

## Safety Improvements Project Technical Scope

### 451372-1: SR 438 from Lake Stanley Rd to Hiawasse Rd

State Road Numbers: SR 438  
 Section Number: 75250000  
 County: Orange  
 Project Limits: Lake Stanley Rd to Hiawasse Rd  
 Begin/End MP 3.498 to 4.825  
 FM: 451372-1

|  |   |
|--|---|
| 1. Existing R/W Map Project Numbers:   | 75250-2525(1998)<br>75250-2523(1996)<br>75702-2601(1959)<br>75590-2601(1959)  |
| 2. Old Construction Project Numbers:   | 239289-1(2002) MP 1.857 to MP 4.873 Resurfacing   |
| 3. Additional R/W required?  | No  |
| 4. Level of Community Awareness Plan:  | CAP Level 2   |
| 5. Agreements required?  | <input checked="" type="checkbox"/> No<br><input type="checkbox"/> Yes  |
|  | <input type="checkbox"/> Yes  |
| 6. Are there any bridges within the limits?                                  | No  |
| 7. Are there any RR Crossings within the project limits or in the vicinity?  | No  |
| 8. Are there any Airports within 10 nautical miles?                          | No  |
| 9. Storm Water Management jurisdiction:                                      | SFWMD   |
| 10. Is the Project within CCCL ( <i>Coastal Construction Control Line</i> )? | No  |
| 11. Existing Utilities per Sunshine One Call:                                | AT&T Florida<br>American Traffic Solutions<br>Charter Communications<br>Comcast Communications<br>Crown Castle<br>Duke Energy<br>Verizon Business/MCI<br>Orange County Utilities<br>Orlando Utilities Commission – Electric<br>Orlando Utilities Commission – Water<br>Summit Broadband<br>TECO Peoples Gas<br>Uniti Fiber LLC<br>Zayo Group<br>City of Ocoee Water/Sewer<br>Duke Energy Distribution<br>Duke Energy Fiber<br>Duke Energy Transmission<br>Florida Gas Transmission<br>Lake Apopka Natural Gas |

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|---|---|---------------|------------------------|---------------------|
| Existing Utilities per Sunshine One Call: | MetroFiber Net<br>Orange County Water<br>Smart City               |               |                        |                     |
| 12. Any special MOT concerns?             | Yes<br><br>Required pedestrian detours for sidewalk construction. |               |                        |                     |
| 13. Any construction concerns?            | No  |               |                        |                     |
| 15. Design Criteria and Highway System:   | <b>MP Range</b>   | <b>Design</b> | <b>Posted</b>          | <b>Target Speed</b> |
|   | 3.351-4.704   | 45 mph        | 45 mph                 | 45 mph              |
|   | 4.704-4.814   | 40 mph        | 40 mph                 | 40 mph              |
| 15. Design Criteria and Highway System:   | SHS, FDM (2023)   |               |                        |                     |
|   | Facility  |               | Context Classification |                     |
|   | (3.351 to 3.900)  |               | C3C                    |                     |
|   | (3.900 to 4.560)  |               | C3R                    |                     |
|   | (4.560 to 4.814)  |               | C3C                    |                     |

### Project Location Map:



### Intent and Nature of Project:

The purpose of this project is to provide safety improvements at access points along the corridor as follows:

- SR 438 at Apopka Vineland Road – Reconstruct the signalized intersection to include:
  - New traffic signals, one signal head per lane, backplates on all signal heads
  - 4-section flashing yellow arrow signal heads for eastbound/westbound left-turn movements
  - “YIELD TO PEDS” blankout signs
  - Upgrade pedestrian features to include special emphasis crosswalks, ADA-compliant curb ramps, new detectable warning surfaces, and audible pedestrian countdown signals.
- SR 438 at Bon Air Drive – Reconstruct the stop-controlled intersection to include:
  - Upgraded pedestrian features including ADA-compliant curb ramps and new detectable warning surfaces.
  - Special emphasis cross walk (north leg only)

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- SR 438 at Laurel Hill Drive – Reconstruct the stop controlled intersection to include:
  - Upgraded pedestrian features including special emphasis crosswalk across the south leg, ADA-compliant curb ramps and new detectable warning surfaces.
- SR 438 at Silkwood Circle – Reconstruct the stop controlled directional intersection to include:
  - New signalized RCUT.
  - Reconfigured directional island with pedestrian refuge.
  - Upgraded pedestrian features including special emphasis crosswalks, ADA-compliant curb ramps, and new detectable warning surfaces.
- SR 438 at Renegade Drive – Reconstruct the stop controlled intersection to include:
  - Upgraded pedestrian features including special emphasis crosswalk across the south leg, ADA-compliant curb ramps and new detectable warning surfaces.
- SR 438 at Hiawasse Road – Reconstruct the signalized intersection to include:
  - New traffic signals, one signal head per lane, backplates on all signal heads
  - 4-section flashing yellow arrow signal heads for eastbound/westbound left-turn movements
  - “YIELD TO PEDS” blankout signs
  - Upgraded pedestrian features including special emphasis crosswalks, ADA-compliant curb ramps, new detectable warning surfaces, and audible pedestrian countdown signals.
- SR 438 at Circle K Gas Station Driveway – Upgrade pedestrian features to include ADA-compliant curb ramps and new detectable warning surfaces
- SR 438 at Public Storage Facility Driveway – Upgrade pedestrian features to include special emphasis crosswalk, ADA-compliant curb ramps and new detectable warning surfaces.

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### Project Description:

- Project is located Along SR 438 (locally known as “Silver Star Rd”), from Lake Stanley Rd. to Hiawassee Rd. in Orlando, Florida within Orange County jurisdiction.
- SR 438 is classified as Urban Minor Arterial and has Access Classification 5 for the entire length of the project.
- The Tentative Work Program indicates no active projects within the immediate project vicinity.

### Typical Section:

- The typical section for SR 438 within the project limits includes the following elements:
  - 6-12’ wide travel lanes (3 in each direction)
  - 2-4’ wide bike lanes (one in each direction adjacent to the outside travel lane)
  - Raised median of varying widths (grass and concrete)
  - Type F Curb and Gutter along outside pavement edges
  - Type E Curb and Gutter along the median pavement edges
  - 5’ wide sidewalk separated by grass buffer along north and south sides of the roadway
- 2022 Traffic Data from FDOT GIS Open Data Hub: PTMS Sites 750568 and 750059 is shown below:

| Mile Post<br>Limits | AADT   | K<br>(%) | D<br>(%) | T<br>(%) |
|---------------------|--------|----------|----------|----------|
| 3.486               | 23,000 | 9.0      | 53.5     | 5.4      |
| 4.599               | 30,000 | 9.0      | 58.8     | 4.5      |

### Roadway Scope Items:

- Pavement
  - Recommend lightly milling and resurfacing asphalt pavement at the following intersections to remove existing pavement markings and provide a clean surface for proposed pavement markings: Apopka Vineland Road, Bon Air Drive, Laurel Hill Drive, Silkwood Circle, Renegade Drive, Hiawassee Road.
- The crosswalks crossing SR 438 for the signalized intersection at Apopka Vineland Road do not have pedestrian refuge in the median. Recommend reconfiguring median noses to provide pedestrian refuge at these locations.
- The intersection at Silkwood Circle is to be reconfigured as a signalized RCUT. Reconfigure the directional median at this intersection to include pedestrian refuge.
- The sidewalk curb ramps at all radius return locations along the corridor are to be reconfigured to comply with ADA-requirements. Reconstruct the sidewalk, curb, and gutter at these locations.
- Recommend removal of abandoned driveway at the following location:
  - Southeast corner of Hiawassee Street Intersection.

### Drainage Scope Items:

- The proposed roadway improvements have no impact on the existing drainage system. Drainage improvements are not required in the project area.
- The existing drainage systems are generally in good condition.
- FEMA Flood Map 12095C0230 F, dated 9/25/2009 shows no floodplain at the project location.
- There are no wetlands adjacent to the Right of Way.
- The current scope of work has no impact on floodplains or wetlands.

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### **Utility Scope Items:**

- Utility coordination will be required to determine adjustments so there are no conflicts with the proposed construction.
  - Adjust all valve covers, utility pull boxes, fire hydrants, utility manholes, etc. to be flush with proposed sidewalk, ramps, roadside, and roadway pavement as necessary to complete the proposed improvements.
  - Quality Level A “QL A” utility information is anticipated. Construction activities that involve underground work within proximity to noted utilities include drainage structures, light poles, sidewalk, pedestrian signal structures, and mast arm structures.
  - Any mast arms, drainage work, light poles, pedestrian poles, etc. must be Vvh’d, completed, and shown in the plans prior to the Phase II plans ERC submittal as directed by the District Utility Office.
  - Florida Gas Transmission (FGT) is present within this corridor. Determine if the proposed work conflicts with FGT facilities as early as possible and assess if the design can be modified to eliminate the conflicts. Extensive, early, and ongoing coordination with FGT will be required to determine if they concur with the proposed design.
  - If there are impacts to the Orlando Utilities Commission facilities that cannot be avoided, there is potential for a UWHC. This will need to be vetted early in the planning/design phases. Not all projects warrant a UWHC and the EOR will need to determine the following:
    - Can the conflicts be avoided?
    - How does this affect the overall project MOT?
    - How does this affect the overall project schedule?
    - Do we have enough time to do two ERC reviews at 60% and 90%.

### **Multimodal Scope Items:**

- The Engineer shall include a project-specific pedestrian/bicyclist temporary traffic control plan.

#### Transit

- Lynx, Orange County’s public transit provider, has numerous bus stops along both sides of the SR 438 corridor. Coordinate with the Lynx services to evaluate the opportunity for relocating or collocating bus stops to points in the road where a full bus pull-out can be accommodated to avoid impeding through vehicle lanes.

#### Bicycles

- Bicycles are accommodated with 4’ bike lanes. Bicycle keyhole lanes are provided in the right turn lanes.
- There are asphalt cycle tracks on both sides of Apopka Vineland Road south of SR 438. Tie proposed curb ramps on the south side of the intersection to the cycle tracks allowing bicycle access to and from the roadway.

#### Pedestrians

- Sidewalk is provided in both directions.
- All curb ramps are to be upgraded to comply with ADA-requirements.
- All detectable warning surfaces are to be replaced.
- All crosswalks are to be upgraded to special emphasis crosswalks.

### **Permitting Scope Items:**

- Coordinate with FDOT, submitting a permit exemption letter to the Environmental Permits Office, Attention District Five Permits Coordinator, for review and concurrence during the design process, considering the below descriptions of work and conditions.
  - This project is not anticipated to exceed one acre of soil disturbing activities and will not require NPDES coverage under the FDEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities.
  - There are no wetlands adjacent to the Right of Way.
  - There are no floodplains adjacent to the project corridor.

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### **Environmental Scope Items:**

- Complete an environmental assessment:
  - A Contamination Assessment is required for the project. The level of documentation required will be dependent on the contamination sites in the area, scope of work proposed, and previous assessments conducted. Coordinate with the District Contamination Impact Coordinator to determine project needs.
- A Protected Species Assessment is required for the project. The level of assessment should be commensurate with the scope of work. The assessment should focus on species applicable to the project area with consideration given to consultation areas, habitats, and known occurrence data.
- A Cultural Resources Assessment is required and is to be conducted by Cultural Resources Professionals as outlined in 36 CFR Part 61 and set forth in the Professional Qualifications Standards section of the Secretary of the Interior's Standard and Guidelines for Archaeology and Historic Preservation

### **Structural Scope Items:**

The following new structures are proposed:

- SR 438 at Apopka Vineland Road
  - The existing 4 mast arms will be replaced with 4 new mast arms. This will include one signal head per lane and reflectorized backplates for all signal heads. These structures could also include CCTV cameras and blank-out pedestrian warning signs. These structures will need to be designed and detailed in accordance with the FDOT Standards.
- SR 438 at Silkwood Circle
  - Install 2 new mast arms for the signalized RCUT intersections. These structures could also include CCTV cameras and blank-out pedestrian warning signs. These structures will need to be designed and detailed in accordance with the FDOT Standards.
- SR 438 at Hiawassee Road
  - The existing 4 strain pole configuration will be replaced with 4 new mast arms. This will include one signal head per lane and reflectorized backplates for all signal heads. These structures could also include CCTV cameras and blank-out pedestrian warning signs. These structures will need to be designed and detailed in accordance with the FDOT Standards.

### **Traffic Operations (includes Signing, Pavement Markings, Signals, ITS) Scope Items:**

#### **Signing and Pavement Markings:**

- Signing and Pavement Markings shall be completed for the proposed improvements. The Engineer will inventory all signing within the project limits, including evaluation for compliance with FDOT Specifications, FDM, Standard Plans, MUTCD, FHWA, etc. criteria. Any existing signs or pavement markings that conflict with the proposed signs or pavement markings including non-complaint signs or pavement markings shall be addressed in the plans. Specific signing and pavement marking improvements to be considered by the Engineer are included below:
  - Verify with the District that the existing designated school crossing signage and pavement markings within the project limits do not need improvements. Existing signage was observed to be outdated and inconsistent. Improvements shall adhere to the FDOT Manual for Speed Zoning for Highways, Roads and Streets in Florida.
  - Install Turning Vehicles Stop for Pedestrians signage (R10-15) for all approaches at the following intersections:
    - Apopka Vineland Road
    - Silkwood Circle
    - Hiawassee Road
  - Update crosswalk striping per FDOT Standard Plans Index 711-001; signalized crosswalks within the project limits were identified to be substandard (SR 438 at Apopka Vineland Road, West Leg, approximately 8' wide)

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- Evaluate installing supplemental signage and pavement markings at driveway exits to alert drivers to look both ways for vulnerable road users. Several vulnerable road user crashes occurred along the project limits at driveway exits, where driver negligence was cited for failing to yield right-of-way to cyclists traveling on the existing corridor sidewalks.

#### Signals:

- Project limits include four (4) existing signalized intersections and one proposed signalized intersection. Signal improvements to be considered by the Engineer are included below and organized in to two sections: 1) Signal improvements for entire corridor, 2) Intersection specific signal improvements:
  - 1) Entire corridor:
    - No work is anticipated at two of the four existing signalized intersections, Lake Stanley Road and Silver Ridge Drive/Summer Glen Drive. The work depicted below is for Apopka Vineland Road, Hiawasse Road, and Silkwood Circle.
    - Update clearance interval timings to comply with the latest versions of the MUTCD and TEM.
    - Provide intersection lighting at signalized intersections where existing lighting is not in conformance with the standards provided in FDM 231.3.2.1. Lighting was observed to be missing or potentially not in conformance.
    - Signal detection is to be reestablished at each signalized intersection within the project limits. Existing detection loops impacted by milling and resurfacing operations to be replaced in kind.
    - Evaluate existing pedestrian detector assemblies, pedestrian signals, etc. for compliance. All features added or modified should be designed to be accessible pedestrian signals (APS). Ensure that pedestrian signals and poles are in compliance with FDOT FDM and TEM criteria.
    - The Engineer shall design the signals to be a smart signal compatible with the districtwide ATSPM database and compatibility for CV including enhanced detection. The smart signal design shall include:
      - Provide plan sheets that include:
        - Stop bar detection for all lanes of the intersection which will provide 1 minute batch turning movement counts.
        - Advance detection for all lanes of the intersection (including turn lanes).
        - Communication between the controller and the ATSPM system.
        - ATC controller that is compatible with the maintaining agency's ATMS software, capable of high-resolution data logging and is forward compatible with CV and ICM expansion efforts.
        - Upgrade the existing cabinet to Type 6, TS-2, Type 1 with detector card racks for 64 channels if it is not already of this type.
        - Channel Designation and Detector Configuration Details to meet FDOT's detector channel standards.
        - Provide any MSP/TSP's necessary to require submission of the signal field information form prior to Final Acceptance of construction for approval of the Department and entry into the ATSPM system.
        - The Engineer is not to use plan notes to ensure compatibility with existing ATMS. Proprietary Product Certification process shall be used.
  - 2) Intersection specific:
    - SR 438 and Lake Stanley Road:
      - No improvements anticipated.
    - SR 438 and Apopka Vineland Road:
      - Rebuild existing signalized intersection to include one signal head per lane, and reflectorized backplates for all signal heads.
      - Consider implementing Leading Pedestrian Interval (LPI) for all pedestrian approaches at intersection.
      - Evaluate adding blank-out pedestrian warning signs on signal uprights for pedestrian actuations.

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- SR 438 and Silver Ridge Drive/Summer Glen Drive:
  - No improvements anticipated.
- SR 438 and Hiawassee Road:
  - Rebuild existing signalized intersection to include one signal head per lane, and reflectorized backplates for all signal heads.
  - Consider implementing Leading Pedestrian Interval (LPI) for all pedestrian approaches at intersection.
  - Evaluate adding blank-out pedestrian warning signs on signal uprights for pedestrian actuations.
- SR 438 and Silkwood Circle:
  - Install a traffic signal in conjunction with the existing directional median opening, retaining the directional island and installing a pedestrian crossing to create a signalized RCUT intersection.
  - Evaluate adding blank-out pedestrian warning signs on signal uprights for pedestrian actuations.
  - Conduct traffic signal operations report to determine appropriate signal timing to best align with the corridor's existing traffic signal coordination plan.

### Intelligent Transportation Systems (ITS):

- All projects that involve ITS or Signalization, need to go through the FDOT Procedure 750-040-003 Systems Engineering Risk Assessment Checklist to determine if it is a high-risk project as per 23 CFR 940. If the project is deemed high risk, the Engineer is to develop the Systems Engineering documents that will be needed for the project. The Engineer is responsible to provide all regulatory Systems Engineering (SE) analysis items in 23 CFR 940.11. Please email the completed risk assessment checklist to Katie.King@dot.state.fl.us to keep on file for the project.
- If there are fiber optics within the project limits, verify with the local maintaining agency the fiber optic strand count that is in use. If the fiber is multimode or a 72-count (or less) Single Mode Cable, provide a 144-count Single Mode Cable for replacement. Down time should be coordinated with the local maintaining agency.
- Verify that no local maintaining agency fiber optics are in conflict with proposed improvements. If impacted, the equipment is to be restored in kind. The Engineer shall depict all existing ITS infrastructure within the project limits in the plans.
- Review CCTV camera locations along the corridor. CCTV cameras should be added wherever there is not one today and there is not one within 0.25 to 0.5 miles for surveillance.
- The Engineer is responsible to coordinate with the MPO/TPO for placement of new fiber, CCTV, MVDS, or other ITS devices in accordance to the MPO/TPO master plan. Some of the Master Plans are available online using the following link: [http://www.cflsmartroads.com/projects/Project\\_approvedmasterplans.htm](http://www.cflsmartroads.com/projects/Project_approvedmasterplans.htm)
- Depending on the maintaining agency and equipment being installed proprietary product forms and justification letters may be required for the project. Examples of local agency proprietary product certifications can be found here: <https://lappc.cflsmartroads.com/>
- Any ITS items within the project limits shall be shown on plan sheets that are necessary for other work. Plan Sheets are not necessary solely to show ITS elements. ITS Certification Memo will be required at Production. See District Design Memo 09-02. Existing components include CCTV camera and fiber optic interconnect.

### Lighting Scope Items

- Provide intersection lighting at signalized intersections where existing lighting is not in conformance with the standards provided in FDM 231.3.2.1. Lighting was observed to be missing or potentially not in conformance at the following locations:
  - SR 438 and Apopka Vineland Road
  - SR 438 and Silkwood Circle
  - SR 438 and Hiawassee Road

### Landscaping

- No work proposed.



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### **Survey Scope Items:**

- Provide 3D Topographic Survey for the areas and locations of identified and proposed improvements shown on the Concept. Total survey area will be determined by the Engineer based on their needs for design.
  - Survey should include all above ground surface features, including, but not limited to valve covers, overhead utilities, meter boxes, manholes, etc.
  - Include items identified by the environmental assessment.
  - Include drainage structures and nearest connecting structures shall be detailed within the survey areas only, unless otherwise instructed.
- Provide quality level “B” (QL B) Sub-surface Utility Engineering (SUE) and survey thereof for the areas and locations of identified and proposed improvements shown on the Concept. Total SUE limits will be determined by the Engineer based on the limits of disturbance.
  - VVH’s are anticipated. Coordinate with the Engineer for anticipated number of VVH’s required for the project.
- Obtain Level 2 Survey (as defined in The FDOT Design Manual, Section [14.2.2.1](#)) for areas where cross slope and superelevation correction is recommended, including the pavement surfaces, unpaved shoulders, and ditch/roadside slopes.
- Establish the existing right of way for the areas and locations of identified and proposed improvements shown on the Concept based upon best available evidence. The level of effort for this task will be unique for each project based upon the proposed design and nature of the corridor.
- Establish a computed survey baseline (baselines if needed) and provide to the Engineer for their plans. Stationing should be adjusted to be different than any historic alignment, as it should not be misconstrued as a retracement of the existing alignment.

### **Right of Way and Mapping Scope Items:**

- No work proposed.

### **Geotechnical Scope Items:**

- FDOT to perform Pavement Coring Report and provide ESAL calculation and Resilient Modulus values.
- Perform and obtain the necessary geotechnical information as directed by the Geotechnical Office. Soil borings will be needed for the new signal mast arm foundation locations at Lake Stanley Road, Apopka Vineland Road, Silkwood Circle,

### **Design Documentation:**

- The design documentation items noted below are necessary to implement the proposed improvements. The Engineer is responsible for verifying all items in the proposed Scope and design conform with all applicable criteria and standards, including the identification of any required Memoranda, Variations, and Exceptions.
- Design Variation Memorandum
  - The proposed traffic signal at Silkwood Circle does not meet the minimum spacing requirements of Rule 14-97.003 F.A.C. and will require a design variation memorandum.
- Design Variation
  - None anticipated at this time.
- Design Exception
  - None anticipated at this time.

### **Candidate Project Development Considerations (items not to be included in final design):**

- None