District Five Design Quality Forum

January 11, 2024

Welcome & Agenda

Tyler Burgett
Project Manager

- Opening Remarks
- Safety Strategic Plan
- CPM Update
- Procurement Updates / FY 25 CAP
- ACEC News
- Traffic Ops / ITS Update
- BREAK
- Bike Lanes – GCPM Guidance
- To Landscape or Not to Landscape
- Lessons Learned – Raised Crosswalks
- Bid Questions / Construction Update

Opening Remarks

John Tyler, P.E.
District Five Secretary

Naziru Isaac, P.E.
Roadway Design Engineer

Office of Safety Update

Loreen Bobo, P.E.
District 5 Safety Administrator

Safety Strategic Plan

Central Florida Safety Strategic Plan

A FOCUSED CALL TO ACTION TO SAVE LIVES. TOGETHER

HOW?

- Reflect on the accomplishments of District 5 and Central Florida partners and identify key action steps.
- Drive renewed urgency to increase effective safety initiatives.
- Strengthen the District's **collaboration** with existing partners.
- Continued **outreach** to forge new partnerships that utilize the collective energy, passion, and expertise of all stakeholders to reduce fatalities and serious injury crashes.
- **Foster a culture towards safety** while continuing the focus on infrastructure.

WHAT?

- The Safety Strategic Plan will prioritize **Target Zero** goals, objectives, and cultural and behavioral transformations for the upcoming five years. This plan is a collective effort of key partners in Central Florida.

WHY?

- Significant investment in infrastructure is not the only factor that will improve fatality and serious injury crash statistics. We must move **beyond infrastructure** and think differently to achieve Target Zero.

Looking ahead: Where do you come in?

- Valued community and partner agencies like yourselves will be challenged to join District 5 staff in this important endeavor.
- District 5 staff will be called upon to build consensus on how to move **beyond infrastructure** and define action targets based on collaboration, outreach, and development initiatives.

To get involved, email D5-SafetyCentral@dotstate.fl.us.

From the Secretary

As FDOT District 5 Secretary, I invite you to join us over the next 12 months as we challenge preconceived notions, leverage collective strengths and change our safety focus to include shaping human behavior. If not us, who? If not now, when?"

John E. Tyler, PE
September 2023

Safety Strategic Plan

Infrastructure

Beyond Infrastructure

Culture

Internal Workshops

Fall 2023

External Workshops

January and February 2024

3 Regional

Orange-Osceola-Seminole	MetroPlan Orlando	
Lake-Sumter-Marion	Ocala Marion TPO	Lake Sumter MPO
Flagler-Volusia-Brevard	River to Sea TPO	Space Coast TPO

Regional Safety Summit

Spring/Summer 2024

Invite partners from across Central Florida to collaborate, share ideas and reveal Safety Strategic Plan

Safety Starts with You!

- **Receive our Safety Central Newsletter.**
  - Email us at D5-SafetyCentral@dot.state.fl.us
- **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
- **Volunteer at one (or more) of our many outreach events.**
  - Register here: www.eventbrite.com/cc/fdot-d5-office-of-safety-outreach-events-1473989 and you will be able to sign up to volunteer at our events.

Safety Second
- because it takes just a second to be safe

If you can't move over — or when on a two-lane road — slow to a speed that is 20 mph less than the posted speed limit.

Florida law requires you to Move Over a lane when you can safely do so for stopped:

- Law enforcement
- Emergency
- Sanitation
- Utility service vehicles
- Tow trucks or wreckers
- Maintenance or construction vehicles with displaying warning lights
- Any disabled vehicle on the side of the road.

Questions?

CPM Updates

Ed Kestory, P.E.
District Consultant Project Management Engineer

Questions?

Procurement Updates & FY 25 CAP News

Michelle Sloan
Procurement Services Manager

Katherine Alexander-Corbin
Program Management Administrator

Questions?

ACEC Update

Sunserea Gates, P.E.

Questions?

Traffic Operations Update

Jeremy Dilmore, P.E.
TSM&O Program Engineer

TSMO Design Meeting

- Added to new template schedules
- Purpose to address reoccurring issues found in construction
  - SOP for signals
  - Maintenance of communication
  - Network coordination
  - Specifications
- Agenda and invitee list on Schedule Dictionary

TSMO Meeting Agenda

Purpose: Project Manager Schedules a meeting with their consultant and District Traffic Operations, as identified in the agenda. The Consultant reviews the agenda and prepares accordingly for the meeting. If there are items the Consultant is not prepared for the meeting should be rescheduled after they have collected and organized the needed information from coordination and field review.

- Invite TSMO Team – D5-TSMO@dot.state.fl.us
  - Tricia Ballard
  - Patrick White
  - Steve Johnson
  - Daniel Simpson
- **Signalized Intersections**
  - Existing
    - ✓ Controller
    - ✓ Cabinet
    - ✓ Detection
    - ✓ Network connectivity
    - ✓ Signal operating plan
    - ✓ Other ITS devices
  - Proposed
    - ✓ Controller
    - ✓ Cabinet & cyber key
    - ✓ Detection
    - ✓ Network connectivity
    - ✓ Signal operating plan

TSMO Meeting Agenda cont'd

- **Communications**
  - Existing
    - ✓ Coordination
    - ✓ Conflict status
    - ✓ Maintenance of communication plan necessary?
    - ✓ Network connectivity
    - ✓ Signal operating plan
    - ✓ Other ITS devices
  - Proposed
    - ✓ New connections
    - ✓ Configuration coordination
- **Specs and Proprietary Products**
  - Agency Coordination
    - ✓ Documentation of need
      - I. Switches
      - II. Devices: cameras, RSU
      - III. Controller
      - IV. Cabinet
      - V. Detection
      - VI. Cyber key
    - ✓ Method of accomplishing each
    - ✓ Specs and Proprietary Products
- **System engineering documentation status**
- **For limited access:**
  - CCTV coverage consideration
  - Ramp labeling consideration

Signal Design Guidance

- Intended to add to existing FDM and TEM Requirements
- Clarify expectations of the District and our agencies
- Meant to assist designers, especially new ones to the District
- Will be added to CFLSmartRoads.com
- In final Quality Control Review now

CFLSmartRoads.com

Questions?

Return at 10:10 a.m.

Bike Lanes: Green Color Pavement Markings (GCPM)

Naziru Isaac, P.E.
District Roadway Engineer

New MUTCD Standards

2023 MUTCD Section 3H.06 And Section 9E

- Green Colored Pavement Markings can be used to:
  - Enhance the conspicuity of locations where bicyclists and other traffic might have potentially conflicting, weaving, or crossing movements.
  - Enhance the conspicuity of word, symbol, and/or arrow pavement markings when these markings are used in certain bicycle facilities.
- Green Colored Pavement Markings are limited to:
  - Bicycle lanes,
  - Extensions of bicycle lanes through intersections
  - Extensions of bicycle lanes through areas where motor vehicles enter a mandatory turn lane in which motor vehicles must weave across bicyclists in bicycle lanes.
  - Two-stage bicycle turn boxes
  - Bicycle Boxes, and
  - As a background for bicycle detector symbols

New MUTCD Standards

05 *If green-colored pavement is used within separated bicycle lanes on an independent alignment, it should be used only at the entrances to those facilities from roadways open to public travel or at conflict, weaving, or crossing locations.*

06 *If green-colored pavement is used within shared-use paths, it should be used only where pedestrian and bicyclist movements are separated and for only a portion (or portions) of the path designated for bicyclist use.*

Option:

07 Green-colored pavement may be installed for the entire length of a bicycle lane or bicycle lane extension or for only a portion (or portions) of the bicycle lane or bicycle lane extension.

08 Green-colored pavement may be installed for the entire length of a physically-separated bikeway within the roadway or for only a portion (or portions) of the physically-separated bikeway within the roadway.

Keep in mind that Green Color Pavement Marking is expensive and needs regular maintenance

District Preference: GCPM Applications

Free-Flow Vehicular-Bicycle Conflict Areas

Raised Bike Lane Adjacent to Bus Stop Platform or Raised Crosswalk

District Preference: GCPM Applications

Business Driveway Access Crossing Two-Way Separated
Bike Facility Adjacent to Travel Lanes

District Preference: GCPM Applications

Business Driveway Access Crossing Extended
Right Turn Lane with no Keyhole

District Preference: GCPM Applications

Begin/End Bike Lane at Bike Ramp to Sidewalk

Intersection Bicycle Boxes and Two-Stage Bicycle Turn Boxes

(Need to meet all criteria in FDM Section 223.2.1.5)

District Preference: GCPM Applications

Special Areas Requested and Justified by Local Agency and Approved by FDOT (Example Shown Shared Use Path Crossings)

District GCPM Approval Process

1. Proposed GCPM shall be reviewed and approved by local agencies.
2. GCPM request shall be submitted prior to phase III plans submittal.
3. EOR submits following documents to FDOT PM:
   - Local agency approval for proposed GCPM design.
   - Request for Use of Green Color Bicycle Lane.
   - Key sheet and plan sheets showing green color bike lane location(s).
   - CADD files of the proposed design.
4. FDOT PM uploads all documents to PSEE for internal approval.

District GCPM Approval Process

5. District Design Engineer (DDE) will approve and sign the request upon internal review approval.
6. EOR shall obtain DDE approval prior to Phase III plans submittal.
7. Request for green color bike lane developmental spec after DDE approval. The request requires CO approval via coordination with District Specs office. Use the GCPM checklist to compile the necessary information for CO review.
8. Once developmental spec is approved, the GCPM special pay item can be requested for use via District Estimates office.

Note: CO is tracking these requests statewide

District GCPM Approval Process

Request for Use of Green Color Bicycle Lanes

To: Jeffrey P Cicerello, P.E. Date:
Design Engineer

Financial Project ID: New Const. ( ) RRR ( )
Federal Aid Number:
Project Name:
State Road Number: Co. /Sec. /Sub.:
Begin Project MP: End Project MP:
Full Federal Oversight: No (X) Yes ( ) Note: if Yes, submit to appropriate Federal Agency Director.

A justification and all supporting documents must be attached to this document.
Mark the appropriate certification:

"I_____ Professional Engineer _____, of the _____,
Print Name of Initiator Position title Name of agency

recommend that the placement of Green-Colored Pavement Markings for bicycle lanes, to include the use of Green-colored Paint-Epoxy in lieu of Green-Colored Thermoplastic in the areas of 2'-4' skip stripe, for the abovementioned project and as outlined in the attached documents.

Signature Date

For Department Use Only

"I_____, _____,
Print Name Position title

of the Florida Department of Transportation, do hereby approve the use of Green-Colored Pavement Markings for bicycle lanes, to include the use of Green-colored Paint-Epoxy in lieu of Green-Colored Thermoplastic in the areas of 2'-4' skip stripe, for the abovementioned project and as outlined in the attached documents.

Signature Date

Request

Plans

District GCPM Approval Process

Green-Colored Pavement Marking (GCPM) Required Information for Dev714GCPM & Dev976GCPM Specs Approval

1. Provide Key Sheet (pdf format) - primarily to include county-section and mileposts of proposed project related to stationing.
   -Key Sheet included
2. Provide Roadway and Pavement Marking design plans for illustrating the application types using Florida Design Manual, Exhibit 223-3, Section A-E in pdf file format. Must include:
   a. Documentation that the GCPM are approved by District Design Engineer (would include variations of the FDM)
3. Full Roadway and S&PM plan sets are included
4. DDE approval included
   b. Pay item and total square feet of GCPM
5. Pay item: 0920-714-100
6. Total area of GCPM in project: 2,442 sq. ft.

3. Preliminary pavement assessment condition (areas where the GCPM materials are to be used).
   a. Surface Course Type: Dense Grade Friction Course (DGFC), Open Grade Friction Course (OGFC), or Rigid pavement
      -DGFC for entire project
   b. Pavement condition for GCPM to be placed. New or Existing Surface?
      -New

GREEN-COLORED PAVEMENT MARKINGS.
(REV 6-10-21)

The following new Section is added after Section 713:

SECTION 714
GREEN-COLORED PAVEMENT MARKINGS

714-1 Description.
Apply new green-colored pavement markings in accordance with the Contract Documents.

714-2 Materials.
Use only materials listed on the Innovative Product List (IPL) and meeting the following requirements:

Green-Colored Pavement Marking Materials .....Section 976

714-3 Equipment.
Use equipment in accordance with the manufacturer's installation instructions.

714-4 Application.
714-4.1 General: Remove existing pavement markings using methods approved by the Engineer such that pavement surface scars or traces of the removed pavement markings will not conflict with new pavement markings. Do not use paint to blackout or obscure existing pavement markings.

For installation on new asphalt roadways, apply pavement markings a minimum of 14 days after placement of the final asphalt surface course.

Before applying pavement markings, remove any material that could adversely affect the bond of the pavement markings by a method approved by the Engineer, following manufacturer's recommendations for surface preparation.

For each green-colored pavement marking location, produce and provide a video record of the pavement before and after installations. Video records with timestamp will be provided to the Department within one week after installation. Provide video files via digital media (DVD, flash drive, or other) or by online digital distribution with a minimum standard resolution of 720 x 480 and at a speed not greater than 6 feet per second. The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the roadway surface.

714-4.2 Preformed Thermoplastic:
Apply a primer, sealer, or surface preparation adhesive as recommended by the manufacturer's recommendations prior to installation.

Apply markings to dry surfaces only and when ambient air temperature is at least 32°F. Prior to installation, follow the manufacturer's recommendations for pre-heating. Apply 0.125 inch or 125 mils of preformed thermoplastic material. Apply skid resistant material in accordance with the manufacturer's instructions.

714-4.3 Two Reactive Component Pavement Markings: Install two reactive component pavement markings in accordance with manufacturer's recommendations.

GREEN-COLORED PAVEMENT MARKING MATERIALS.
(REV 8-24-21)

The following new Section is added after Section 975:

SECTION 976
GREEN-COLORED
PAVEMENT MARKING MATERIALS

976-1 General Requirements.
976-1.1 Innovative Products List Requirements: To qualify for the Innovative Products List (IPL), manufacturers will submit products to the Department for evaluation. The Department will test all green-colored pavement marking materials in accordance with FM 5-622. Manufacturers must identify the materials for all components of the green-colored pavement marking materials system and submit samples to State Material Office for Fourier Transform Infrared Spectroscopy (FTIR) analysis.

976-1.2 Packaging and Labeling: The name and address of the manufacturer shall be shown on the label. The label must also show the color, date of manufacture, and lot number. The label shall warn the user of any special handling or precautions of the material, as recommended by the manufacturer. Any packaging and labeling not so marked will not be accepted.

976-1.2.1 Two Reactive Components: The two reactive component material containers shall be clearly marked with the volume of materials in units of gallons and the product name.

976-1.2.2 Preformed Thermoplastic: The thermoplastic material shall be packaged in suitable biodegradable or thermo-degradable containers which will not adhere to the product during shipment and storage. Clearly mark each container with the thickness of the preformed material in units of inches.

976-1.3 Storage: All materials must have a shelf life in accordance with the manufacturer's recommendations.

976-1.4 Initial Performance Requirements: The green-colored pavement marking materials shall meet the following performance requirements and will be tested in accordance with FMS 622 – Part A.

976-1.4.1 Friction Resistance: The surface of the pavement markings shall provide a Dynamic Friction Test (DFT40) value of 50 or greater.

976-1.4.2 Color: The daytime luminance factor (Y) must be greater than or equal to 15. The daytime chromaticity (x, y) must fall within the box created by the following coordinates:

Table 976-1
Daytime Chromaticity Coordinates for Green-Colored Pavement Marking Materials

Checklist

Developmental Specs

Questions?

Landscaping as Part of Design Contract – Or Not

Naziru Isaac, P.E.
District Roadway Engineer

Criteria

- Florida allocates 1.5% of the amount contracted for construction projects statewide to satisfy the requirements of Section 334.044 (26) F.S.
- Majority of work to achieve that target is handled through standalone projects.
- Districts may spend the lesser amount of $200,000 or 10% of the construction cost for landscape installation as incidental landscape work. Projects exceeding $200,000 must receive CO approval and include justification.

Resurfacing Projects

- Criteria **does not** apply:
  - Replace or relocate existing landscape and irrigation when necessary to construct project elements such as the addition or extension of turn lanes, median work, drainage improvements, or sidewalks.
- Criteria **does** apply:
  - For speed management or other safety related enhancements including but not limited to median treatment to funnel pedestrians to a crosswalk, narrow corridor view to draw attention to midblock crosswalk, narrowing optical width, or create a terminated vista that encourages lower vehicular speeds.

Landscaping Guidance

- Coordinate with the PM before 60% plans to determine if landscaping will be included as part of the project or standalone separate project.
- Coordinate with the local government agency to make sure it is aware of the project and discuss LFA need, if applicable
- Coordinate with local government agency and FDOT operations centers regarding maintenance and any existing MOUs
- Remember: Landscaping for speed management do not include irrigation unless requested and paid for by local agencies
- If landscaping can't be part of the project coordinate with the PM to identify available options (e.g., can we design as a separate project using same or different contract and construct using push button contract.)

Questions?

Lessons Learned – Raised Crosswalks

Matthew Gallup, P.E.
District 5 Roadway Design

Developmental Standards

- Crosswalk 10 to 12 feet wide
- Approaches 1:12 (4.5 inches high)
- RC channel gutter
- Advance signing and pavement markings

- NOT one-size-fits-all approach

Design Considerations

Design vehicles:
- Emergency services
- Transit
- Special vehicles

Approach Speeds:
- Appropriate context
- Target speed
- Wholistic approach
- Driveways & side streets

Drainage impacts

Design Considerations

Local Support

- From start through construction
- Stakeholders may change

Coordinate with CO Early

- Standards
- Specs
- Pay items

Include Appropriate Plan Details

Orange Blossom Trail Example

Orange Blossom Trail Example

TTCP Recommendations

Block Construction

Speed enforcement

Vertical deflection striping

Speed feedback signs

Raised rumble strips before construction

Questions?

Topics on Design and Construction Coordination

- Naziru Isaac, P.E.
  District Roadway Engineer
- Willmarie Datil, P.E.
  Construction Senior Project Manager

Agenda

- **Bid Question and Answers**
  - Common questions
  - Examples
  - Response Process
- **Construction Updates**
  - Construction Industry Petition
  - Construction approach to answer bid questions
  - Impact of plan errors
  - Construction lessons learned

Bid Questions and Answers

- Common questions
- Examples
- Response Process
- Construction Industry Petition
- New approach to answering Bid Questions
- Impact of Low-quality Plans on Construction Plans

Common Questions We're Seeing

- Wrong quantities
- Missing pay items
- Plans quantities that don't match eq reports and trns*port
- Call-outs that don't match eq reports and trns*port
- Missed developmental specs or MSPs

Constructability review needs to be part of QA/QC.

Example Pay Items to Watch For

- 102-14 Traffic Control Officer (when overriding the signal)
- 110-4-10 Removal of Concrete
- 102-104 Temporary Signalization and Maintenance of Intersection
- 102-107-1 Temporary Traffic Detection and Maintenance of Intersection

Bid Question Response Process

Provide responses within 3 days

Reach out to PM if more time is needed

Be aware of bid questions revisions timeline:

- Within 15 days of letting, district secretary approval is needed.
- Within 5 days of letting, director of office of design in CO approval is needed.

Construction Updates

Willmarie Datil, P.E.
Construction Senior Project Manager

Clear Plan Notes (TTCP and General)
Clear Bid Answers
Construction Industry Petition
Prompt Responses
100% Construction Plans

Construction Approach to Answer Bid Question

Plan Errors

When there is an apparent error in the plans and the bidder asks for confirmation or correction

Answer should be a plan revision (if determined), or a correct action could be provided in the same written answer (if feasible)

Bidder Question: *"Please provide TCP and Detours that allow sufficient time to construct the Utility adjustments and Drainage modifications shown in the plans. The provided TCP does not address the Utility adjustments and the extended time needed to construct those modifications."*

Provided Answer: *"Refer to Addendum No. 1 for updated Roadway Plans, Sheet 145, Temporary TCP General Note 2 with the revised lane closure restrictions. The Roadway Plans Temporary TCP allow work to be performed during weekends and night."*

Need of Clarification

When something is not clear in plans. Bidder requests help to understand the plan notes or the plan's intent

Answer could provide guidance or additional information that helps the bidder understand plan notes or intent

Bidder Question: *"Sheet 4 indicates asphalt curb pad. The limits are to be shown on the plans, but nothing is definitively called out. Where will the asphalt curb pad details apply? Only where Optional Base Group 12 is utilized?"*

Provided Answer: *"See Roadway Plans, Sheets 3, 4, and 16 through 36. Asphalt curb pad will only apply at locations with optional base."*

Need of Direction

When bidders ask for specific information already included in the contract documents

Answer should point the bidder to the specific contract document , and the section and page number.

Bidder Question: *"All OUC water main relocation work is shown to be under active roadway travel lane pavement. The work (UWHC relocation) shown cannot be completed in 1 day work shifts and will require multiple days/work shifts to complete requiring covering the work with temporary base and asphalt pavement daily and removal of same multiple times to complete the work. Where the required temporary pavement will be paid ?*

Provided Answer: *"Any temporary pavement for UWHC work will be paid under Pay Items 0110 4 10, 0285712, and 0334 1 13. Refer to TSP-10 Section 01025 Measurement and Payment Part E."*

Plan revisions?

- Impact to overall construction cost
- Number of pay items that need revisions
- Notes revisions
- Missing information, intent is not clear in plans
- Missing pay items

Why?

To provide opportunity to all bidders to bid the project under the same conditions and assumptions.

Impact of Plans Errors during Construction

- Higher project costs
  - Bidders try to cover project's unknown risks during the bid process
- Construction performance metric impacts
  - Cost and Time
- Claims during construction
- Delays during construction

Construction Lessons Learned

Design Variations

- Consider maintenance when approving design variations
  - Some variations allow slopes steeper than 1:4 within Clear Zone
  - Slopes steeper than 1:4 are difficult to maintain

Construction Lessons Learned

- Driveway slopes
  - When widening roadways, make sure there is enough room to accommodate driveway and meet slope criteria
  - Is driveway slope affecting crosswalk?
  - Do you need survey?

Construction Lessons Learned

Pier Protections

- -Proximity to existing pier
- -As Built? Or Survey?
- -Existing foundation depth
- -Will protection of excavation be required?

Construction Lessons Learned

- CSX Coordination
  - Proposed sidewalk under a CSX bridge required a gravity wall beneath the sidewalk to hold the slope. The resulting slope was too steep, and CSX did not approve the construction per plans without a shoring system.

Construction Lessons Learned

- CSX Coordination
  - After multiple unsuccessful re-design attempts submitted to CSX, the work ended up being removed from plans.

Questions?

Thank You!

Please share feedback, suggestions for topics with Tyler Burgett at Tyler.Burgett@dot.state.fl.us

Next Quality Forum May 9, 2024