	4

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