QUALITY FORUM

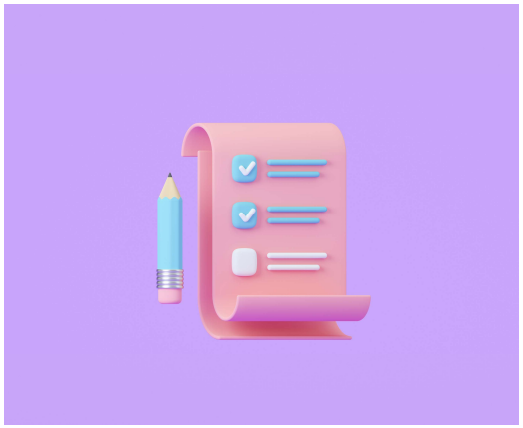
JANUARY 2023

FDOT

Welcome – Let's Get Started

- Safety overview
- Virtual attendees:
  - Chat feature is disabled
  - Please clap (reactions button) to show you can hear)
  - To speak during the Q&A, please raise your hand. We will call on you to speak
- This meeting is being recorded

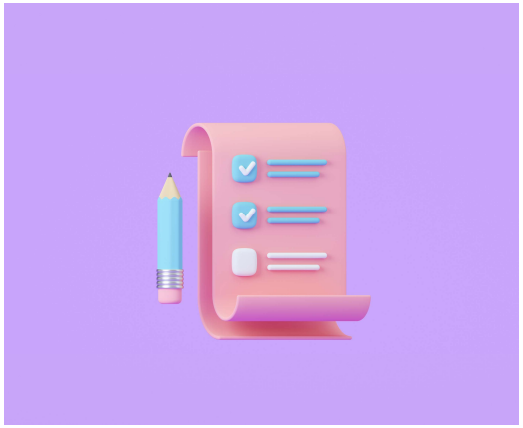
Today's Topics



- Opening Remarks - Jeff Cicerello,
  District Design Engineer
- ACEC - Scott Perfater
- Procurement Services – Michelle Sloan
- Marketing Meetings – Jennifer Link
- Current Issues
  - Importance of VVHs – Staci Nester
  - Achieving Target Zero – Loreen Bobo

BREAK

Today's Topics



- Opportunities for Excellence
  - Concrete Grooving – Richard Hewitt
- Lessons Learned
  - Emergency Shoulder Use – Kevin Hayden
- Technical Issues
  - Design Bulletins (& Memos) – Gabor Chiorean (10 mins)
- Q & A
- Next Meeting: May 18, 2023

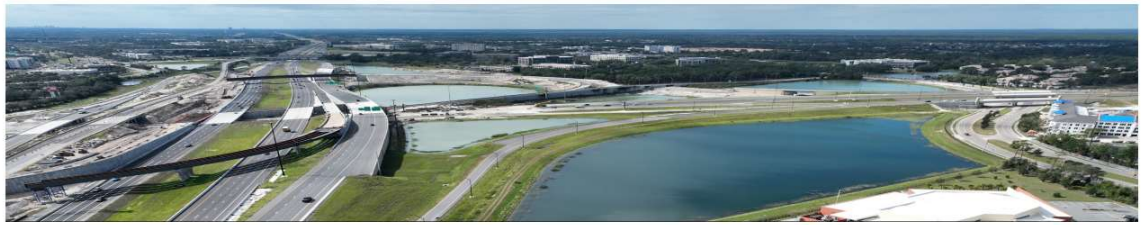
What's New in 2023!

Jeff Cicerello, P.E.
District Five Design Engineer

Consultant Acquisition Plan

FDOT.D5

Florida Department of TRANSPORTATION



- COMING SOON -

Wednesday, February 8th, 2023

District Five's Fiscal Year 2024 Consultant Acquisition Plan (CAP)

CAP information will be published on 2/8/2023 at the following websites:
http://www.fdot.gov/procurement/marketingD5/
http://www.cflroads.com/d5fdotdesign/

Updated web format provides interactive functionality to easily view project details, location, and contact information for consultant procurements planned in Fiscal Year (FY) 2024.

JOIN US CONSULTANT INDUSTRY PARTNERS!

Tuesday February 14th 2023

Consultant Acquisition Plan Meeting

For panel discussions and sharing of ideas related to CAP.

Sanborn Center, DeLand, FL
815 S Alabama Avenue
DeLand, FL 32720

Agenda

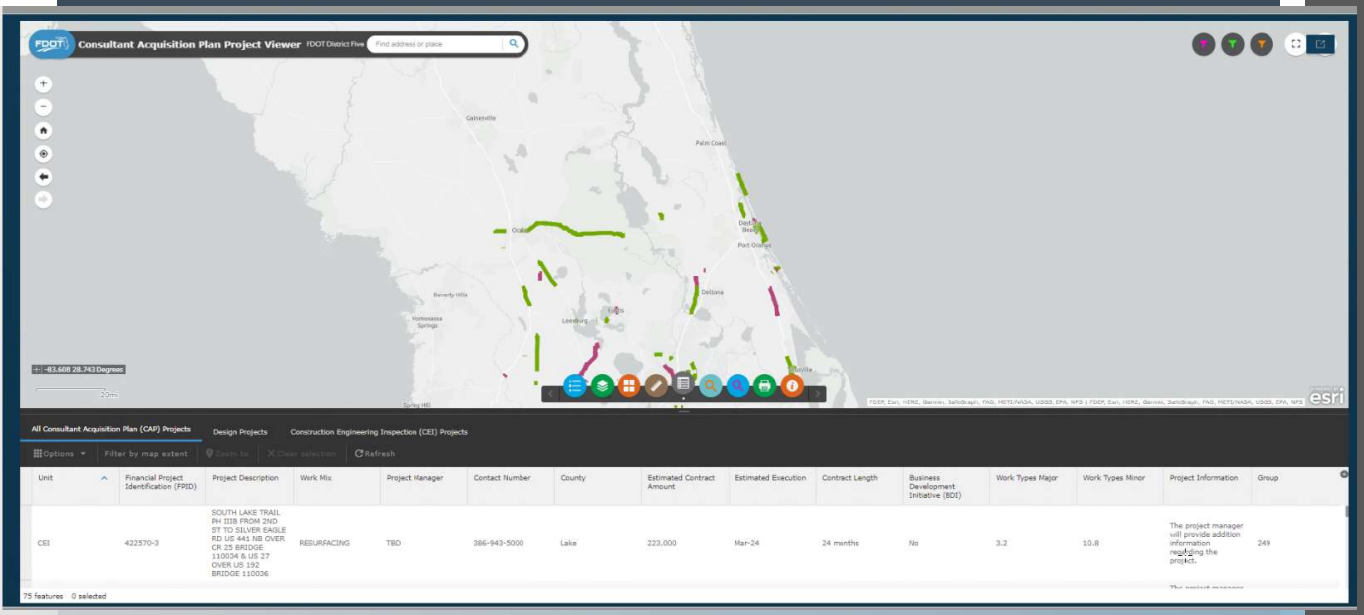
- Networking (9:00 a.m. – 9:50 a.m.)
- FDOT District 5 Updates (10:00 a.m. – 10:20 a.m.)
- CAP Discussion (10:20 a.m. – 10:30 a.m.)
- ACEC-FL Update (10:30 a.m. – 10:40 a.m.)
- Networking Break (10:40 a.m. – 11:05 a.m.)
- Panel Discussions w/Moderator (11:05 a.m. – 11:55 a.m.)
- Closing

Limited attendance: Two (2) per firm please

Inquiries, please contact: Laura.Boehmler@dot.state.fl.us

FDOT

New FY 24 Cap Format



- Web-based format
- Heavy resurfacing mix
- Smart Scope transition year

New Approach to CAP Forum

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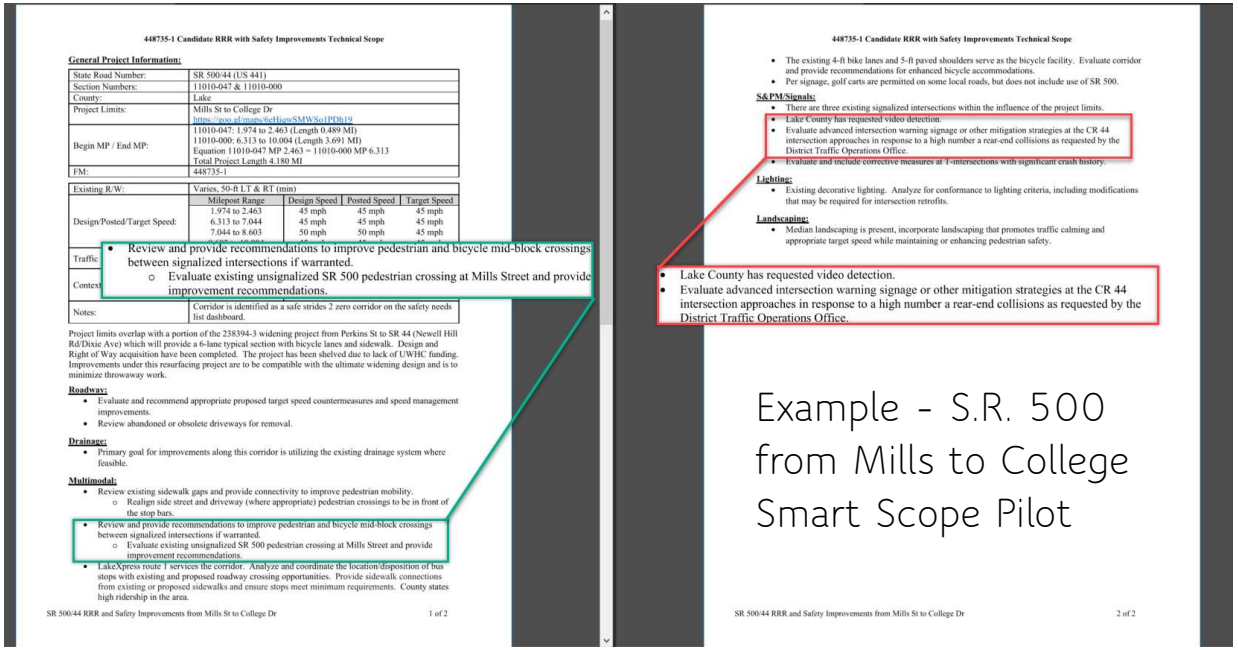
Smart Scope Workshop

- Scheduling for mid-July
- CAP approach
- Will cover entire process
- Panel discussion with Real-world examples
- Pilot Smart Scope update



448735-1 Candidate RRR with Safety Improvements Technical Scope

General Project Information:

State Road Number:	SR 500/44 (US 441)
Section Numbers:	11010-047 & 11010-000
County:	Lake
Project Limits:	Mills St to College Dr https://goo.gl/maps/6eHkgu5MWSo1PDh19
Begin MP / End MP:	11010-047: 1.974 to 2.463 (Length 0.489 MI) 11010-000: 6.313 to 10.004 (Length 3.691 MI) Equation 11010-047 MP 2.463 = 11010-000 MP 6.313 Total Project Length 4.180 MI
FM:	448735-1

Existing R/W:	Varies, 50-ft LT & RT (min)			
Design/Posted/Target Speed:	Milepost Range	Design Speed	Posted Speed	Target Speed
	1.974 to 2.463	45 mph	45 mph	45 mph
	6.313 to 7.044	45 mph	45 mph	45 mph
	7.044 to 8.603	50 mph	50 mph	45 mph
Traffic				
Context				
Notes:	Corridor is identified as a safe strides 2 zero corridor on the safety needs list dashboard.			

Project limits overlap with a portion of the 238394-3 widening project from Perkins St to SR 44 (Newell Hill Rd/Dixie Ave) which will provide a 6-lane typical section with bicycle lanes and sidewalk. Design and Right of Way acquisition have been completed. The project has been shelved due to lack of UWHC funding. Improvements under this resurfacing project are to be compatible with the ultimate widening design and is to minimize throwaway work.

Roadway:
- Evaluate and recommend appropriate proposed target speed countermeasures and speed management improvements.
- Review abandoned or obsolete driveways for removal.

Drainage:
- Primary goal for improvements along this corridor is utilizing the existing drainage system where feasible.

Multimodal:
- Review existing sidewalk gaps and provide connectivity to improve pedestrian mobility.
  - Realign side street and driveway (where appropriate) pedestrian crossings to be in front of the stop bars.
- Review and provide recommendations to improve pedestrian and bicycle mid-block crossings between signalized intersections if warranted.
  - Evaluate existing unsignalized SR 500 pedestrian crossing at Mills Street and provide improvement recommendations.
- LakeXpress route 1 services the corridor. Analyze and coordinate the location/disposition of bus stops with existing and proposed roadway crossing opportunities. Provide sidewalk connections from existing or proposed sidewalks and ensure stops meet minimum requirements. County states high ridership in the area.

SR 500/44 RRR and Safety Improvements from Mills St to College Dr 1 of 2

- Review and provide recommendations to improve pedestrian and bicycle mid-block crossings between signalized intersections if warranted.
  - Evaluate existing unsignalized SR 500 pedestrian crossing at Mills Street and provide improvement recommendations.

448735-1 Candidate RRR with Safety Improvements Technical Scope

- The existing 4-ft bike lanes and 5-ft paved shoulders serve as the bicycle facility. Evaluate corridor and provide recommendations for enhanced bicycle accommodations.
- Per signage, golf carts are permitted on some local roads, but does not include use of SR 500.

S&PM/Signals:
- There are three existing signalized intersections within the influence of the project limits.
- Lake County has requested video detection.
- Evaluate advanced intersection warning signage or other mitigation strategies at the CR 44 intersection approaches in response to a high number a rear-end collisions as requested by the District Traffic Operations Office.
- Evaluate and include corrective measures at T-intersections with significant crash history.

Lighting:
- Existing decorative lighting. Analyze for conformance to lighting criteria, including modifications that may be required for intersection retrofits.

Landscaping:
- Median landscaping is present, incorporate landscaping that promotes traffic calming and appropriate target speed while maintaining or enhancing pedestrian safety.

- Lake County has requested video detection.
- Evaluate advanced intersection warning signage or other mitigation strategies at the CR 44 intersection approaches in response to a high number a rear-end collisions as requested by the District Traffic Operations Office.

SR 500/44 RRR and Safety Improvements from Mills St to College Dr 2 of 2

Example - S.R. 500 from Mills to College Smart Scope Pilot

RRR Safety Additions – How Are We Doing?

Your Turn

ACEC

AMERICAN COUNCIL OF ENGINEERING COMPANIES
of Florida

Scott Perfater

FDOT

Your Turn

Procurement Updates

Michelle Sloan

Your Turn

D5 Microsoft Bookings for Marketing Meetings

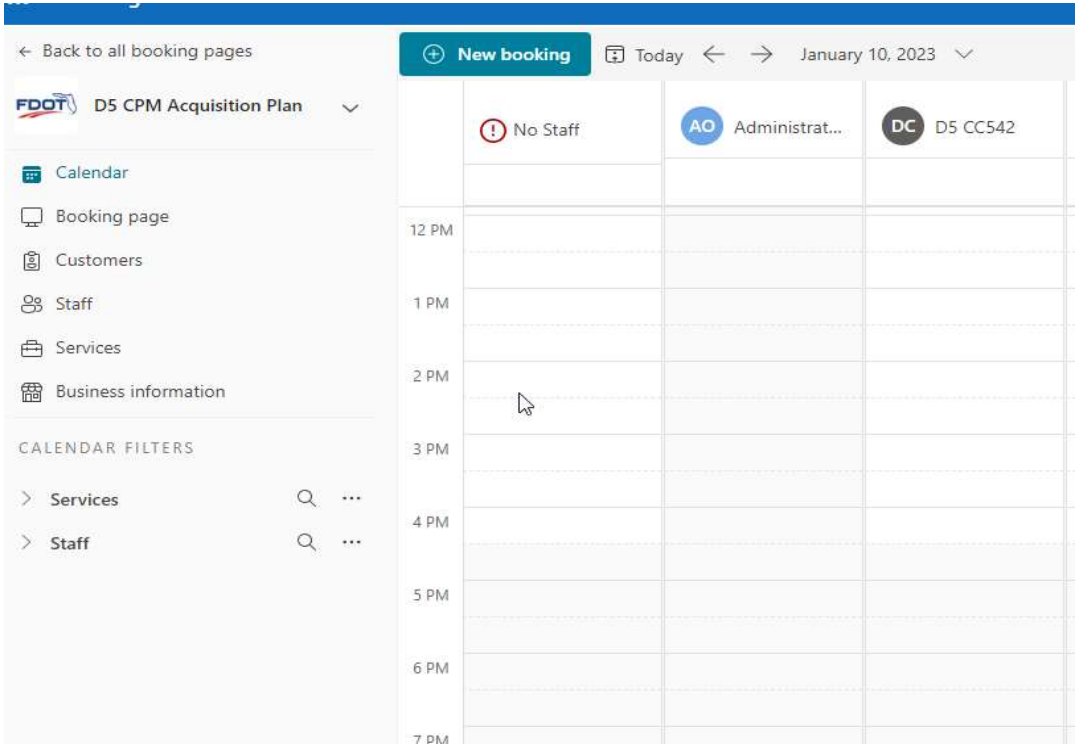
Jennifer Link
Consultant Project Management

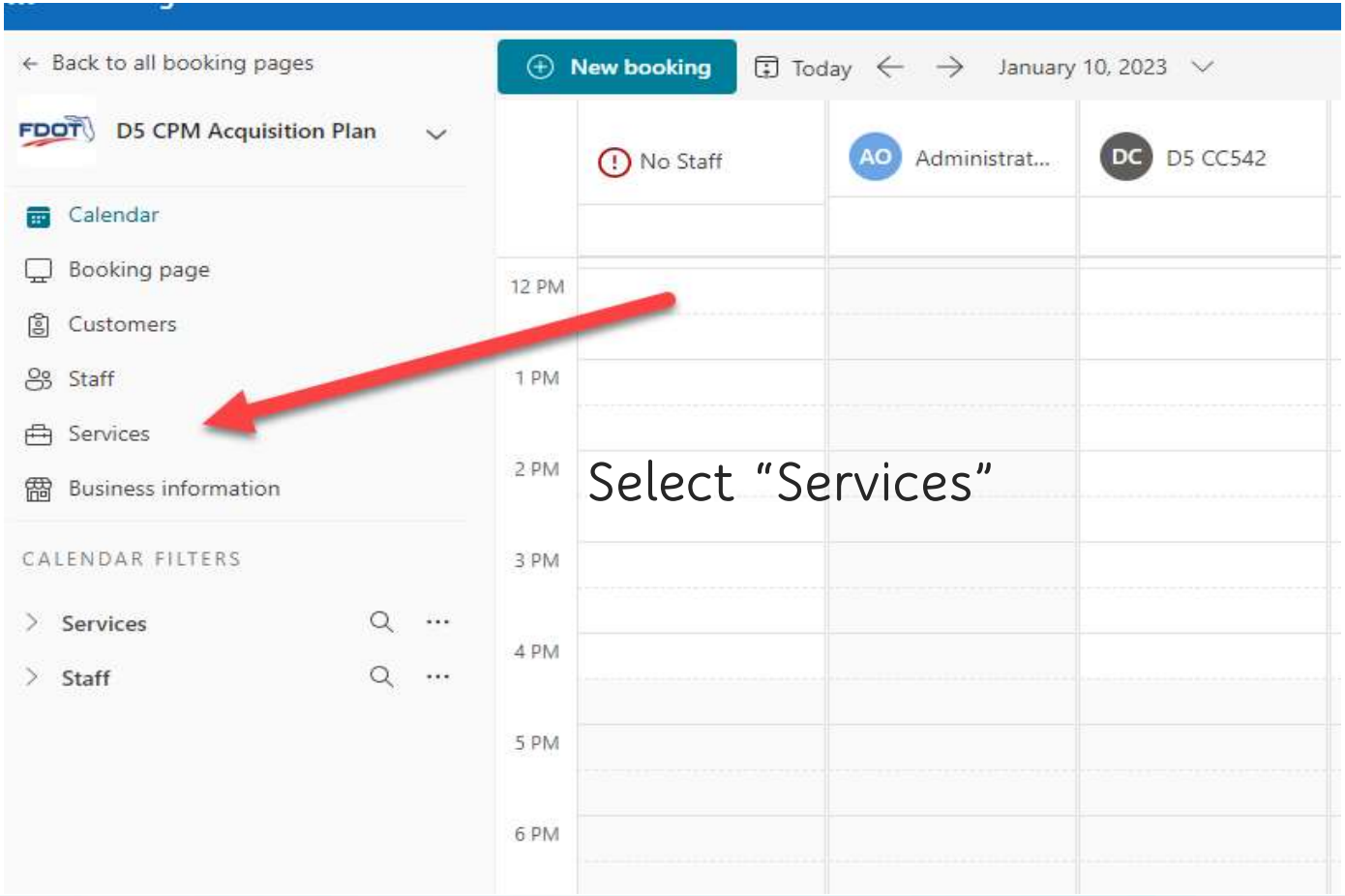
Bookings Services (Projects)

- Each project will be a "service", you will need to know what project you are looking for by the FPID.
- D5 CC542 Shared Mailbox will book staff members automatically.
- Rules will be set up internally.
- Book under YOUR name and fill in other information - Firm name is Required.
- All meetings will be set up as Virtual - Please select the Hybrid option if desired.
- Book one Meeting per project- ONLY

Getting Started

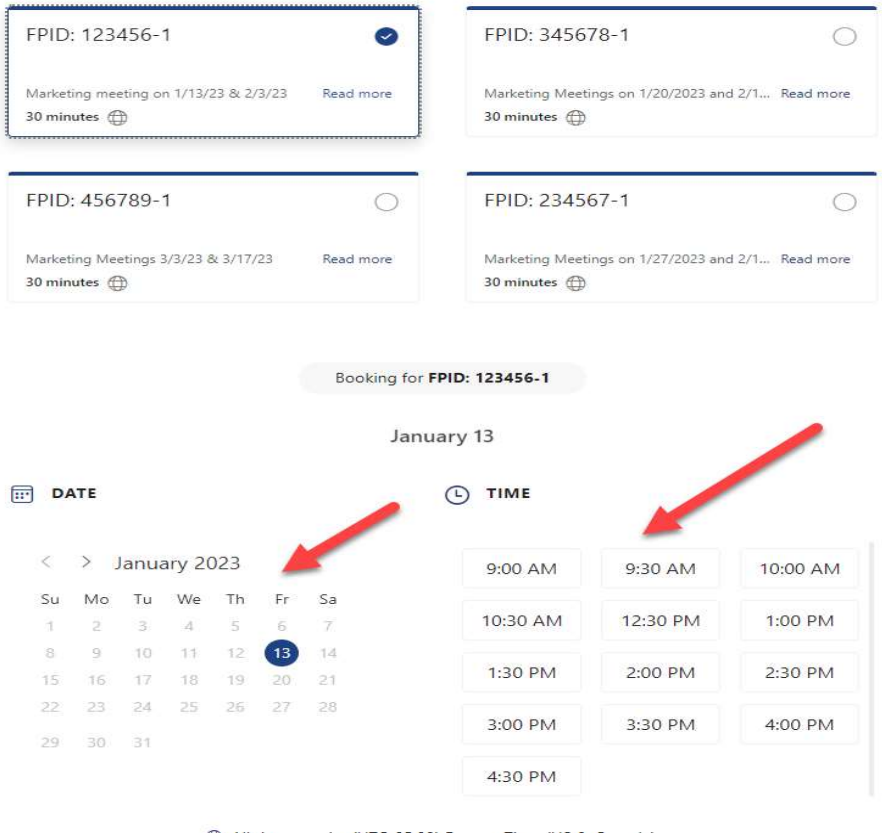
- Review D5 CAP for projects/FPID.
- https://outlook.office365.com/owa/calendar/D5CPMAcquisitionPlan@fldot.onmicrosoft.com/bookings/
- Reminder: D5 CC542 shared mailbox will be the point of contact if needed and for questions.




Back to all booking pages
New booking
Today
January 10, 2023
D5 CPM Acquisition Plan
No Staff
Administrat...
D5 CC542
Calendar
Booking page
Customers
Staff
Services
Business information
CALENDAR FILTERS
Services
Staff
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
Select "Services"

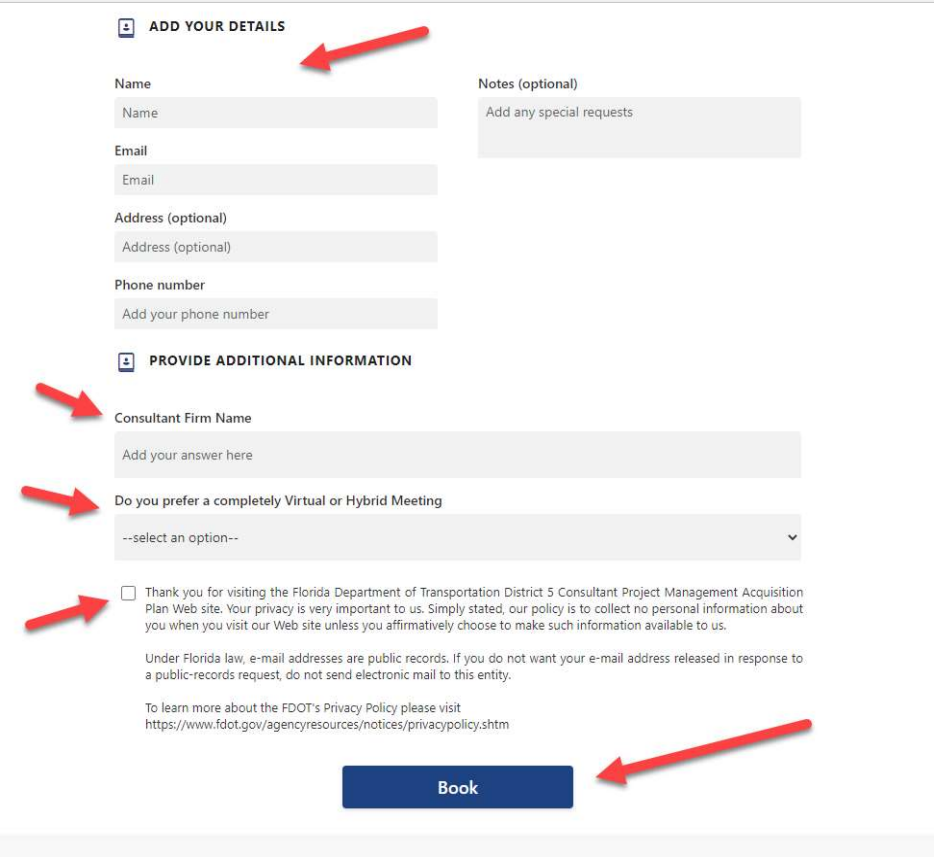
Available Meetings

- Dates and times available will be shown.
- Select your preferred date and time.



Available Meetings

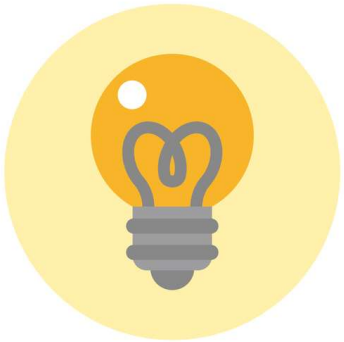
- Fill in your information.
- Add firm name - REQUIRED.
- Select if you prefer hybrid.
- Check the policy box.
- Click “book”.

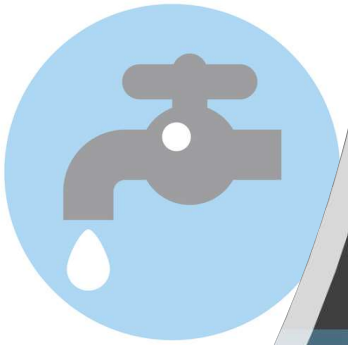


For More Information

Instructions will be posted with the CAP

Your Turn





Impacts to Utility Contact Schedule

Staci Nester
District Utility Administrator

Purpose:
VVH Complete - Line Item 587010000

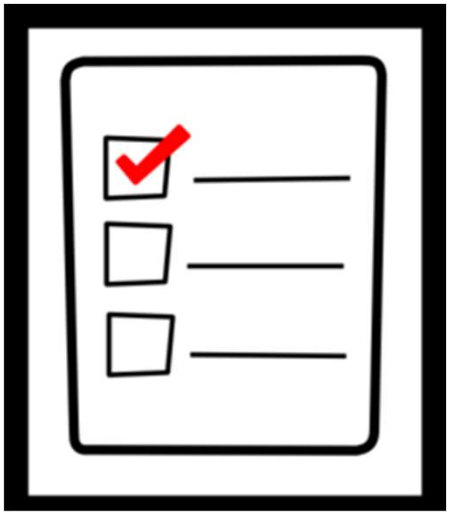
To ensure that the SUE VVH/Test Holes for the mast arm, drainage structures are completed and incorporated into the Approved Phase II Plans prior to Utility Contact

113020000	Initial Plans and Model (Phase II)	ENOT	10/18/2022	A	2/20/2023	36	115
294020000	Typical Section Submitted	ENOT	10/24/2022	A	1/16/2023	11	128
197010000	Pavement Design	ENOT	1/2/2023		2/24/2023	40	99
106020000	Updated Design Survey DB Submittal	Campanile	1/2/2023		1/2/2023	1	150
367020000	Approved Exceptions/Variations and Submittal of Utility Desi	ENOT	1/25/2023		1/25/2023	1	133
900045000	Plans in Hand Review w Construction & Utilities	ENOT	1/30/2023		1/30/2023	1	115
587010000	VVH Complete	ENOT	2/15/2023		2/15/2023	1	118
197020000	Constructability and MOT Review Meeting	ENOT	2/27/2023		2/27/2023	1	99
197030000	Pavement Design Review	ENOT	2/27/2023		3/10/2023	10	101
260010000	Typical Section Approved	ENOT	2/27/2023		2/27/2023	1	99
145040000	Environmental Permit Coordination Meeting	ENOT	2/28/2023		2/28/2023	1	184
900060000	Interactive Project Update Meeting	ENOT	2/28/2023		2/28/2023	1	99
292010000	Public Information Meeting	ENOT	3/2/2023		3/2/2023	1	134
197040000	Pavement Design Approved	ENOT	3/10/2023		3/10/2023	1	101
302010000	Initial Plans and Model Review (Phase II)	ENOT	3/15/2023		4/11/2023	20	99

Why is it Important:
VVH Complete - Line Item 587010000

- Avoid delays to utility contact due to SUE not being incorporated into the plans, which will impact the overall project schedule
- Ensure the utility conflict matrix is accurate and complete based off the SUE data
- Reduce the likelihood of late changes to the design that could cause a utility re-contact

Objective:
VVH Complete - Line Item 587010000



- Prior to the Approved Phase II/Utility Contact Plans
- Conflicts are known and can be accurately identified in the Utility Conflict Matrix
- Design can be reviewed and updated to mitigate for utility conflicts
- Plans include the SUE information in the model, cross sections, drainage sheets, etc.
- Plans include the Summary of Verified Utilities

How Do We Get There:
VVH Complete – Line Item 587010000

- Finalize locations for design elements that impact utilities so SUE can be performed
  - *Mast Arms, Signal Poles, Mid-Block Crossings*
  - *Light Poles*
  - *Drainage Structures*
  - *Piers, Walls, etc.*
- Order SUE to be completed prior to Approved Phase II/Utility Contact

Table 901.3.1 Phase Submittals for Conventional Projects

ITEM	PHASE I	PHASE II*	PHASE III	PHASE IV
Roadway Plans Set				
Key Sheet	P	P	C	F
Signature Sheet		P	C	F
Typical Section	P	C	C	F
Model Management	C	C	C	F
Project Control	P	C	C	F
Roadway Plan-Profile	P	P	C	F
Traffic Monitoring Site		P	C	F
Drainage Structures		P	C	F
Stormwater Facility Plan		P	C	F
Drainage Map	P	P	C	F
Roadway Soil Survey		P	C	F
Temporary Traffic Control Plans	P	P	C	F
Utility Adjustments		P	C	F
Selective Clearing and Grubbing		P	C	F
Mitigation Plan	P	P	C	F
Miscellaneous Structures		P	C	F
Component Plans Set				
Signing and Pavement Marking Plans		P	C	F
Signalization Plans		P	C	F
Intelligent Transportation System (ITS) Plans		P	C	F
Lighting Plans		P	C	F
Landscape Plans	P	P	C	F
Landscape Maintenance Guide			C	F
Utility Work by Highway Contractor Agreement Plans			C	F
Toll Facility Plans				
Site/Civil, Architectural, and Structural	P	P	C	F
Electrical, Mechanical, and Plumbing		P	C	F
Communications and Systems		P	C	F

Status Key: P - Preliminary C - Complete but subject to change F - Final

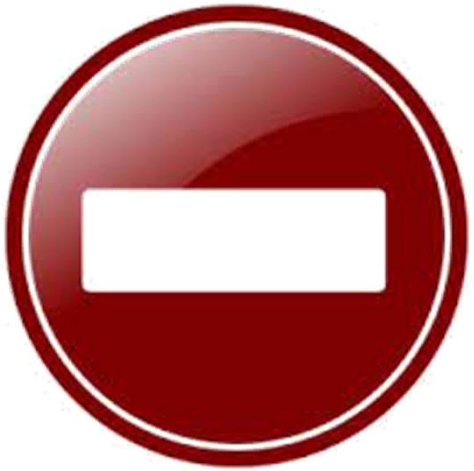
** Projects with structures plans component must submit the latest set with the 60% roadway submittal.*

Design Changes

- If Design change creates an impact to the utilities, then a utility re-contact will need to be done
- Project schedule needs to be updated to include time for a utility re-contact as well as any additional design/survey/SUE, Geotech, etc.
- The project's revised schedule may have impacts to the production and letting, so it is critical that all work efforts to incorporate the new scope are properly accounted for
- Please be sure to work with your UC and UPM on what is required for the scope change and how the schedule needs to be updated

Negative Float

- Early identification of negative float items is KEY to ensure there is sufficient time for utility contact to be performed effectively
- Utility Project Managers have been tasked to keep an eye out for negative float on the utility coordination items for their projects
- If a project has negative float, they will reach out to the PM to discuss the recovery schedule
- A typical schedule is 95 working days for minor projects to up to 180 working days for major projects



Your Turn

Achieving

TARGET ZERO
FATALITIES & SERIOUS INJURIES

Together

Loreen Bobo, P.E.
Florida Department of Transportation
District 5 Safety Administrator
Office of Safety

FDOT

Why?

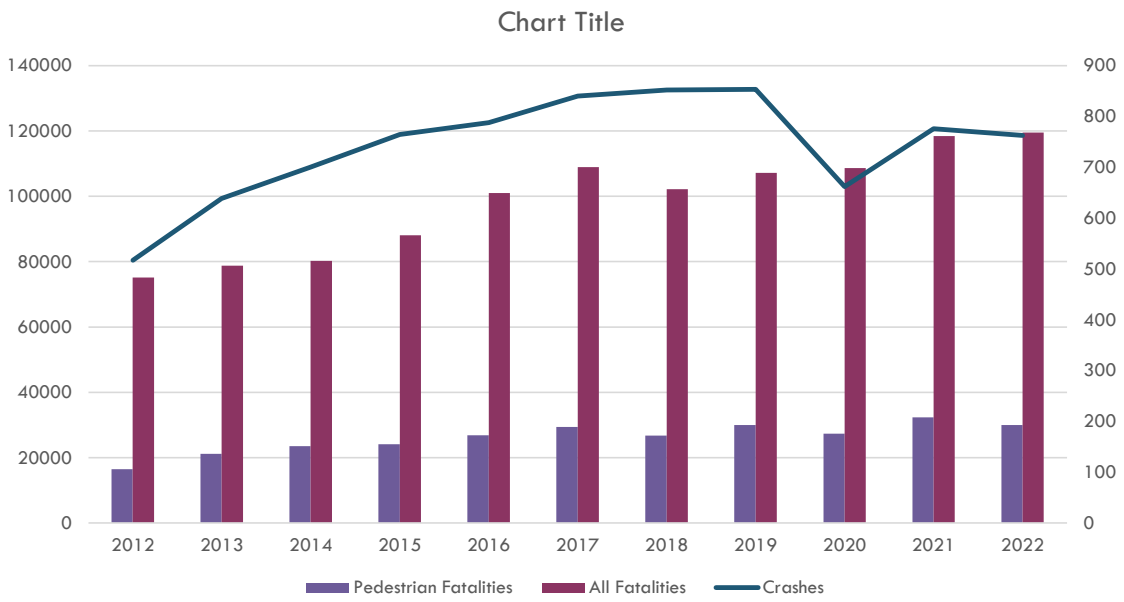
ONE LIFE LOST IS **TOO MANY**

FATALITIES

SERIOUS INJURIES

ON FLORIDA'S ROADS **EACH DAY**

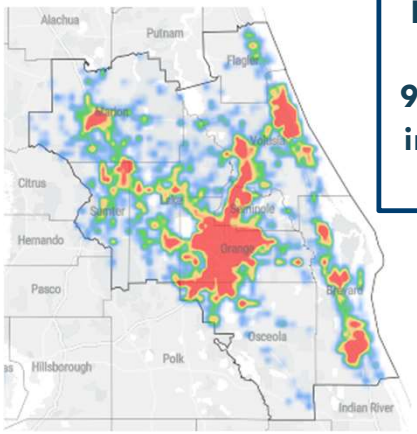
Why Does Safety Remain a Focus?



This data is being certified; final numbers may vary slightly.

768 Fatalities (3,410 statewide) in 2022,
193 (966 statewide) were people walking and biking.

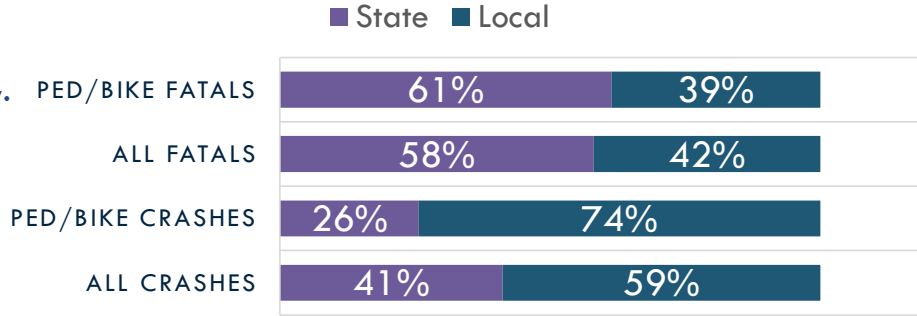
25% were our most vulnerable users



District 5 covers 9 counties in Central Florida

Biggest issues are **speeding, distracted driving,** and **occupant protection.**

STATE VS LOCAL



Safe System Approach

Principles

- Death/Serious Injury is Unacceptable
- Humans Make Mistakes
- Humans are Vulnerable
- Responsibility is Shared
- Safety is Proactive
- Redundancy is Crucial

Elements

- Safe Road Users
- Safe Vehicles
- Safe Speeds
- Safe Roads
- Post Crash Care

Source: FHWA

Vision Zero vs Target Zero – Same goal!

Vision Zero

- Vision Zero sets the goal of eliminating all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all, in a set period with clear, measurable strategies.
- Traffic deaths are PREVENTABLE.
- Acknowledge HUMAN BEHAVIOR influences crashes
- Multidisciplinary approach

FDOT's Target Zero

- Target Zero is a parallel effort that plans programs and projects, both infrastructure and behavioral related, to help achieve zero fatalities and serious injuries.

Safety Starts with our Vision Zero Partners

- Collaboration with Partners
  - Encouraging Vision Zero Adoption and Safety Action Plan Development

22 and more to follow!

Safety Starts with Us – Infrastructure

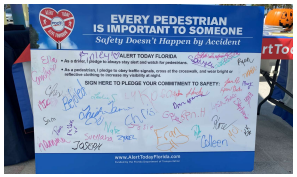
- Every project is a safety project
  - Touch every project to empower and ensure max countermeasures are included.
- State Road or Local Road??? Does it really matter!
- Be proactive and Be bold on every project
  - If we want to save lives, we have to be bold
- It may not be too late to incorporate the right elements into a project
- Target Speed – Lower speeds save lives

Opportunities to Improve Safety

- Roundabouts
- On-Street Parking
- Chicanes
- Lane Narrowing
- Horizontal Deflection
- Street Trees/ Landscaping
- Short Blocks
- Midblock Crossings
- Speed Tables
- And More!

Safety Starts with Us – Outreach

- Reaching out to every county, city
- Reaching out to All Ages



Safety Starts with Us – Start with our Children

- **Children are our future; outreach and growing that safety culture with them is very important.**

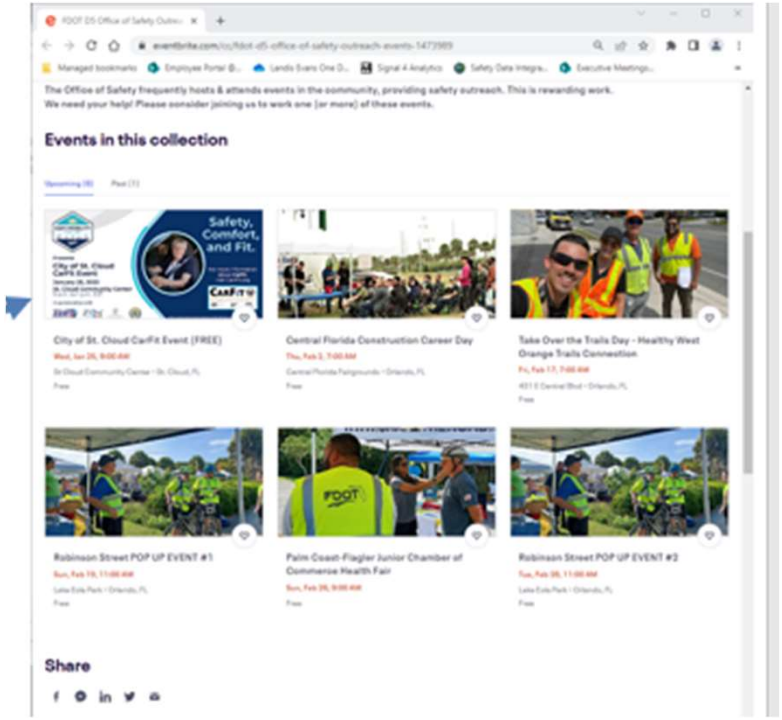
Early Elementary Student Winner
Title "Daddy Rides in Heaven"

Safety Starts with You!

- **Learn more about the Safe System Approach**
  - https://floridaltap.org/recorded-webinar-the-safe-system-approach-what-is-it-and-why-is-it-getting-so-much-attention/
- Safety begins with **YOU**, *act responsibly. Respect other users*.
- **Set the example** while driving, walking, riding your bike
  - Put down your cell phone
  - Wear your seatbelt / helmet
  - Drive the speed limit
  - Cross where it is legal and expected
- Encourage your family, neighbors, and friends to drive, walk, and bike safely, so that they make it home every day.
- Encourage safety conversations and actions in your daily work.

Safety Starts with You!

- **Share your ideas with us!**
  - Making the safety ‘mission’ personal – All of us, including users of our transportation system can make a difference. Email your ideas to: D5-Safetyideas@dot.state.fl.us
- **Join FDOT at one (or more) of our many outreach events as a volunteer**.
  - Register Here: https://forms.monday.com/forms/59dba97a4e309fccdf4cdc7fcefa9651?r=use1 and you will be able to sign up to volunteer at our events.

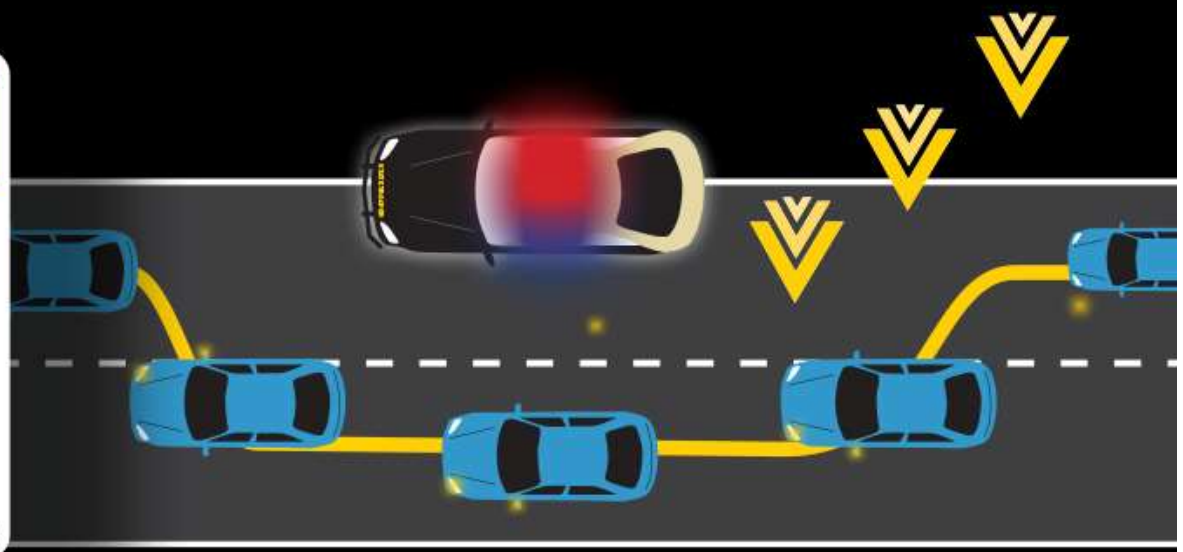


MOVE OVER

FLORIDA LAW

MOVE OVER

FOR STOPPED EMERGENCY VEHICLES



FLHSMV

HIGHWAY PATROL FLORIDA

Safety begins with ME…

Safety begins with YOU!

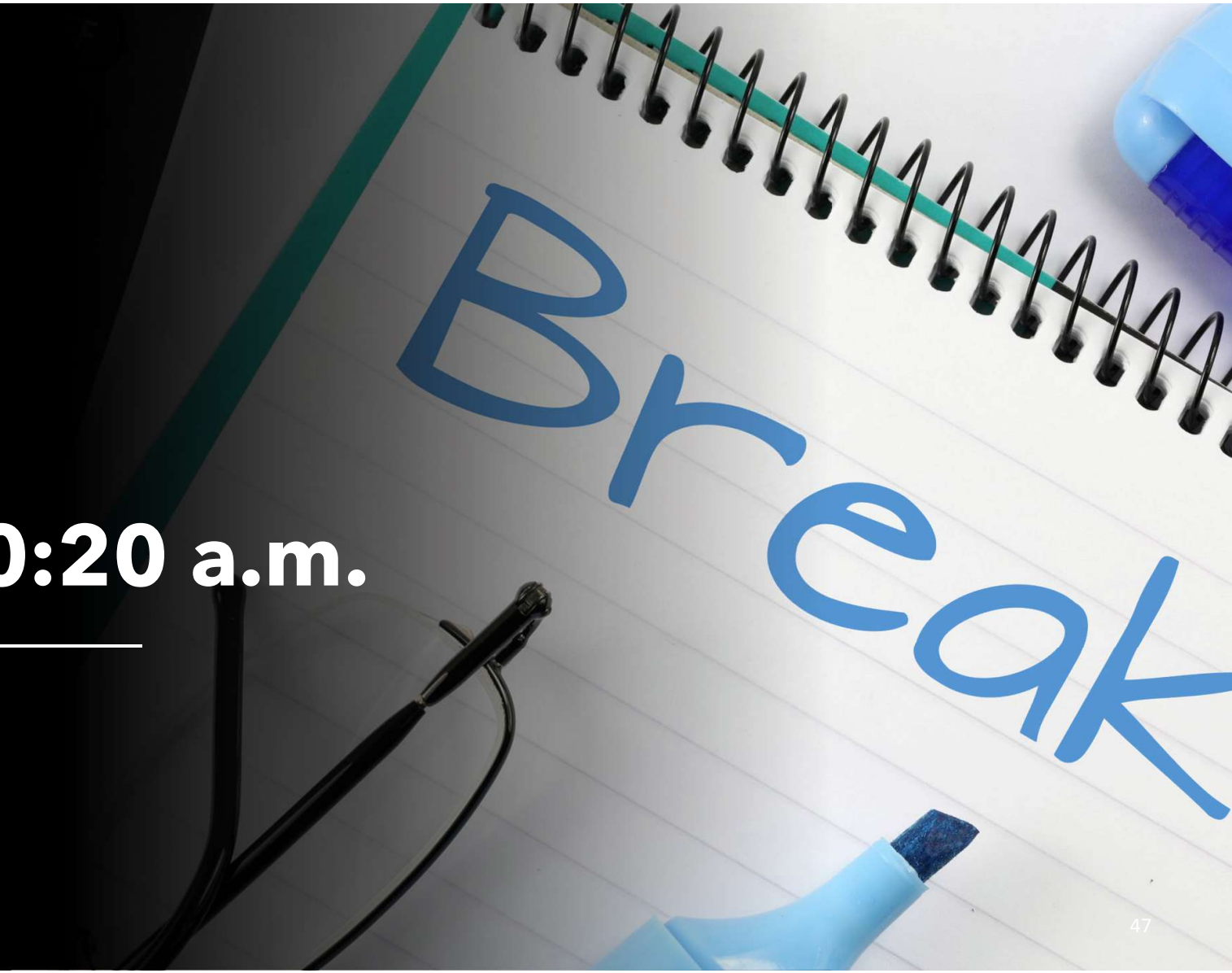
Thank you!

D5-Safetyideas@dot.state.fl.us

Loreen Bobo, P.E.
FDOT D5 Safety Administrator
Office of Safety
Loreen.bobo@dot.state.fl.us

Your Turn

Break
Back at 10:20 a.m.



FDOT Grooving & Grinding

Research, Implementation, & Beyond

Richard Hewitt, PE
State Construction Pavement Engineer
FDOT Office of Construction

Overview

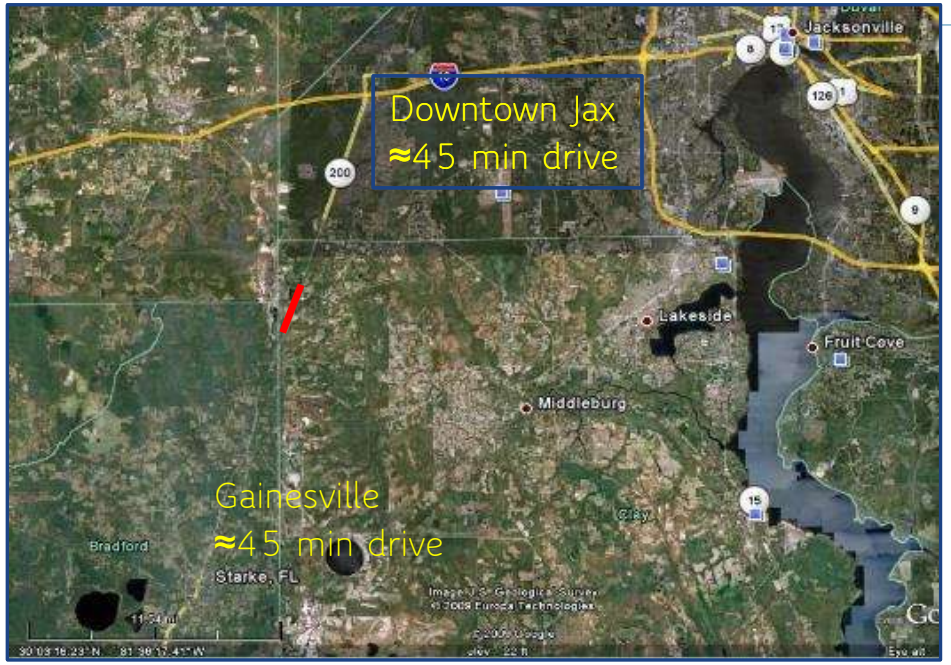
- U.S. 301 Concrete Test Road
- I-95 Longitudinal Grooving Project
- FDOT Grooving & Grinding - Past, Present, Future (& Beyond)

Florida's Concrete Test Road

U.S. 301 Lawtey, Florida

Description

- 12 miles south of I-10
- Adjacent to existing NB lanes
- Significant truck route (31% Trucks)
- 70 mph design speed
- 4-lane rural arterial road 40 ft. median
- 37,309 SY of concrete pavement
- $28.5M for entire project



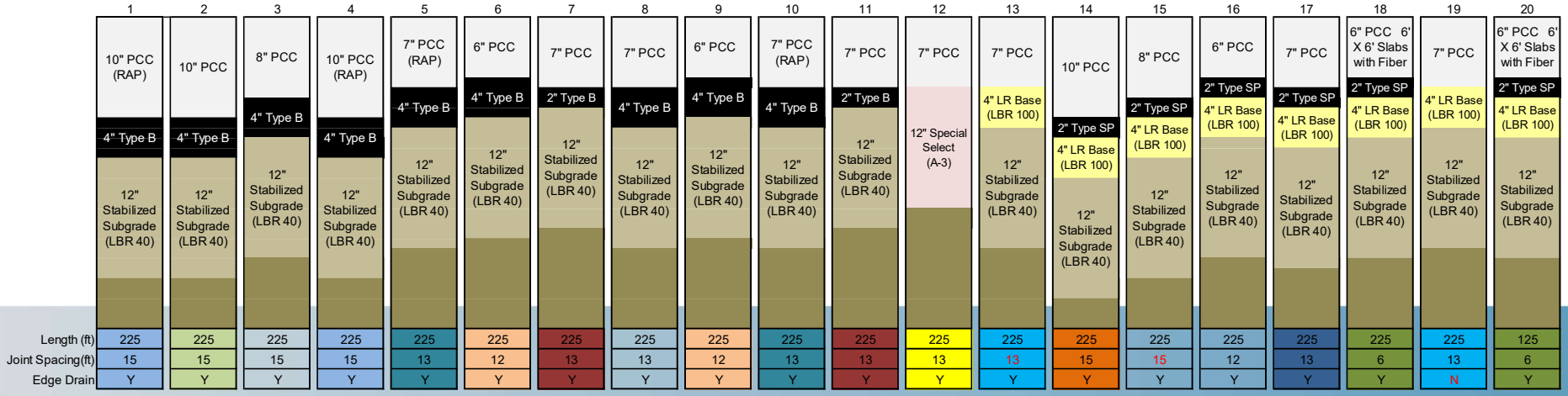
Superior Construction - Prime Contractor
AMERICUT - Grooving & Grinding Subcontractor

Test Road Research Needs

- Structural Test Section
  - Appropriate thickness
  - New base options
  - RAP as concrete aggregate
- Drainage Test Section
  - Edge drain effectiveness/need
- Calibration Test Section
  - Cracking model coefficients
  - Time to friction loss
  - Warp/curl gradient
- Alternative Surface Textures

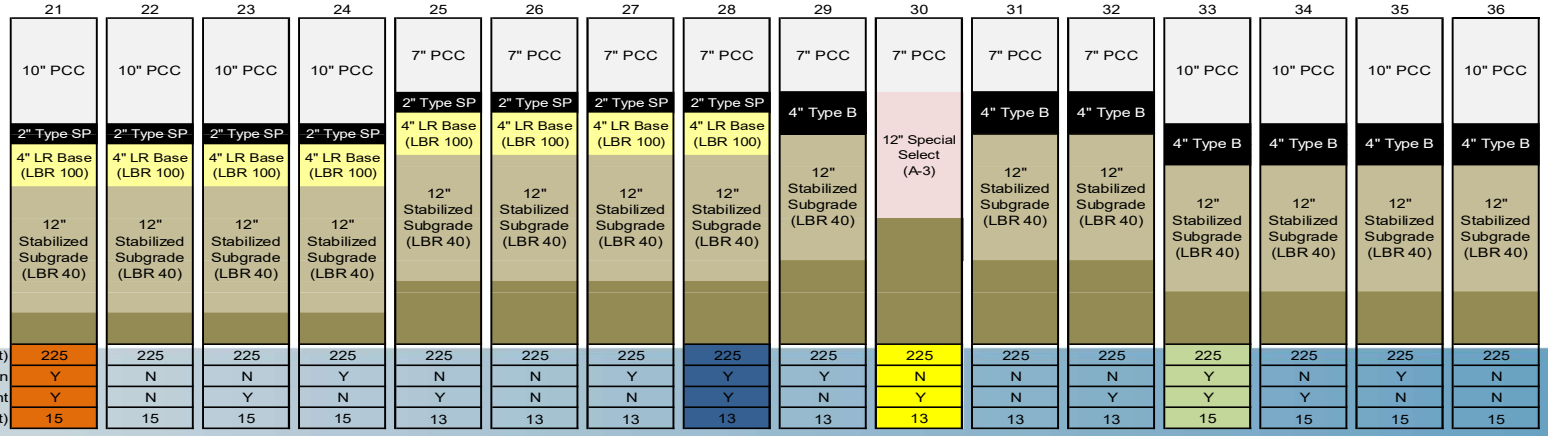
Structural Test Sections

- 20 test sections
- Four thicknesses (6, 7, 8, & 10 inches)
- Multiple base types (Asphalt, Limerock, A-3)
- Conventional, RAP, & fiber concrete mix designs



Drainage Test Sections

- 16 test sections
- Two thicknesses (7 & 10 inches)
- Three base types
- With & without edge drains / with & without joint sealant



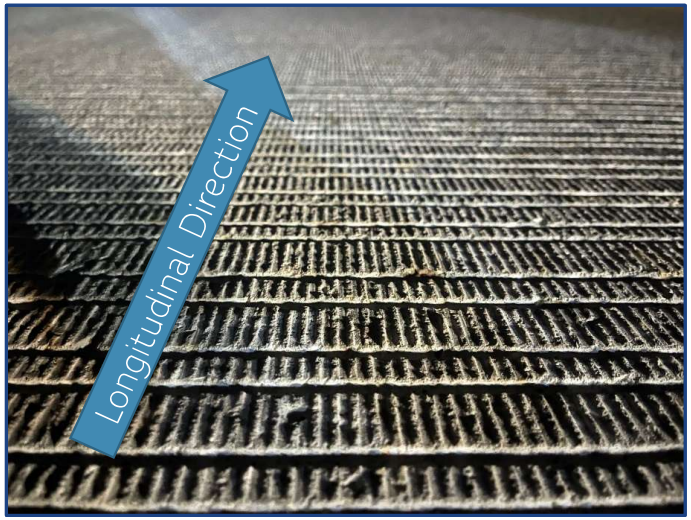
Calibration Test Sections

- 16 test sections
- Two thicknesses (7 & 10 inches)
- Two joint spacings (13 & 17 feet)
- Research set conditions (curled up vs down)

	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	10" PCC	10" PCC	10" PCC	10" PCC	10" PCC	10" PCC	10" PCC	10" PCC	7" PCC	7" PCC	7" PCC	7" PCC	7" PCC	7" PCC	7" PCC	7" PCC
	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B	4" Type B
	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)	12" Stabilized Subgrade (LBR 40)
Length(ft)	234	234	238	238	234	238	234	238	234	238	238	234	234	238	234	238
Joint Spacing (ft)	13	13	17	17	13	17	13	17	13	17	17	13	13	17	13	17
Set Gradient	Low	High	Low	High	High	High	Low	Low	High	Low	High	Low	High	Low	Low	High

Longitudinal Diamond Grind (LDG)

Standard Bridge Deck Texture



Next Generation Concrete Surface (NGCS)

Surface Textures

- Travel lane - Longitudinal Diamond Grinding (LDG)
- Passing lane - experimental pavement textures
  - LDG - (Standard FDOT Longitudinal Diamond Grinding)
  - LDG + Transverse Grooving - (Standard FDOT Bridge Deck Texture)
  - Next Generation Concrete Surface (NGCS) - (Longitudinal Grooving & Grinding)

Longitudinal Grooving (NGCS Sections)

Planned Routine Tests

- Falling weight deflectometer
- Locked wheel friction
- Surface texture
- Slab profile
- Noise
- Ground penetrating radar
- Roughness
- Faulting
- Cracking

I-95 Longitudinal Grooving Project

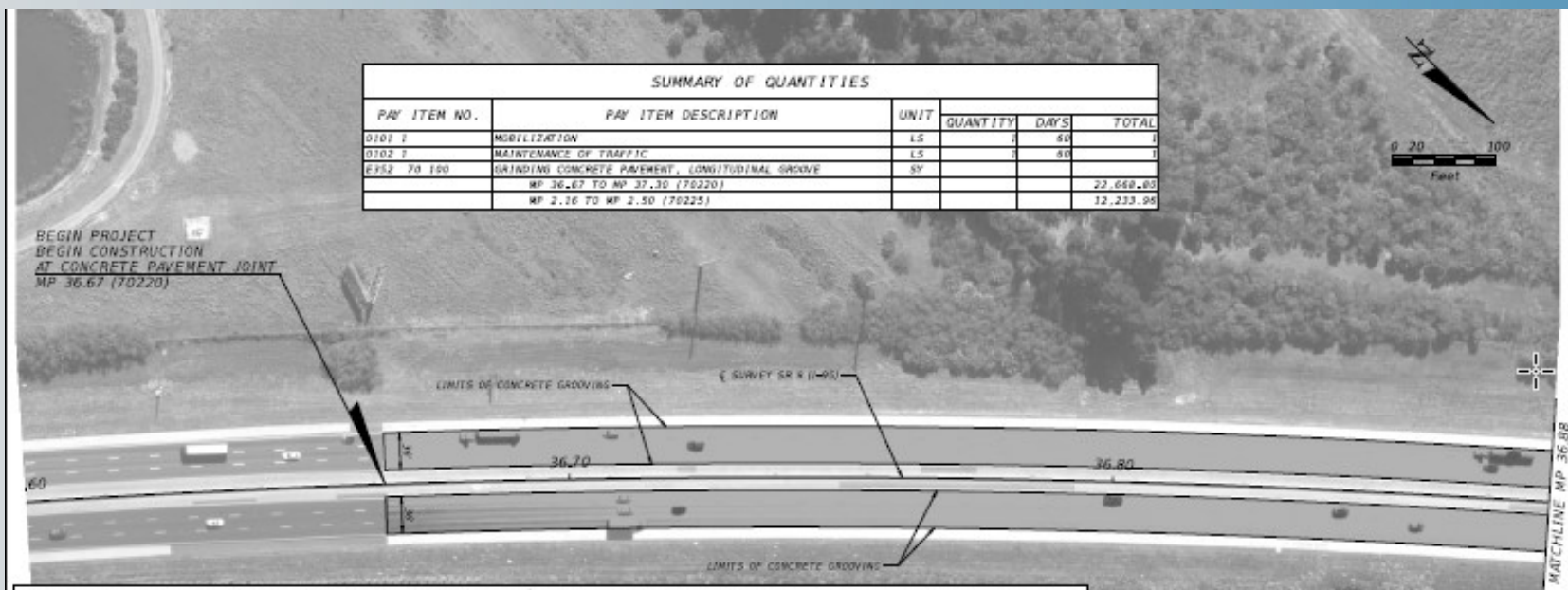
Overview

SUMMARY OF QUANTITIES					
PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY	DAYS	TOTAL
0101 1	MOBILIZATION	LS	1	60	1
0102 1	MAINTENANCE OF TRAFFIC	LS	1	60	1
E352 70 100	GRINDING CONCRETE PAVEMENT, LONGITUDINAL GROOVE	SY			
	MP 36.67 TO MP 37.30 (70220)				22,668.80
	MP 2.16 TO MP 2.50 (70225)				12,233.96

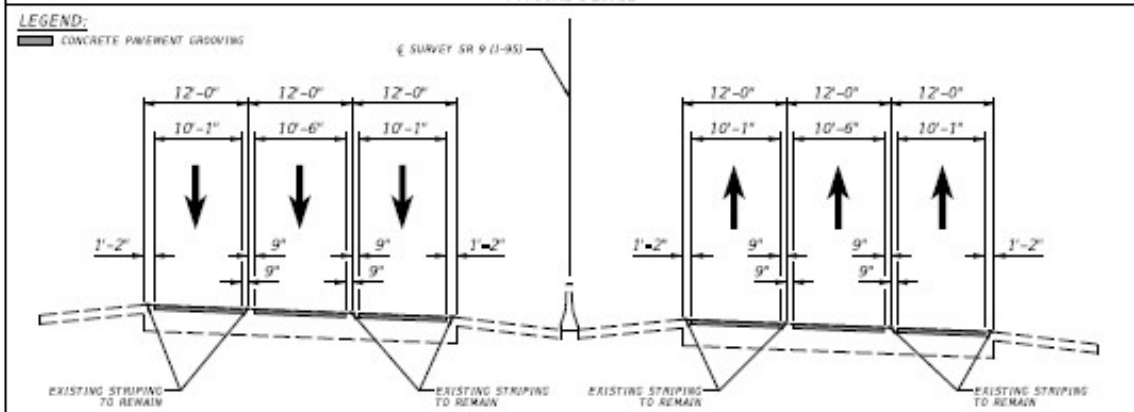
- I-95 Brevard County
- $301,580 / 34,903 SY = $8.64/SY
- Prime: Oceanik US, Inc.
- Grooving Subcontractor: DOT Diamond Core Drilling
- FDOT PM- Lauren Giarmo, PE

SUMMARY OF QUANTITIES

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY	DAYS	TOTAL
0101 1	MOBILIZATION	LS	1	60	1
0102 1	MAINTENANCE OF TRAFFIC	LS	1	60	1
E152 70 100	GRINDING CONCRETE PAVEMENT, LONGITUDINAL GROOVE	SY			
	MP 36.67 TO MP 37.30 (70220)				22,668.83
	MP 2.26 TO MP 2.50 (70225)				12,233.95



TYPICAL DETAIL



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DISTRICT FIVE
719 South Woodland Blvd.
DeLand, Florida 32720

DESIGN — STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	BREVARD	450557-4-52-01

PLAN SHEET

SHEET NO. 2

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

KNBCOP 4/25/2022 7:08:32 AM PLAN9001 N:\Deland\Development\Design\I-95 Conc Pvt Pilot\CADD\PLAN9001.dgn

Overview

Longitudinal grooving In 2 areas of I-95

- Try to reduce wet weather crashes
- Work began: Sept 13, 2022
- Completed: October 14, 2022
  - 60 calendar days per contract
  - 32 calendar days to complete
    - Includes 9 workdays lost due to Hurricane Ian

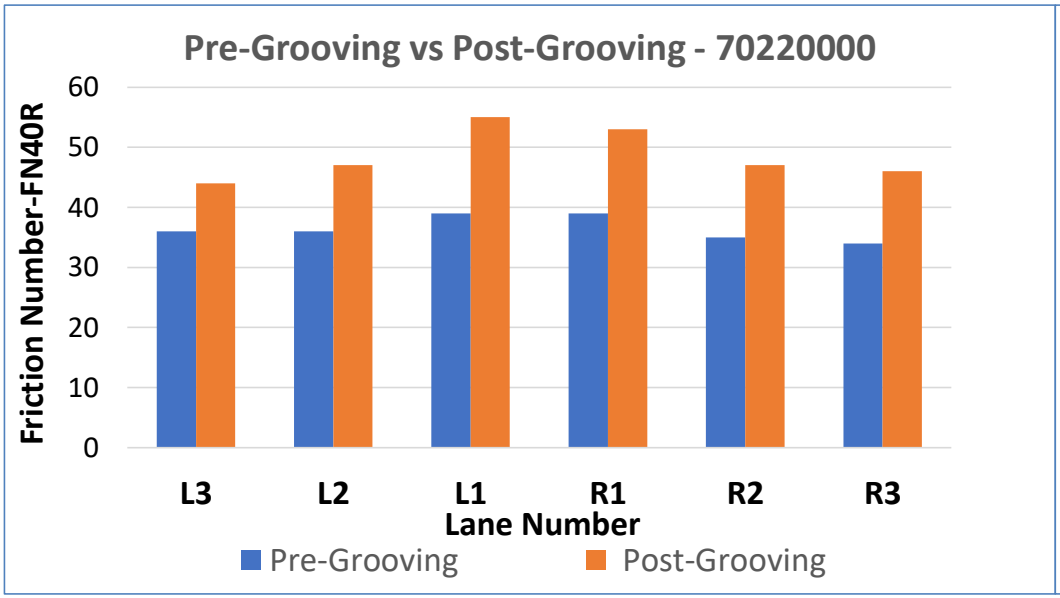
Background

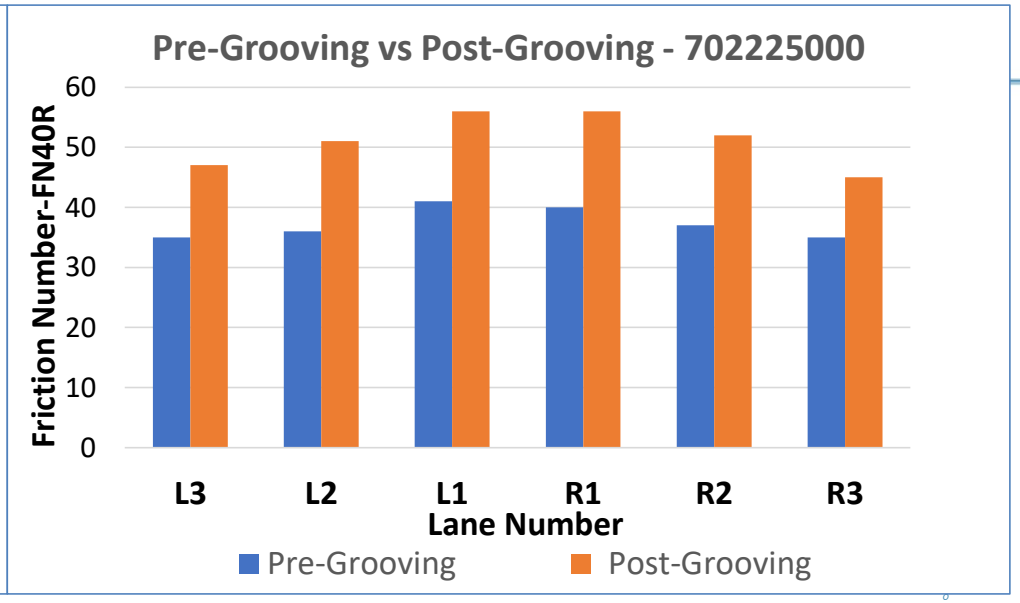
~2004

- Original Construction - FDOT Longitudinal Grinding (60 blades/foot)

2022

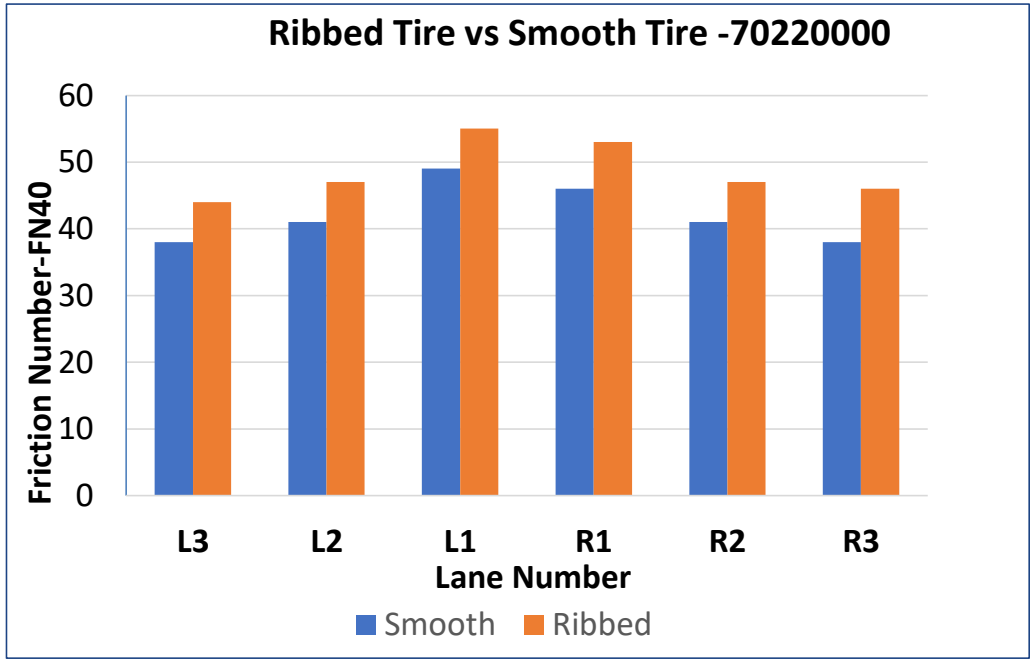
- Longitudinal grooving applied in several areas
  - Goal: reduce hydroplaning & wet weather crashes
- NGCS Grooving
  - Groove spacing: 1/2" to 5/8" on center
  - Groove width: 1/8"
  - Groove depth: 1/8" to 3/16"
- Tested friction before & after grooving
  - Significant improvement in friction due to grooving

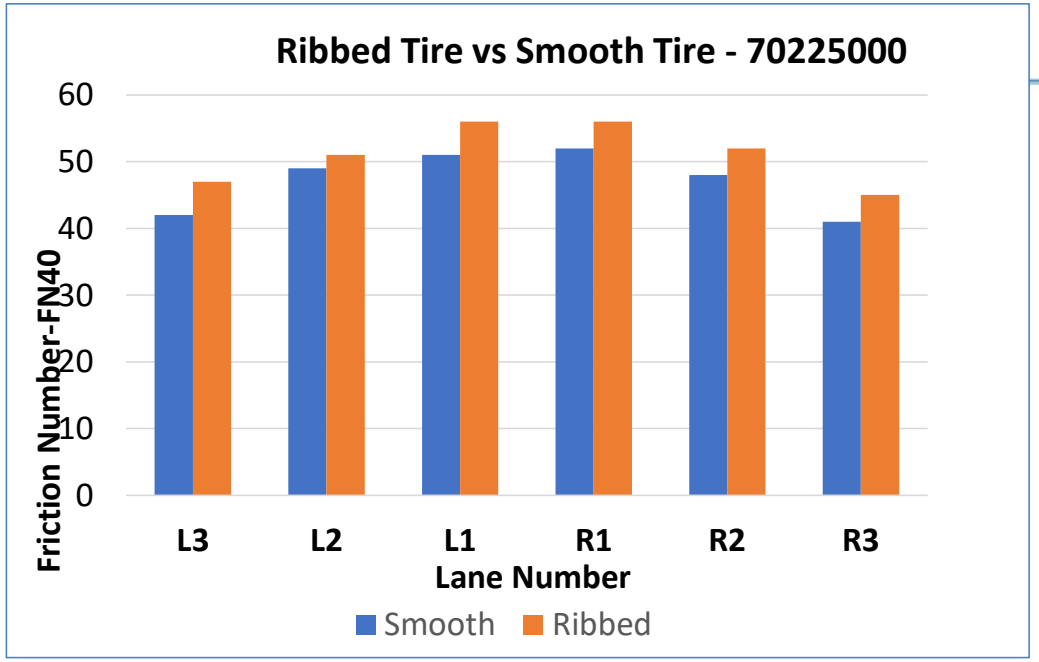




Pavement Friction Improvement

- Pre-grooving friction numbers mostly 30's
- Post-grooving friction numbers now 40's & 50's!
- 35% increase in friction

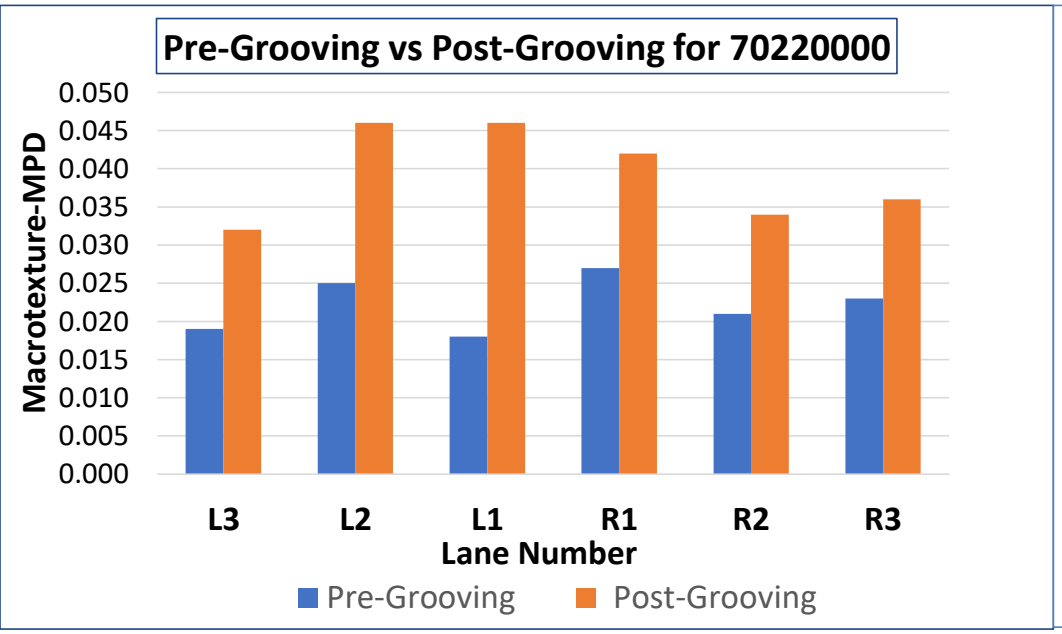


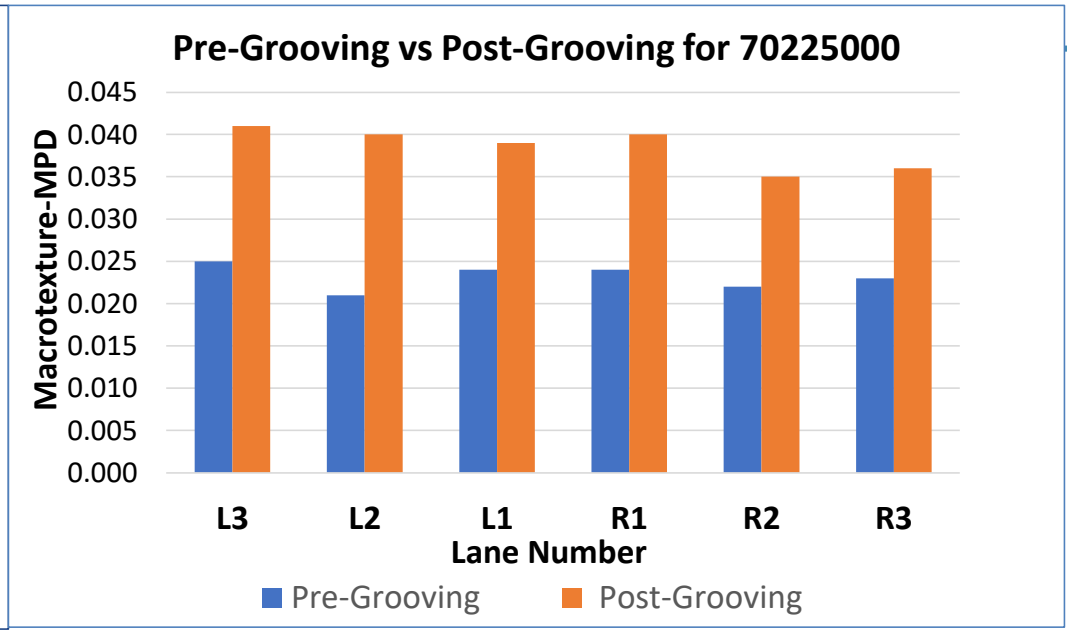


Ribbed Tire vs Smooth Tire Friction

Similar results (ribbed tire vs smooth tire friction)

- Indicates good macro texture & hydroplaning resistance





Macrotexture

- Longitudinal grooving significantly increased macrotexture
  - Almost doubled In most cases
- Indicates good hydroplaning resistance

Grooving & Grinding
Past, Present, Future, & Beyond

FDOT

FDOT Grinding

FDOT grinds all concrete pavement

- New concrete pavement & replacement slabs
- Provides good friction
- Provides consistent, good-looking appearance

FDOT Grinding Annual Totals

Calendar Year	# Projects	Total $	Total SY	Avg $/SY	Avg SY/Project
2021	13	$ 2,158,860	497,218	$ 4.34	38,248
2020	6	$ 725,704	148,132	$ 4.90	24,689
2019	11	$ 2,225,130	431,181	$ 5.16	39,198

Note: Design-build projects not included

I-4 Ultimate - Over 670,000 SY of longitudinal grinding in 2021

FDOT Grooving - Past & Present

Past

- Only performed transverse grooving on bridge decks

Present

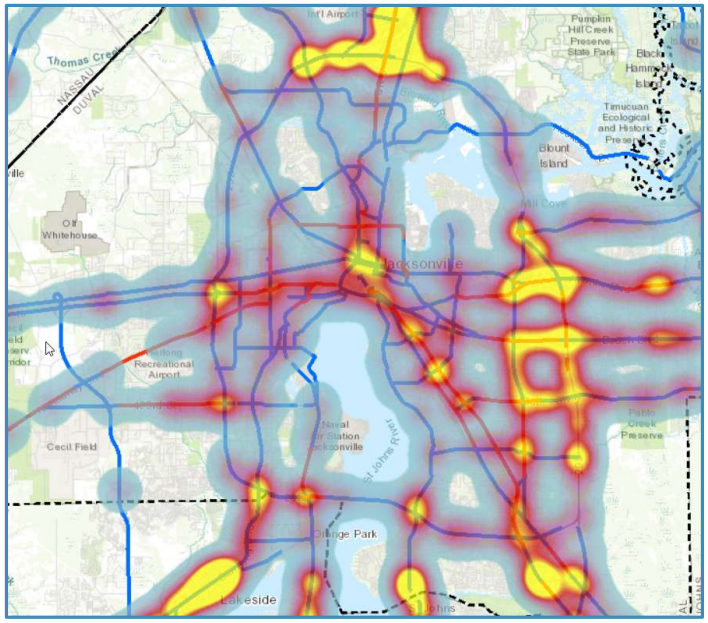
- Researching grooving U.S. 301 concrete test road
- Completed first longitudinal grooving project on concrete pavement
  - I-95 Brevard County
  - Maintenance project to decrease crashes in two areas (both sides NB & SB)

FDOT Grooving - Future

Grinding (Concrete Pavement)

- Some contractors question FDOT's "Must Grind" specifications
- Grinding provides
  - Safer (higher friction) pavement surface
  - Better looking pavement
    - Full surface grinding looks better than spot grinding

FDOT Grooving - Future



- Started discussions with districts about
  - I-95 grooving project's friction number increases
  - Using longitudinal grooving to decrease crashes
    - Areas with high crash rates, high wet-weather crash rates
  - Hope to have more concrete pavement grooving projects
- Considering pilot projects for asphalt pavement
  - Start with high crash rate areas
  - Potential replacement for open-graded friction course (OGFC)
    - Especially where OGFC likely to ravel, but high speeds require hydroplaning reduction measures

Longitudinal Grooving Presentations

Present friction & hydroplaning improvements longitudinal grooving can provide for concrete & asphalt pavements

- ACAF Expo – December
- FDOT FCPE CoP Meeting – Jan, Feb, or March
- FDOT engineers & staff involved with all aspects of pavements
- FDOT Rigid Pavement Committee meeting – February

FTBA Construction Conference

- U.S. 301 concrete test road – includes sections/data on grooving & grinding
- I-95 longitudinal grooving project

Asphalt Grinding in Florida

Asphalt pavement grooving at various Florida airports

- Orlando International Airport
  - Runways & taxiways
  - Transversely grooved asphalt

Hubbard Construction

- Prime contractor

Penhall

- Grooving subcontractor

Asphalt Grinding in Florida

Transverse Grooving @ OIA

- ¼” Width
- ¼” Depth
- 1.5” Spacing

Other Potential Uses

- Transverse grooving of shoulders – warning device
  - With or without rumble strips
  - Full shoulder width warning of lane departure
- Grinding
  - Localized grinding to improve structural course to ensure smooth friction course & achieve smoothness incentives
  - Maintenance Projects
    - Grind pavement/bridge joints to improve smoothness
  - Construction MOT – lane shift
    - Grind to remove striping & clarify traffic shift
    - Use longitudinal grooving after striping removal to clarify traffic shift, increase friction & reduce hydroplaning on concrete & dense-graded asphalt

Future of Grooving Florida & Beyond

Additional Grooving Research

- FDOT
  - Continue to collect data on U.S. 301, I-95
  - Collect data on any new grooving projects – concrete & asphalt
- NCAT
  - Spoke to Buzz Powell about possibly researching longitudinal grooving of dense-graded asphalt pavement

Special Thanks

U.S. 301 Concrete Test Road

- James Greene, PE

I-95 Longitudinal Grooving Project

- Lauren Giarmo, PE
- Guangming Wang, PE
- George Borchik, PE
- Naziru Isaac, PE

Airport Grooving Info & Photos

- Eron Chambers - Hubbard Construction

Contact Information

Richard Hewitt, PE
FDOT State Construction Pavement Engineer
386-943-5305 office
richard.hewitt@dot.state.fl.us

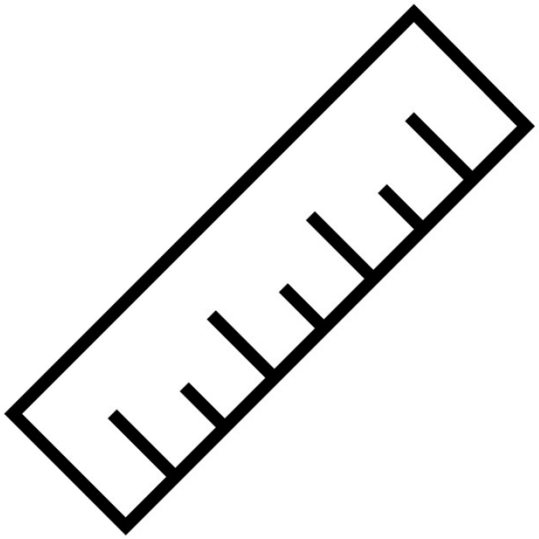
Your Turn

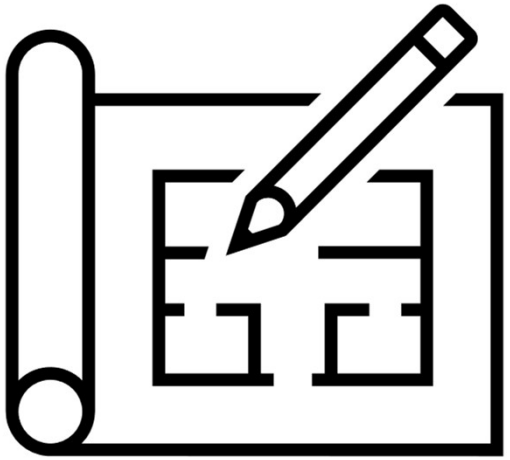
Emergency Shoulder Use (ESU)

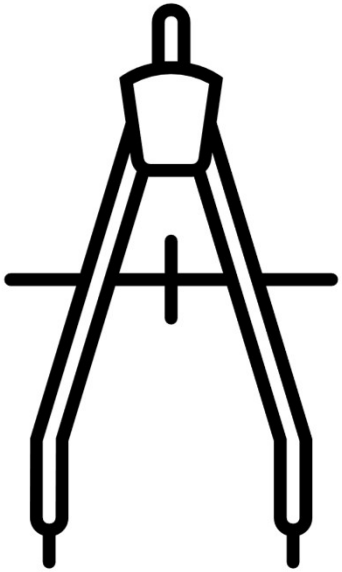
Kevin Hayden, P.E.
Construction Senior Project Manager

FDOT

Designing for ESU







What is ESU

Emergency Shoulder Use (ESU) is Florida's innovative strategy to temporarily increase traffic flow and capacity during major hurricane evacuations using existing paved shoulders. First developed in 2017 and covering key corridors within the state, ESU replaced the former one-way plans, also known as contraflow and lane reversal.

Where is ESU Designated?

Interstate 4
- Eastbound from US 41 in Tampa (Hillsborough) to SR 417 in Celebration (Osceola)

Interstate 10
- Westbound from US 301 in Jacksonville (Duval) to US 319 in Tallahassee (Leon)

Interstate 75
- Northbound from SR 951 in Naples (Collier) to SR 143 in Jennings (Hamilton)

Interstate 75 Alligator Alley
- Northbound from US 27 in Weston (Broward) to SR 951 in Naples (Collier)
- Southbound from SR 951 in Naples (Collier) to US 27 in Weston (Broward)

Interstate 95
- Northbound from SR 706 in Jupiter (Palm Beach) to south of Interstate 295 in Jacksonville (Duval)

Florida's Turnpike
- Northbound from south of Hypoluxo Road in Boynton Beach (Palm Beach) to Osceola Parkway in Kissimmee (Osceola)
- Northbound from SR 50 in Winter Garden (Orange) to US 301 or Interstate 75 in Wildwood (Sumter)

State Road 528
- Westbound from SR 520 near Tosohatchee (Orange) to east of SR 417 in Orlando (Orange)

ESU in District Five

Interstate 4
- Eastbound from **Polk/Osceola County Line** to SR 417 in Celebration (Osceola)

Interstate 10
- Westbound from US 301 in Jacksonville (Duval) to US 319 in Tallahassee (Leon)

Interstate 75
- Northbound from **Hernando/Sumter County Line** to **Marion/Alachua County Line**

Interstate 75 Alligator Alley
- Northbound from US 27 in Weston (Broward) to SR 951 in Naples (Collier)
- Southbound from SR 951 in Naples (Collier) to US 27 in Weston (Broward)

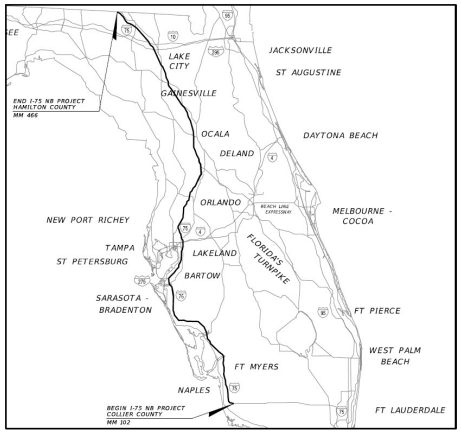
Interstate 95
- Northbound from **Indian River/Brevard County Line** to **Flagler/St. Johns County Line**

Florida's Turnpike
- Northbound from south of Hypoluxo Road in Boynton Beach (Palm Beach) to Osceola Parkway in Kissimmee (Osceola)
- Northbound from SR 50 in Winter Garden (Orange) to US 301 or Interstate 75 in Wildwood (Sumter)

State Road 528
- Westbound from SR 520 near Tosohatchee (Orange) to east of SR 417 in Orlando (Orange)

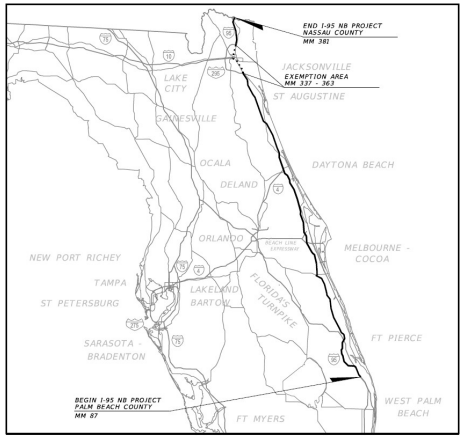
CFX Operates this portion, but FDOT District 5 handles ESU when initiated.

ESU in District Five

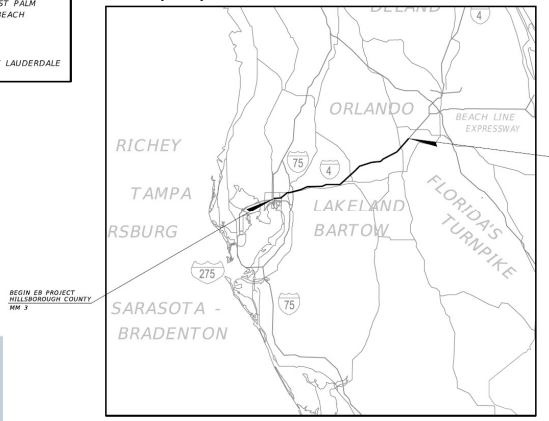


I-75

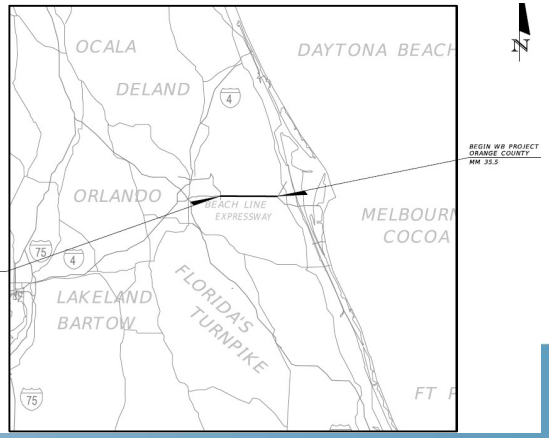
I-95



I-4



SR 528 (Beachline)



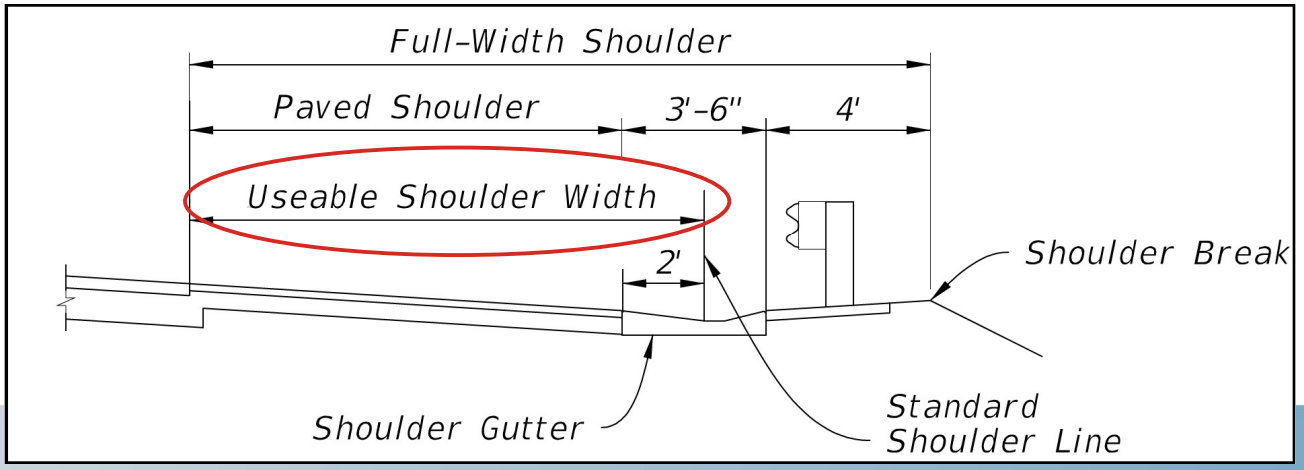
Design Preparation

- When working on a project within these limits:
  - Obtain a copy of the latest ESU Plans
  - Be familiar with FDOT Design Manual and any other documents related to ESU
- ESU Plans can be found at https://www.cfltim.com/evacuation-plans/
  - Coordinate with FDOT Design PM to ensure this is the latest copy

FDOT Design Manual

Chapter 211.4.6

- Minimum 10-foot paved shoulder useable for travel on ESU routes
- A portion of the shoulder gutter (when present) may be included in the useable 10-ft width



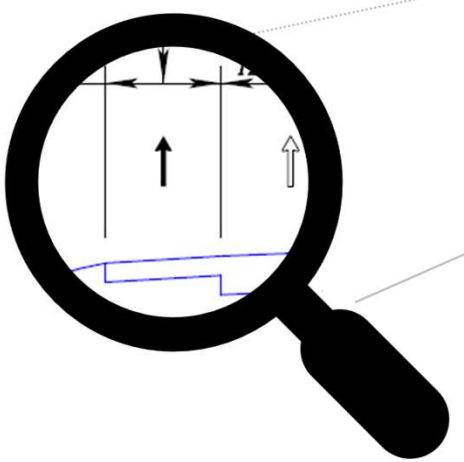
FDOT Design Manual

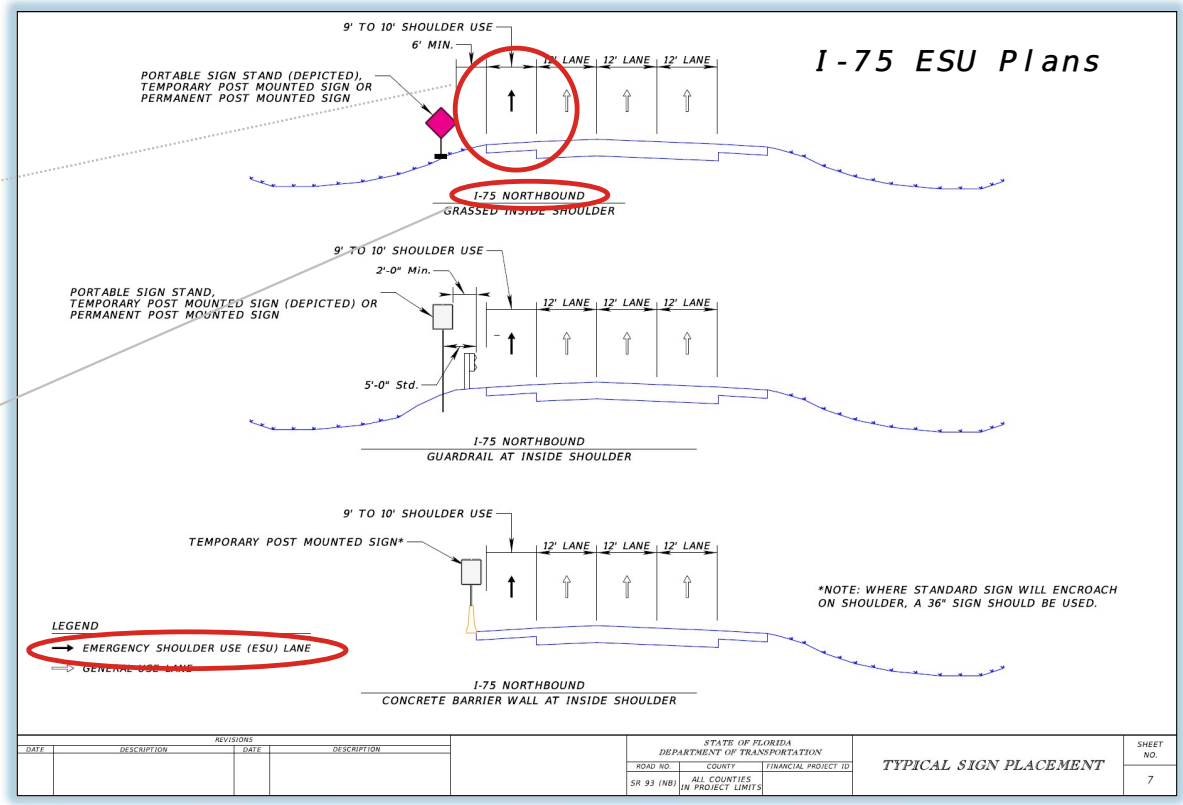
Chapter 240.2.1.1 – During TTCP Phases

The requirements for Emergency Shoulder Use (ESU) outlined in ***FDM 211.4.6*** must be maintained during all phases of construction. A Design Variation to omit ESU evacuation requirements for any phase of construction must be approved by the Chief Engineer.

Which Shoulder?

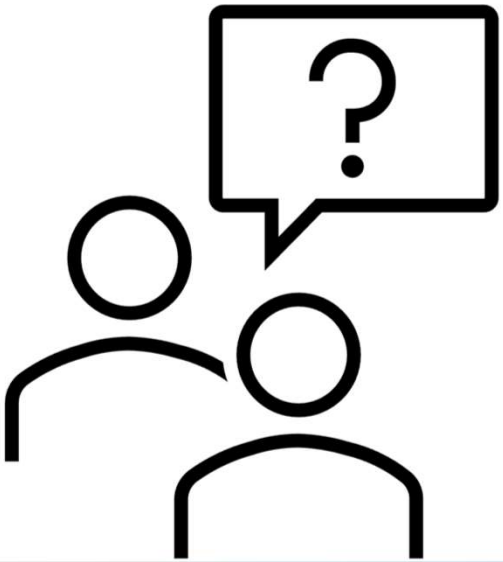
Check the ESU Plans!

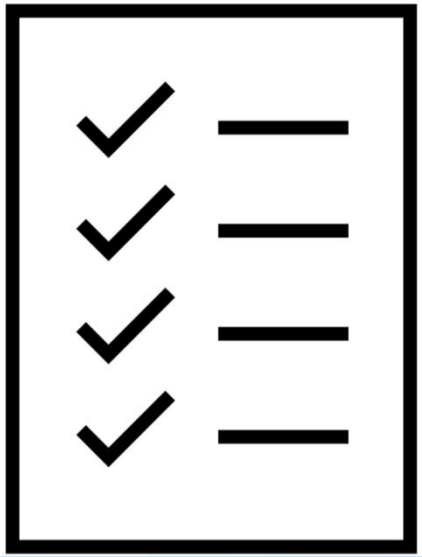


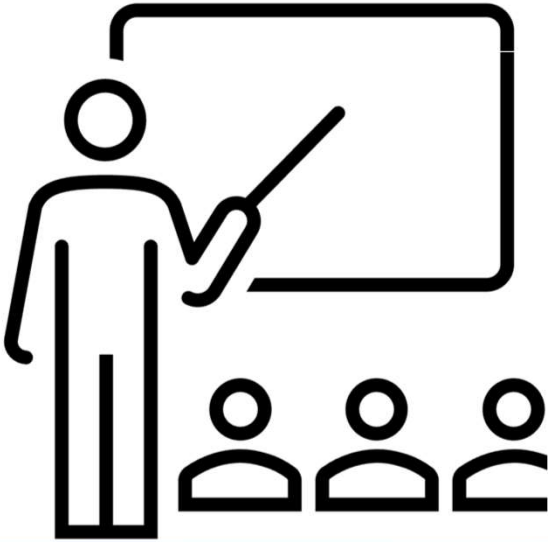


Temporary Traffic Control Plans

- Per FDOT Design Manual Chapter 240.2.1.1, designer should anticipate the need for ESU during construction
- TTCP must accommodate the appropriate shoulder for ESU use in the event of an emergency
- TTCP Phases should NEVER use the opposite shoulder from the ESU plans use
- When necessary to maintain ESU shoulder width, modify geometry (e.g., lane shifts around bridge pier work zone)
- If geometry does not permit, consider changes to overall design







Lessons Learned

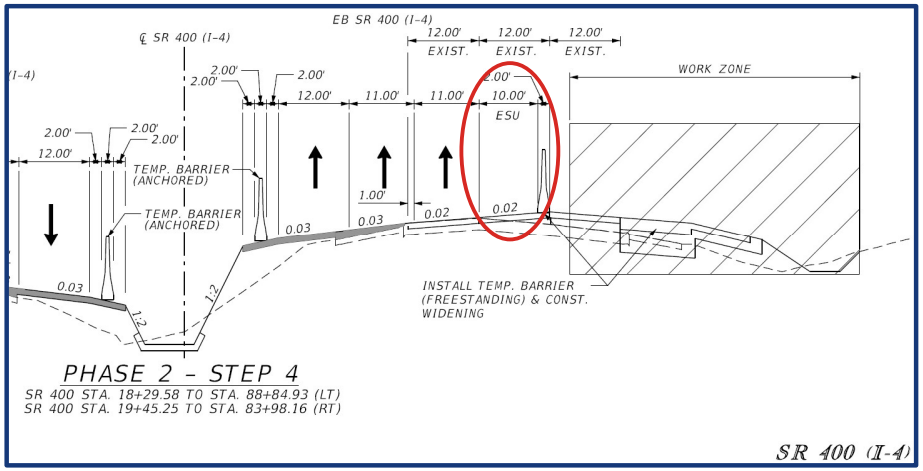
Example #1 – I-4 Auxiliary Lane Project

Example 1 – I-4 Auxiliary Lane Project

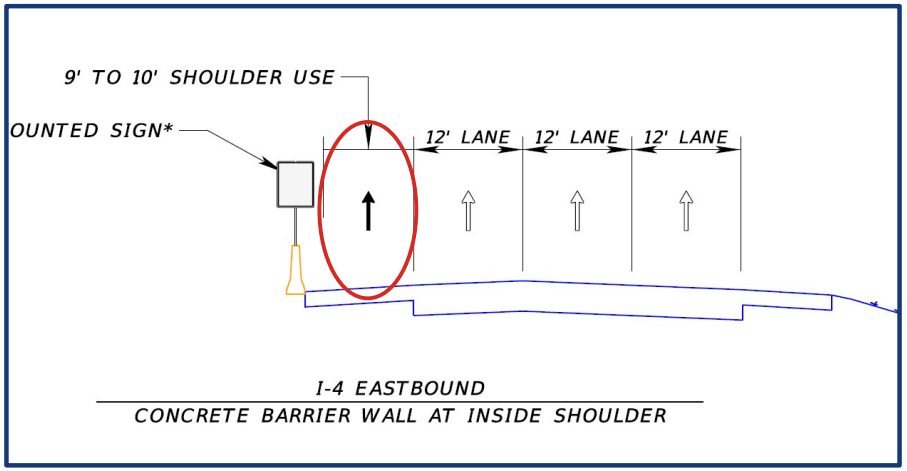
- Project included the addition of an auxiliary lane for both directions of I-4 between C.R. 532 (Champion's Gate) and S.R. 429 in Osceola County
- ESU lane on EB I-4 between C.R. 532 and S.R. 417 was designed to be on the outside shoulder during construction (TTCP Phases 1 and 2)
- The ESU Plans conflicted by using inside shoulder on EB I-4

Example 1 – I-4 Auxiliary Lane Project

Project Plans



ESU Plans

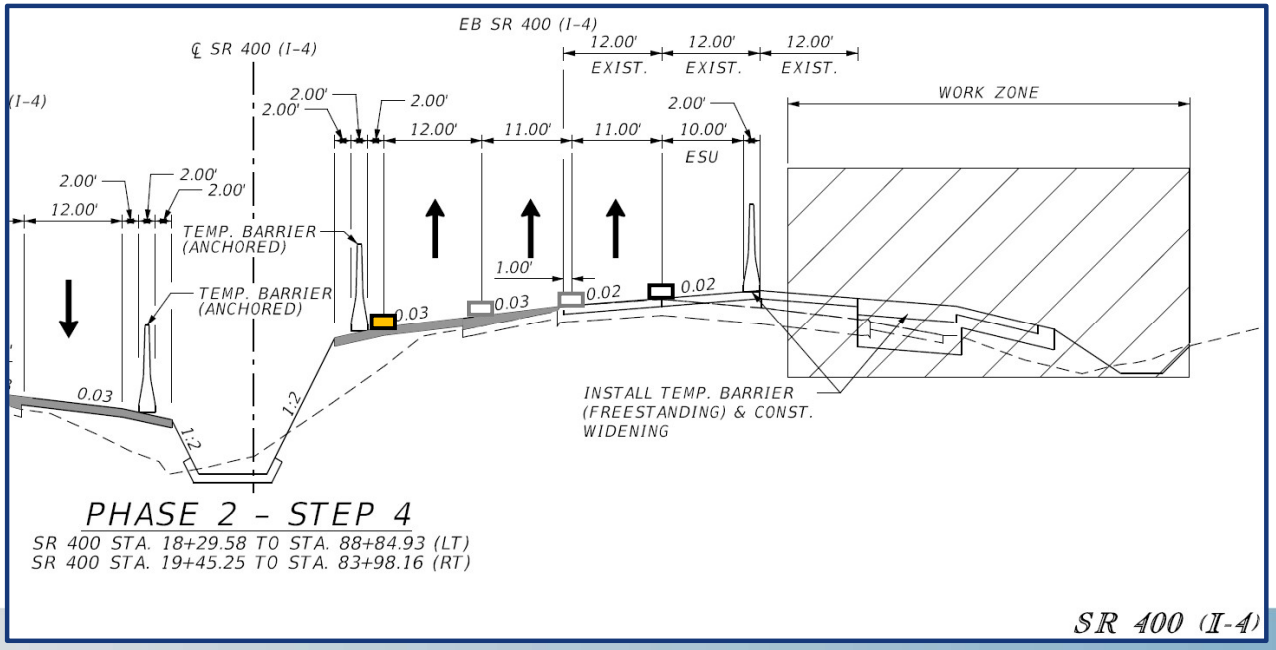


Example 1 – I-4 Auxiliary Lane Project

- Plans were revised during construction (Revision 5) to correct this issue.
- Revision called for barrier wall on outside shoulder to be shifted out to allow more room, if needed, for implementation of ESU shift to inside shoulder.
- If ESU shift was to be implemented, then a recovery plan would have been needed after hurricane so that Phase 2 could resume as it had before (ESU lane back to outside shoulder)

Example 1 – I-4 Auxiliary Lane Project

Original Project Plans

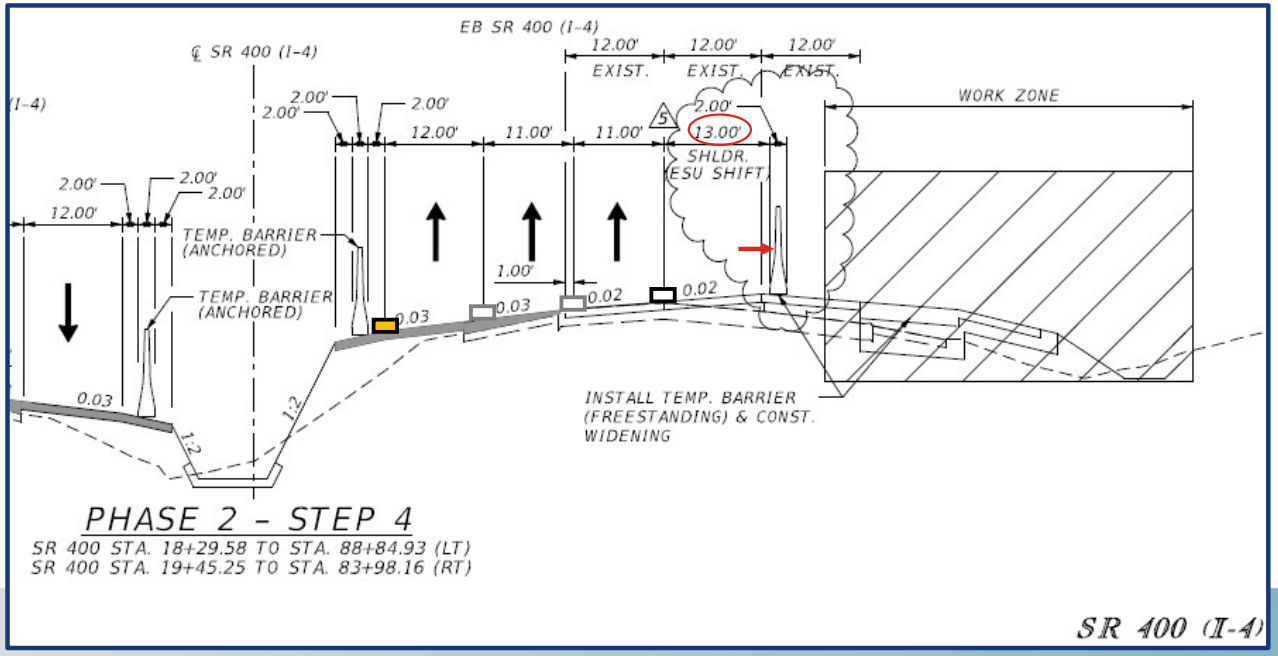


Legend

- Solid Yellow Stripe
- Solid White Stripe
- Dashed White Stripe
- Stripe Removal

Example 1 – I-4 Auxiliary Lane Project

Plans Revision 5 – Immediate Implementation



Legend

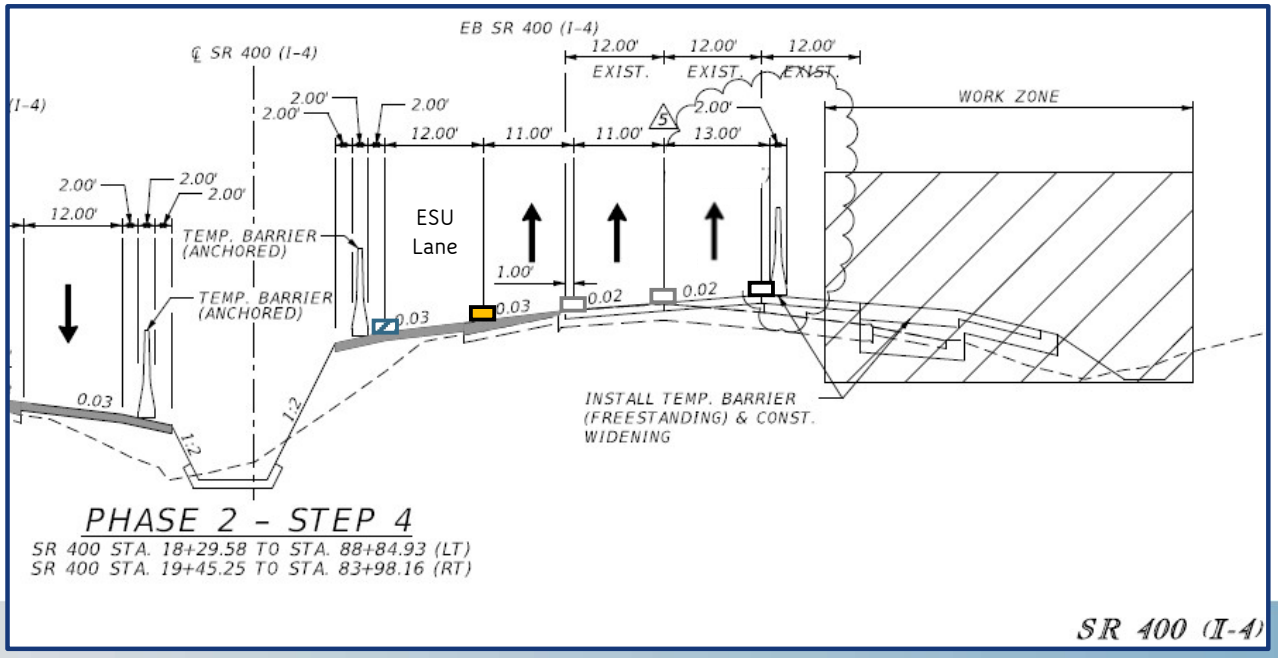
- *Solid Yellow Stripe*
- *Solid White Stripe*
- *Dashed White Stripe*
- *Stripe Removal*

Changes

- Move barrier wall out to create wider shoulder

Example 1 – I-4 Auxiliary Lane Project

Plans Revision 5 – ESU Implementation



Legend

- *Solid Yellow Stripe*
- *Solid White Stripe*
- *Dashed White Stripe*
- *Stripe Removal*

Additional Changes

- Remove striping in multiple lanes
- Replace striping with different color and/or type (solid vs. dashed)
- Temporary pavement on shoulder

Example 1 – I-4 Auxiliary Lane Project

- Plans Revision 5 was never implemented. Instead, construction was expedited into TTCP Phase 3, which already used the inside shoulder for ESU. This was done within 3 days of Hurricane Ian's arrival, significantly reducing the cost.
- Had Plans Revision 5 been implemented, and recovery plan been needed to revert to the original Phase 2 plan after the Hurricane, the cost would have been about $128,000.
- Since recovery plan wasn't needed and project moved into Phase 3, the cost was about $36,000 (due to acceleration into Phase 3).

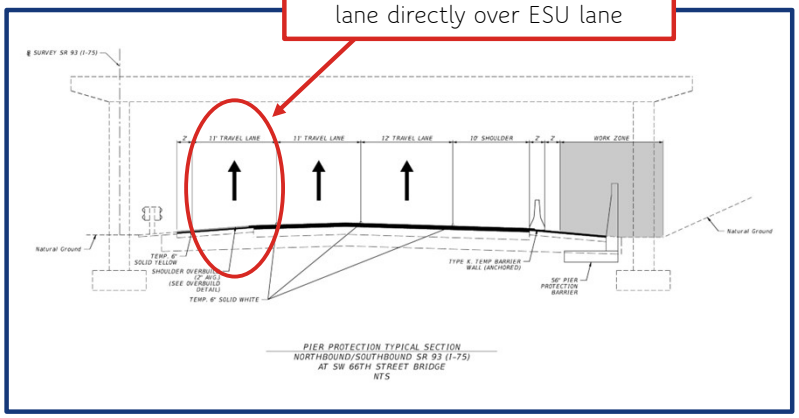
Example #2 – I-75 Resurfacing

Project Overview

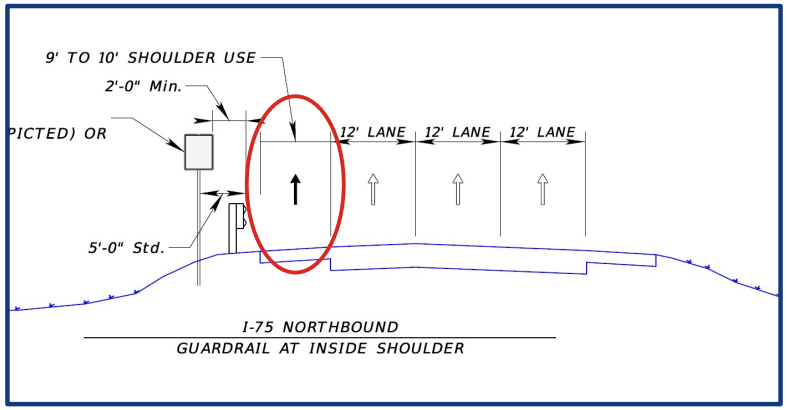
- Project included the resurfacing of I-75 in both directions from the Sumter/Marion County line to S.R. 200 in Marion County
- A planned traffic shift related to pier protection of the SW 66th Street Bridge moved the inside travel lane directly over the inside shoulder for both NB and SB I-75
- The ESU Plans conflicted by using inside shoulder on NB I-75

Project Overview

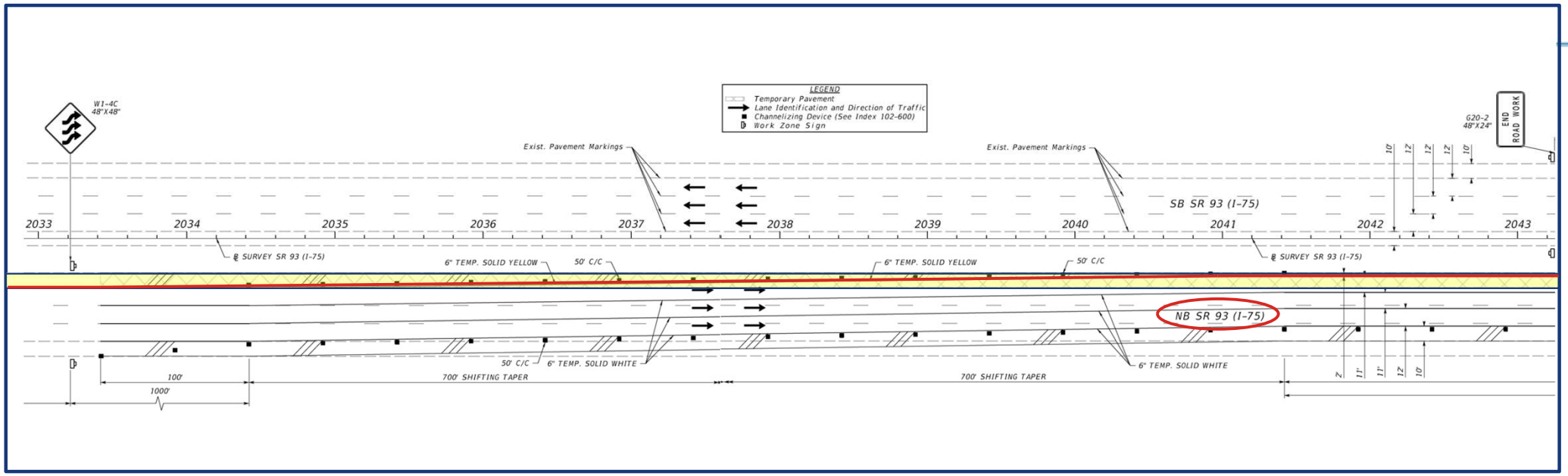
Traffic Shift shows inside travel lane directly over ESU lane



Project Plans



ESU Plans



Legend

- ESU Lane
- Inside Solid Yellow Stripe

Phase I-C Pier Protection Traffic Shift

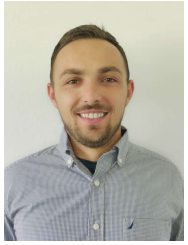
Project Overview

- The conflict was discovered prior to Contractor starting work.
- Contractor and Department agreed to extend Lead Time on the contract enabling Contractor to wait until after Hurricane Season for Pier Protection phase (TTCP Phase I-C).
- Fortunately, the Contractor's willingness to wait avoided additional costs to the Department.

Summary

- Check if your project is within ESU corridor
- Obtain latest copy of ESU plans https://www.cfltim.com/evacuation-plans/
- Verify which lane is assigned for ESU ← Critical
- Refer to FDOT Design Manual for criteria
  - Chapters 211.4.6 and 240.2.1.1

Your Turn



Design Bulletins - 2022 Updates

Gabor Chiorean, P.E.

Memorandum

#1. RDM 2201- Build America, Buy America Act- Specification, FDM, and CPAM Changes

SUBJECT: Build America, Buy America Act- Specification, FDM, and CPAM Changes On November 15, 2021, President Biden signed the Infrastructure Investment Jobs Act (IIJA), which includes the Build America, Buy America (BABA) Act. With the passing of IIJA, the domestic preference has been expanded to include the following permanently incorporated construction materials consisting primarily of non-ferrous metals, plastic and polymer-based products, glass, lumber, and drywall; in addition to iron and steel which must remain in accordance with 23 CFR 635.410 for all projects receiving Federal Funds.

FDOT will be using the Approved Products List (APL) to document product level BABA certification and the Material Acceptance and Certification (MAC) to document project installation information based on method of acceptance requirements of the Job Guide Schedule (JGS). The APL will be expanded to include permanently installed construction materials primarily consisting of non-ferrous metals, plastic and polymer-based products, glass, lumber, and drywall.

Memorandum

Products will not be removed from the APL for failure to provide BABA documentation but will be identified on the APL with a limitation as "Not- Eligible for Federal Funding". Manufactured products, as noted on the APL, may be exempt from BABA compliance.

REQUIREMENTS To ensure compliance with BABA the following Department publications have been or will be modified as noted: □ FDOT Standard Specifications for Road and Bridge Construction: See Attachment 1 for draft modifications to Section 6 of the Specifications □ FDOT Design Manual (FDM): FDM 110.5.6 was updated in the 2023 FDM to provide direction for the appropriate considerations of BABA during the design process. The 2023 FDM is available at the following link: https://www.fdot.gov/roadway/fdm □ Construction Project Administration Manual (CPAM): See Attachments 2 and 3 for draft modifications to CPAM 5.7, 5.8, and 5.12.

IMPLEMENTATION These changes are effective for all construction projects with a letting date on or after January 1, 2023. BABA compliance is not required for state-funded maintenance contracts

Bulletins

#1 RDB 22-06 FY2023-24 Standard Plans

This bulletin announces the release of the Fiscal Year (FY) 2023-24 Standard Plans for Road and Bridge Construction (Standard Plans).

The FY 2023-24 Standards Plans are available on the State Office of Design website at the following link: http://www.fdot.gov/design/standardplans

IMPLEMENTATION

The FY 2023-24 Standard Plans are effective for projects with lettings between July 1, 2023, and June 30, 2024.

Bulletins

#2 RDB 22-05 2023 Roadway Design Office Manuals

This bulletin announces the release of the 2023 FDOT Design Manual (FDM), 2023 Drainage Manual, and the 2023 Flexible Pavement Design Manual.

These manuals are available on the State Roadway Design Office website at the following links:

- http://fdot.gov/roadway/fdm http://fdot.gov/roadway/Drainage/ManualsandHandbooks.shtm http://fdot.gov/roadway/PM/publications.shtm

IMPLEMENTATION The manuals listed above are effective on all projects beginning design on or after January 1, 2023, and on projects currently in the design phase where implementation will not adversely impact production schedules.

Bulletins

#3 RDB 22-04 Audible and Vibratory Treatments for Arterials and Collectors

This Bulletin introduces revisions to the FDOT Design Manual (FDM) and FDOT Standard Plans for Road and Bridge Construction (Standard Plans) to streamline and improve the Department's criteria and construction details for Audible and Vibratory Treatments (AVTs) on arterials and collectors.

BACKGROUND Since the release of Roadway Design Bulletin 18-03, the Department has gained more experience with the use of sinusoidal ground-in rumble strips. The Department has performed further testing and evaluation of various options related to the cost, effectiveness, durability, and potential for noise pollution. With consideration for every category, the sinusoidal ground-in rumble strips have been selected as the Department's design for all audible and vibratory treatments on arterials and collectors with the flexible pavement.

Bulletins

#3 RDB 22-04 Audible and Vibratory Treatments for Arterials and Collectors Cont'd

IMPLEMENTATION

The requirements of this bulletin are effective immediately on all design-bid-build projects for which design development is less than 90% complete (Phase III Submittal). These requirements should be employed on projects beyond 90% complete where implementation will not adversely impact the production schedule. The requirements of this bulletin are effective immediately on all design-build projects for which the final Request for Proposal (RFP) has not been released. Implementation of this bulletin for design-build projects for which the final RFP has been released is at the discretion of the District. At the discretion of the District, the requirements of this Bulletin may be incorporated into ongoing construction contracts. The addition of this work will require supplemental design details and revisions to be developed for successful implementation. This work should be coordinated between District Transportation Development and Operations.

Your Turn

Save the Date

Next Quality Forum May 18, 2023
District Five Office – DeLand
Cypress Room and
Virtually through Teams

THANK YOU!