

451594-1: SR 9 (I-95) Resurfacing from Citrus Blvd to Addison Canal

State Road Number: 9
 Section Number: 70225-000
 County: Brevard
 Project Limits: From south of Citrus Blvd to the Addison Canal bridge
 Begin MP/End MP: 4.762 to 12.498 (7.736 MI)
 FM: 451594-1

1. Existing R/W Map Project Numbers: *MP value from Section 70220-000, original roadway ID change.	405506-2 (2007) MP 5.340 to MP 15.400, var 150-ft (typ) LT & RT 405506-5 (2005) MP 34.450* to MP 5.380, var 150-ft (typ) LT & RT 70006-2501 (1970) SR 407 Interchange, var 150-ft (typ) LT & RT 70220-2402 (1963) MP 41.200 to MP 5.330, var 150-ft (typ) LT & RT 70220-2404 (1963) MP 5.340 to MP 13.720, var 150-ft (typ) LT & RT 70512-3601 (1963) MP 5.340 to MP 7.580, var 150-ft (typ) LT & RT	
2. Old Construction Project Numbers:	427954-1 (2017) MP 0.000 to MP 31.190, Wrong Way Driving 405506-2 (2011) MP 3.254 to MP 18.309, Widening 70225-3413 (1993) MP 6.289 to MP 7.392, Int Const (PSJ Pkwy) 70006-3501 (1971) MP 10.023 to MP 10.968, Int Const (SR 407) 70512-3601 (1967) MP 7.585 to MP 7.593, Bridge Const (Fay Blvd) 70220-3402 (1964) MP 41.131* to MP 5.353, New Const 70220-3404 (1963) MP 5.353 to MP 13.818, New Const	
3. Additional R/W required?	No.	
4. Level of Community Awareness Plan:	Level 4, interstate resurfacing.	
5. Agreements required?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Yes, including Local Funds.	
6. Are there any bridges within the limits?	700129 Citrus Blvd over SR 9, 15ft-4in VC (405506-2) 700199 Port St. John Pkwy over SR 9, 16ft-11in VC (70225-3413) 704161 Fay Blvd over SR 9, 16ft-6in VC (70512-3601) 709003 pedestrian bridge over SR 9, unk VC 700130 Ranch Rd over SR 9, 16ft-4in VC (70220-3404) 700091 SR 407 over SR 9, 16ft-5in VC (70006-3501) 700055 over Santiago Canal 700056 over Ross Creek 700229 over Addison Canal	
7. Are there any RR Crossings within the project limits or in the vicinity?	No.	
8. Are there any Airports within 10 nautical miles?	Yes.	
9. Storm Water Management jurisdiction:	SJRWMD.	
10. Is the Project within the CCCL (<i>Coastal Construction Control Line</i>)?	No.	
11. Existing Utilities: (Per SS1C, as-builts, and field markers)	AT&T Florida Brevard County Utilities– Reclaim/Sewer/Water Bright House Networks LLC dba Charter/Spectrum City of Cocoa – Water City of Titusville – Reclaim/Sewer/Water Florida Gas Transmission (FGT) Florida Power & Light – Distribution Florida Power & Light – Transmission Florida's Turnpike Enterprise The Great Outdoors Premier RV/Golf Resort Uniti Fiber ZAYO Group	
12. Any special MOT concerns?	Temporary detours for single ramps.	

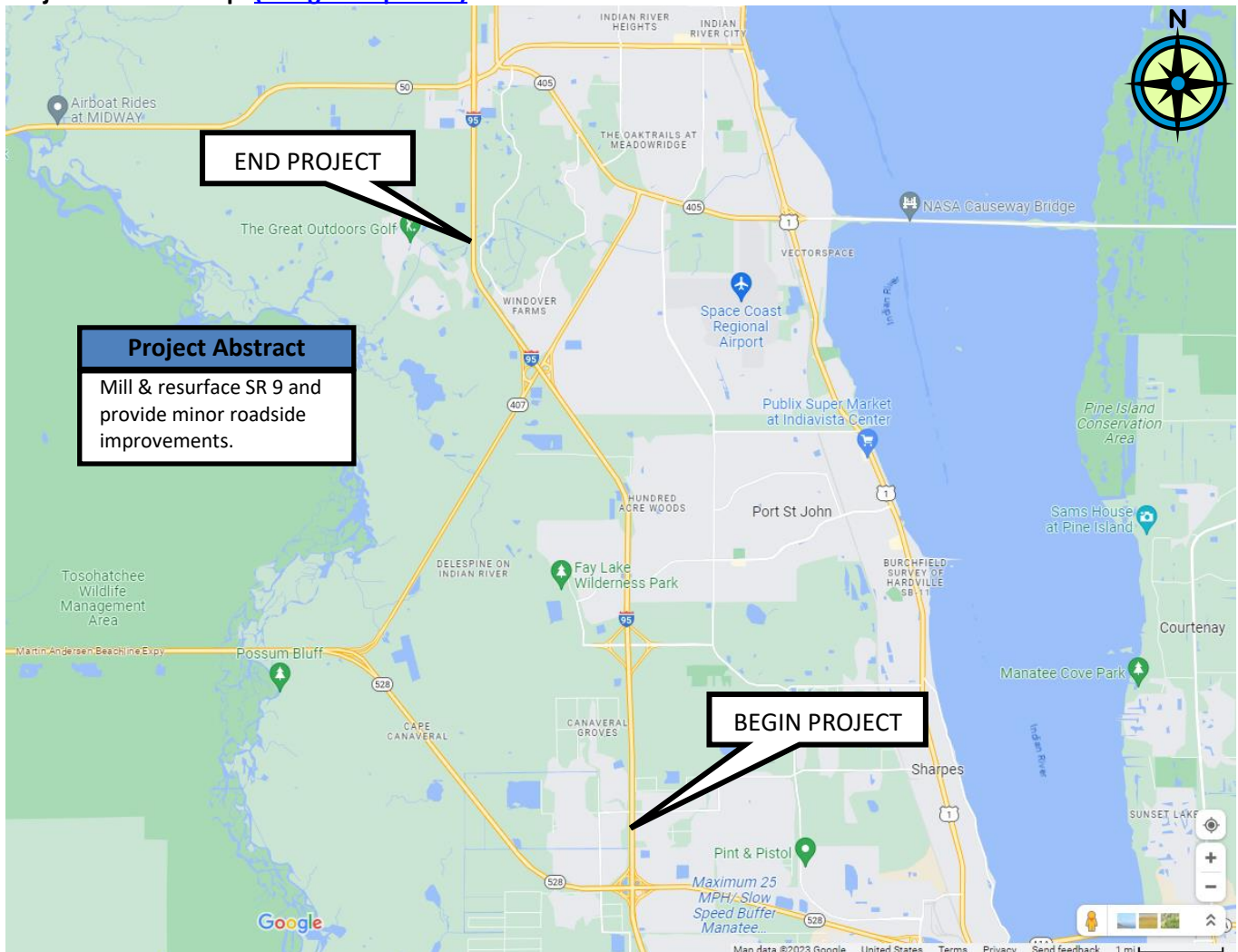
Candidate RRR with Safety Improvements Project Technical Scope

Special MOT concerns cont'd	Lane closures to consider Emergency Shoulder Use (ESU) designated facility and hurricane season.			
13. Any construction concerns?	No.			
14. Design/Posted/Target Speeds (mph):	Location (MP)	Design Speed	Posted Speed	Target Speed
	4.762 to 12.498	70	70	N/A
15. Design Criteria and Context Classification:	FIHS, NHS, SIS, FDM (2023)			
	Location (MP)		Context Classification	
	4.762 to 12.498		LA "Limited Access"	
16. Lump Sum or Pay Item?	Pay Item.			
17. Proposed Design Schedule:	18-24 Months.			

Agreements Required:

None.

Project Location Map: [\(Google Maps Link\)](#)



The Engineer is responsible for verifying all items in the proposed scope and shall review the project for conformance with all applicable criteria and standards.

Intent and Nature of Project:

The purpose of the project is to rehabilitate the asphalt pavement to extend the service life of the existing roadway, including necessary roadside improvements, in accordance with FDOT Design Manual Section 114. The nature of the project is asphalt resurfacing and associated safety and functional improvements. The project is based on a request from FDOT District 5 Pavement Management and Maintenance for a RRR review of Roadway

70225-000 from MP 4.762 to MP 12.498.

- The Concept and Scope are provided to convey the general overall intent of the project and are not intended to serve as detailed design level directives.

Project Description:

- Project is in central Brevard County within the cities of Cocoa and Titusville.
- SR 9 is classified as an urban principal arterial interstate with Access Classification 01 from MP 4.762 to MP 9.792 and MP 10.120 to MP 12.498, and a rural principal arterial interstate from MP 9.792 to MP 10.120.
- The facility is designated as an evacuation route per the Florida Division of Emergency Management and is an Emergency Shoulder Use (ESU) roadway per the FDOT Emergency Management Office.
- The following projects have been identified within the vicinity of this project. The FDOT PM is to confirm the status, proposed improvements, and coordinate project limits prior to advertisement.
 - 448791-1: SR 405 RRR project, from SR 50 to east of US 1, currently in design and is anticipated to be let to construction in August 2024. The FDOT PM is Ty Garner.
 - 450771-1: SR 9 resurfacing project, from south of SR 50 to SR 46 (MP 12.498 to MP 22.215), currently in design and is anticipated to be let to construction in December 2025. The FDOT PM is Gene Varano.

Typical Sections:

- Per as-built plans, the project includes 1 typical section, excluding the interchange ramps:
 - MP 4.762 to MP 12.498; 6-lane divided flush shoulder section with six 12-ft lanes (three per direction), 12-ft outside (10-ft paved) shoulders, 12-ft inside (10-ft paved) shoulders separated by a 40-ft depressed median.
- Per 2022 traffic data:

Location	TMS Site No.	AADT	T%
Citrus Blvd to Port St. John Pkwy	700439	50,500	12.0
Port St. John Pkwy to SR 407	700401	46,000	12.0
SR 407 to Addison Canal	700402	57,000	12.0
Ramp 70225066 NB Off Port St. John Pkwy	702060	2,900	7.1
Ramp 70225067 SB On Port St. John Pkwy	702063	2,500	7.1
Ramp 70225068 NB On Port St. John Pkwy	702061	6,100	7.1
Ramp 70225069 SB Off Port St. John Pkwy	702062	7,300	7.1
Ramp 70225083 SB Off SR 407	702042	3,200	2.4
Ramp 70225083 SB Off NB SR 407	702104	3,100	7.0
Ramp 70225084 SB On SR 407	702043	3,000	2.4
Ramp 70225085 NB On SR 407	702041	3,100	2.4
Ramp 70225086 NB Off SR 407	702040	3,100	2.4
Ramp 70225086 NB Off SB SR 407	702103	3,000	7.0

Roadway Scope Items:

- A Pavement Condition Assessment will be requested and completed by FDOT. Existing pavement was observed to generally be in fair condition. 6 pavement designs have been assumed for estimating purposes: 1) milling and resurfacing the travel lanes, 2) milling and resurfacing the shoulders, 3) milling and resurfacing the ramps, 4) milling and resurfacing the ramp shoulders, 5) milling and resurfacing at the bridge approach, and 6) isolated areas of deeper rehabilitation.
 - Provide standard under bridge paving where absent.
 - The Engineer is to coordinate the use of High Friction Surface Treatment (HFST) with the District Safety Office as a means of mitigating attributable crash types if warranted by review of current data.
- MPSV data has been requested and will be incorporated into the scope when available. For LRE purposes

10% cross slope correction and superelevation correction is anticipated.

- Evaluate the existing roadway guardrail for conformance to current Standards and design criteria; reset and replace as needed to correct deficiencies. Guardrail meeting the 2013 Design Standards is to remain. For LRE purposes 10% of the guardrail was assumed to be reset.
 - MP 5.315 RT: Existing guardrail length of advancement is deficient.
 - Santiago Canal: Offset blocks were observed to be rotated 90°.
- The existing unpaved shoulder is generally in fair condition with locations of poor condition that are readily correctible utilizing Standard Plans Index 570-010 Option I and II. For LRE purposes 10% was assumed to require correction.
- Ensure vegetation at the SR 407 interchange ramps meets sight distance criteria.

Drainage Scope Items:

- The primary goal for improvements along this corridor is to utilize the existing drainage system where feasible.
 - Based on field observations the existing drainage system appears to be functioning properly.
- A Hydroplaning Risk Analysis will be required at the locations below:
 - MP 8.378 to MP 8.832: Horizontal curve, 2 or more wet weather crashes in 5 years.
 - MP 11.643 to MP 12.005: Horizontal curve, 2 or more wet weather crashes in 5 years.

Utility Scope Items:

- Utility coordination will be required to determine adjustments so there are no conflicts with the proposed construction.
- Quality Level A “QL A” utility information is anticipated. Construction activities that involve underground work within proximity to noted utilities include guardrail work.

Multimodal Scope Items:

- The Engineer shall include a project-specific pedestrian/bicyclist temporary traffic control plan for the work at the Port St. John Parkway ramp terminals.

Transit:

- Space Coast Area Transit (SCAT) bus route 11 utilizes Port St. John Pkwy, however there are no bus stops within the project limits. Coordinate temporary changes that may affect this route.

Bicycles:

- None.

Pedestrians:

- Port St John Pkwy: Reconstruct existing curb ramps that do not comply within minimum ADA criteria.

Permitting Scope Items:

- Coordinate with FDOT, submitting a permit determination 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 anticipated to exceed one acre of soil disturbing activities and will require NPDES coverage under the FDEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities.
 - Wetlands were noted adjacent to and within the Right of Way and are not to be impacted. The apparent wetland lines shown on the Concept are from the Florida Geographic Data Library and are for informational purposes only.
 - There are floodplains within and adjacent to the project. The current scope of work is not anticipated to have impacts, however if there are any changes to the scope of work, coordination with the FDOT Environmental Permits Office will be necessary for evaluation to determine if additional documentation must be provided.

Environmental Scope Items:

- Complete an environmental assessment:
 - 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.
- Coordinate with the FDOT Contamination Impact Coordinator regarding level of effort to evaluate any potential site(s), as well as any other potential sources of contamination, within the project vicinity.

Structural Scope Items:

- Complete condition evaluation of existing concrete barriers.
- Complete analysis for the modification of the existing sign structures as described in the Traffic Operations Scope Items.

Traffic Operations (Includes Signing, Signals, ITS) Scope Items:

Signing and Pavement Markings

- Signing and pavement markings shall be completed for the project limits. Inventory all signing including evaluation for compliance with all applicable criteria. Any existing signs that conflict with the proposed signs or pavement markings, and non-compliant signs or pavement markings, are to be addressed in the plans. Evaluation to include:
 - Review and update all Wrong Way Driving Signing and Pavement Markings to conform to the latest recommendations.
 - Complete calculations for 21 multi-post sign relocation/installation.
 - Overhead sign panels, structures to remain.

Signals

- There are no signalized intersections.
- There are 3 Traffic Monitoring Sites within the project limits. 10 road tube sites require no work and are not listed. Coordinate disposition with the District Data Collection Manager.
 - 700439, PTMS
 - 700401, PTMS
 - 700402, PTMS

Intelligent Transportation Systems (ITS)

- Any modifications are to be consistent with the ITS Master Plan. The Engineer:
 - Shall follow the Risk Assessment protocol, including Checklist and Systems Engineering analysis.
 - Shall designate fiber in the plans, determine any conflicts and resolve.
- Additional ITS guidance can be found here:
[https://www.cflsmartroads.com/projects/technical_docs.html#\(Designers\)](https://www.cflsmartroads.com/projects/technical_docs.html#(Designers))

Lighting Scope Items:

- Existing lighting is standard mounted at the interchanges and is to remain.
- The Port St John Pkwy overpass bridge deck is 90-ft wide and is to be evaluated for daytime underdeck lighting.

Landscaping Scope Items:

- None.

Survey Scope Items:

- Obtain Design Survey, collecting data 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 the limits of disturbance and any adjustment required due to the proposed development.

- Locate utilities as Quality Level B “QL B” and surface features including valve covers, meter boxes, manholes, etc. within the limits of survey required. Quality Level A “QL A” utility information is anticipated.
- Locate existing drainage structures within the limits of survey plus the nearest connecting structure beyond those limits. Pipe sizes, flow lines, material type, etc. are required.
- Include items identified by the environmental assessment.
- All existing above ground utility facilities must be designated (Level B) as directed by the District Utility Office.

Right of Way and Mapping Scope Items:

- All scope items are clearly within the apparent LA Right of Way.

Geotechnical and Pavement 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.

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.

Per FDM 211.1.1 the following elements may remain if they meet the AASHTO interstate standards in effect at the time of original design; horizontal alignment, vertical alignment, median width, traveled way width and shoulder width. Place documentation in PSEE.

- Design Variation Memorandum
 - Change in Grade without Vertical Curve- Per FDM Table 210.10.2, the maximum change in grade without vertical curve for a design speed of 25-30 MPH is 1.00%. Three low speed ramps (70225066 NB Off, 70225067 SB On, and 70225068 NB On) with a design speed of 20 MPH contain deficient vertical geometry and are to remain.
 - Length of Horizontal Curve- Per FDM Table 211.7.1, the minimum length for a horizontal curve on a ramp is 400-ft for a design speed of 45 mph or less, and 750-ft for a design speed of 50 mph. Seven ramp curves at the Port St. John Pkwy interchange and two ramp curves at the SR 407 interchange are deficient and are to remain.
 - Length of Vertical Curve- FDM Table 211.9.3 requires vertical curve lengths of 800-ft for sags and 1,000-ft for open highway crests. Per SPN: 70220-3402 and SPN: 70220-3404, the typical length of crest vertical curves and sag vertical curves are 500-ft and 400-ft, respectively. There are 7 crests and 8 sags that do not meet this length of vertical curve criterion and are to remain.
- Design Variation
 - Radius of Horizontal Curve- Per FDM Table 210.8.2, the minimum radius of a curve at a design speed of 35 mph is 276-ft. One curve on SR 407 (Ramp 70225085) has a radius of 230-ft and is to remain. There are both wet and dry weather crashes that may be attributable to the geometry of the ramp.
- Design Exception
 - Stopping Sight Distance- Per FDM Table 211.10.2, the minimum stopping sight distance on a ramp with a 35-mph design speed is 250-ft for a downgrade of 2% or less, 257-ft for a downgrade of 3% or less, and 261-ft for a downgrade of 4% or less. Per AASHTO Table 3-2, the minimum stopping sight distance on a ramp with a 35-mph design speed is 253-ft for a downgrade of 2%, 257-ft for a downgrade of 3%, and 261-ft for a downgrade of 4%. Per as-built plans 70006-3501, existing longitudinal grades of 2.95% and 3.79% were identified on the loop ramps.

Portions of SR 407 Ramps 70225085 and 70225084 have deficient stopping sight distances due to the existing guardrail and landscaping placement combined with the high degree of curvature and are to remain.

- Superelevation- Per FDM 210.9.2, for all curves if there are any crashes within the last 5 years that are attributed to the superelevation, correct the superelevation rates to the new construction values. Based on the 35 mph design speed, three horizontal curves within the SR 407 interchange have an insufficient superelevation rate of 10% for the tight degree of curvature utilized. The superelevation for two of these curves fall within the range of the derived values from $e_{\max} = 6\%$ and $e_{\max} = 12\%$ tables in AASHTO. The superelevation of one of the curves falls outside the acceptable range.
- Vertical Clearance- Per FDM Table 260.6.1, the minimum vertical clearance for a roadway bridge over a limited access roadway is 16-ft. Per AASHTO, the minimum vertical clearance for structures passing over freeways is 16-ft. A deficiency was documented as a design exception at the Citrus Blvd overpass bridge for FPID: 405506-2 in 2011; the existing vertical clearance was identified as 15 ft-4 in and is to remain. Within the analysis period, three crashes occurred because of inadequate clearance.

Items Considered During Scoping:

- Existing bridge pier protection was observed to be in working condition and meeting the requirements of SDG 2.6.3. No work anticipated.