



REGULAR BOARD MEETING

Wednesday, December 4, 2019
2:00 pm

AGENDA

1. Call to Order
2. Pledge of Allegiance
3. Roll Call
4. Comments from the Public
5. Comments from Advisory Committee Members (TAC/CAC/BPAC)
6. Approval of Agenda
7. Approval of Meeting Summary
 - *October 2, 2019 Regular Board Meeting*
8. Consent Agenda
 - 8a. 2020 Meeting Dates: Approval of the proposed 2020 meeting dates for the St. Lucie TPO Board.

Action: Approve or disapprove.
9. Action Items
 - 9a. Annual Officer Elections and Appointments: Elections of a Chairperson and a Vice-Chairperson for the St. Lucie TPO and appointments of Board Members to various committees.

Action: Elect a Chairperson and a Vice-Chairperson and confirm or approve the appointments of Board Members to the committees.
 - 9b. Jobs Express Terminal Connectivity Study Scope of Services: Review of the proposed Scope of Services for the Jobs Express Terminal Connectivity Study.

Action: Approve the proposed Scope of Services, approve with conditions, or do not approve.

10. Discussion Items

- 10a. Sea Level Rise Mapping: Presentation of the results of Sea Level Rise Mapping of the St. Lucie TPO area.

Action: Discuss and provide comments to Staff.

- 10b. FY 2020/21 – 2021/22 Unified Planning Work Program (UPWP) Call for Planning Projects: Initial discussion of the development of the FY 2020/21 – 2021/22 UPWP for the St. Lucie TPO.

Action: Discuss and provide comments to Staff.

11. FDOT Comments

12. Recommendations/Comments by Members

13. TPO Staff Comments

14. Next Meeting: The next St. Lucie TPO Board Meeting is a regular meeting scheduled for 2:00 pm on Wednesday, February 5, 2020.

15. Adjourn

NOTICES

The St. Lucie TPO satisfies the requirements of various nondiscrimination laws and regulations including Title VI of the Civil Rights Act of 1964. Public participation is welcome without regard to race, color, national origin, age, sex, religion, disability, income, or family status. Persons wishing to express their concerns about nondiscrimination should contact Marceia Lathou, the Title VI/ADA Coordinator of the St. Lucie TPO, at 772-462-1593 or via email at lathoum@stlucieco.org.

Persons who require special accommodations under the Americans with Disabilities Act (ADA) or persons who require translation services (free of charge) should contact Marceia Lathou at 772-462-1593 at least five days prior to the meeting. Persons who are hearing or speech impaired may use the Florida Relay System by dialing 711.

Items not included on the agenda may also be heard in consideration of the best interests of the **public's health, safety, welfare, and as necessary to protect every person's right of access**. If any person decides to appeal any decision made by the St. Lucie TPO with respect to any matter considered at this meeting, that person shall need a record of the proceedings, and for such a purpose, that person may need to ensure that a verbatim record of the proceedings is made which includes the testimony and evidence upon which the appeal is to be based.

Kreyòl Ayisyen: Si ou ta renmen resevwa enfòmasyon sa a nan lang Kreyòl Ayisyen, tanpri rele nimewo 772-462-1593.

Español: Si usted desea recibir esta información en español, por favor llame al 772-462-1593.



Coco Vista Centre
466 SW Port St. Lucie Blvd. Suite 111
Port St. Lucie, Florida 34953
772-462-1593 www.stlucietpo.org

REGULAR BOARD MEETING

DATE: Wednesday, October 2, 2019
TIME: 2:00 pm
LOCATION: St. Lucie TPO
Coco Vista Centre
466 SW Port St. Lucie Boulevard, Suite 111
Port St. Lucie, Florida

MEETING SUMMARY

1. Call to Order
Vice Chairman Drummond called the meeting to order at 2:05 pm.

2. Pledge of Allegiance
Vice Chairman Drummond led the Pledge of Allegiance.

3. Roll Call
The roll was called and a quorum was noted with 10 members present.

Members Present
Commissioner Linda Bartz, Chair
Darrell Drummond, Vice Chair
Councilwoman Jolien Caraballo
Commissioner Chris Dzadoovsky
Kathryn Hensley
Commissioner Frannie Hutchinson
Vice Mayor Shannon Martin
Councilwoman Stephanie Morgan
Mayor Gregory Oravec
Commissioner Cathy Townsend

Representing
St. Lucie County
Community Transit
City of Port St. Lucie
St. Lucie County
St. Lucie County School Board
St. Lucie County
City of Port St. Lucie
City of Port St. Lucie
City of Port St. Lucie
St. Lucie County

Others Present

Peter Buchwald
Ed DeFini
Yi Ding
Marceia Lathou
Rachel Harrison
Jack Andrews
Sabrina Aubery
Ben Balcer
Beth Beltran
Roxanne Chesser
Allison Glunt
Kimberly Graham
Rebeca Guerra
Ken Kehres
Karen Kiselewski
Gerry O'Reilly
John Podczerwinsky
Joy Puerta
Mira Skoroden
Jennifer Stultz
Leslie Wetherell
Heather Young

Representing

St. Lucie TPO
St. Lucie TPO
St. Lucie TPO
St. Lucie TPO
Recording Specialist
City of Fort Pierce
FDOT
St. Lucie County
Martin MPO
City of Port St. Lucie
FDOT
St. Lucie County
City of Fort Pierce
FDOT
Cambridge Systematics
FDOT
FDOT
Martin MPO
FDOT
FDOT/Turnpike
FDOT
St. Lucie County

4. Comments from the Public – None.

5. Comments from Advisory Committee Members (TAC/CAC/BPAC) – None.

6. Approval of Agenda

* MOTION by Ms. Hensley to approve the agenda.

** SECONDED by Councilwoman Morgan Carried UNANIMOUSLY

7. Approval of Meeting Summary
• August 8, 2019 Regular Board Meeting

* MOTION by Ms. Hensley to approve the Meeting Summary.

** SECONDED by Councilwoman Morgan Carried UNANIMOUSLY

8. Consent Agenda

8a. Appointments to the Citizens Advisory Committee (CAC) and Local Coordinating Board for the Transportation Disadvantaged (LCB): Consideration of appointments to the CAC and LCB to fill vacancies.

* MOTION by Ms. Hensley to approve the Consent Agenda.

** SECONDED by Commissioner Hutchinson Carried UNANIMOUSLY

9. Action Items

9a. Revised Transportation Alternatives Program (TAP) Grant Application: Approval of the revised TAP grant application for the Bell Avenue Sidewalk Project.

Mr. Buchwald identified the agenda item as a carryover from the previous meeting that required approval before the consideration of Item 9c. He explained that the right-of-way for the Bell Avenue Sidewalk Project from 25th Street to Oleander Avenue was deemed deficient after the application was submitted to FDOT for the 2019 TAP grant cycle. For the project to be programmed in the current Draft Tentative Work Program, Mr. Buchwald continued, the project limits would need to be revised to where there is sufficient right-of-way to encompass a 6-foot concrete sidewalk extending approximately 0.4 miles on the south side of Bell Avenue from 25th Street to Sunrise Boulevard.

* MOTION by Ms. Hensley to approve the revised TAP grant application.

** SECONDED by Councilwoman Morgan

9b. Go2040 Long Range Transportation Plan (LRTP) Amendment: Adoption of the proposed amendment to the Go2040 LRTP for the Jenkins Road Project.

Mr. Buchwald described the agenda item as another carryover from the August meeting that also required action before consideration of Item 9c. He noted that St. Lucie County had applied earlier in the year for a Transportation Regional Incentive Program (TRIP) grant for the 2019 cycle to fund a Project Development and Environment (PD&E) Study of the Jenkins Road Project from Orange Avenue to Midway Road. The application then was endorsed by both the TPO Board and the

Treasure Coast Transportation Council (TCTC). Mr. Buchwald explained that the project had been identified as a need in the Go2040 LRTP but not included in the corresponding Cost Feasible Plan and would require an amendment to add it to the Cost Feasible Plan. He then invited Mr. Ding who provided the details on the project including the impact of its proposed inclusion in the Cost Feasible Plan.

In response to Vice Mayor Martin's question, Mr. Ding affirmed that inclusion of the Jenkins Road project in the Cost Feasible Plan would not affect the order of existing projects.

- * MOTION by Councilwoman Caraballo to adopt the proposed Go2040 LRTP amendment.
- ** SECONDED by Commissioner Dzadoovsky
- ** A roll call vote to approve the Go2040 LRTP amendment was conducted, with all members voting for approval.

9c. Florida Department of Transportation (FDOT) FY 2020/21 - FY 2024/25 Draft Tentative Work Program (DTWP): Review of the DTWP for the St. Lucie TPO for FY 2020/21 – FY 2024/25.

Mr. Buchwald first summarized the requests from the City of Port St. Lucie to redesign the Port St. Lucie Boulevard project to include shaded multi-use paths and to advance the construction of the project using local funding, which would be reimbursed later by FDOT. He then described the process by which the DTWP is developed and adopted each year before introducing FDOT District 4 Secretary O'Reilly to discuss FDOT's Work Program.

Secretary O'Reilly began with an update on recent changes within FDOT. He reported that Kevin Thibault had been named the Secretary of the FDOT and summarized his extensive experience serving in senior leadership positions in State government and in the private sector. Moving on to FDOT initiatives, Secretary O'Reilly identified FDOT's four focus areas as safety, mobility, innovation, and the attraction, retention, and training of FDOT staff. He noted the particular emphasis on activities aimed at reducing fatalities using the 4 "E" approach (engineering, education, enforcement, and emergency response), with education seen as having the potential for the most discernible impact. He then described funding challenges at the state level caused by revenue decreases from the gasoline tax and rental car surcharges. He explained that these decreases had been accompanied by increases in construction and right-of-way costs, but that despite these challenges, FDOT had

been able to maintain its work program and add new projects to the maximum extent possible.

Secretary O'Reilly concluded with a summary of accomplishments and challenges with respect to local projects and invited Ms. Wetherell to provide the details. Ms. Wetherell reviewed the status of several projects in the TPO area noting that those pushed back by a fiscal year would not necessarily be delayed the full 12 months.

Ms. Stultz then provided a brief update on the Turnpike's replacement of toll booths with All-Electronic Tolling (AET). She also announced that the FTE had welcomed Nicola Liquori as the new Executive Director.

Commissioner Dzadovsky questioned whether the Turnpike would be able to provide funding participation to the County for the replacement of the Midway Road Bridge over the Turnpike. Ms. Stultz replied that Turnpike staff had scheduled briefings with executive management and would later be reaching out to the local transportation partners to continue the discussion.

* MOTION by Vice Mayor Martin to endorse the FY 2020/21 – FY 2024/25 DTWP.

* * SECONDED by Commissioner Dzadovsky Carried UNANIMOUSLY

9d. FDOT Treasure Coast Transportation Systems Management & Operations (TSM&O) Master Plan: Presentation by FDOT of the draft Treasure Coast TSM&O Master Plan.

Mr. Buchwald defined Transportation Systems Management & Operations (TSM&O) as the operation and management of the transportation network through technological strategies and quantitative performance measures that optimize the performance of the network. He noted that FDOT District 4 had developed a draft TSM&O Master Plan for the Treasure Coast to implement such strategies and measure the resultant network performance and invited Ms. Glunt to continue the presentation.

Ms. Glunt provided background information on TSM&O including program goals, examples, and benefits before introducing Ms. Kiselewski to report on the plan for the Treasure Coast. Ms. Kiselewski described its development process and explained the plan as opportunistic given the need for its implementation to align with fiber availability for communications, signal maintaining agency interest, and parts of the I-95 Master Plan, among others. Mr. Buchwald

added that the TPO Advisory Committees had voted at their joint September meeting to endorse the TSM&O Master Plan subject to the comments provided to FDOT by the signal maintaining agencies within the following 30 days.

* MOTION by Vice Mayor Martin to endorse the draft Treasure Coast TSM&O Master Plan subject to the conditions specified by the TPO Advisory Committees.

** SECONDED by Commissioner Townsend Carried UNANIMOUSLY

9e. 2020 Legislative Priorities: Review of the proposed Legislative Priorities for the St. Lucie TPO for 2020.

Mr. Buchwald explained that the TPO adopts legislative priorities each year based on the results of the most recent Florida Legislative Session, the legislative priorities of other transportation organizations, the likelihood of FDOT support, and, in the case of previously unsuccessful legislation, the likelihood of its reintroduction. He outlined four legislative priorities for 2020, all of which were deemed consistent with TPO plans: banning the handheld use of cellular phones and other distracting devices while driving, requiring motorists to move over or vacate the lane when approaching vulnerable road users, emphasizing the use of various grants to fund local transportation projects rather than State earmarks, and restoring the annual funding for the Transportation Regional Incentive Program (TRIP) to \$250 million.

In response to Vice Chairman Drummond's question regarding the banning of the handheld use of cellular phones and other distracting devices while driving, Mr. Buchwald clarified that current law only prohibited texting while driving and the handheld use of devices only while driving in school and work zones.

Chairwoman Bartz led a discussion about the challenges of enforcing the "Move Over" law as it relates to vulnerable road users. Members agreed that education would be a critical piece of this priority's effectiveness, citing Secretary O'Reilly's mention of FDOT's emphasis on education and the recent release of an FDOT commercial on pedestrian safety.

* MOTION by Commissioner Hutchinson to adopt the proposed 2020 legislative priorities.

** SECONDED by Councilwoman Morgan Carried UNANIMOUSLY

9f. 2045 Long Range Transportation Plan (LRTP) Scope of Work: Review of the conceptual Scope of Work for the 2045 LRTP.

Mr. Buchwald explained that Federal regulations require a long range transportation plan to be updated every five years. Because the last update was completed in February 2016 with the adoption of the Go2040 LRTP, he continued, the TPO must complete the 2045 LRTP by February 2021. Mr. Buchwald then presented details of the conceptual Scope of Work for the 2045 LRTP which was prepared by Kimley-Horn & Associates. He added that staff was proposing to finalize the Scope of Work and negotiate a Work Authorization with Kimley-Horn for a cost not to exceed \$300,000 over the present and following fiscal years, which would remain within the adopted budget of the TPO.

Commissioner Hutchinson commented that it would be helpful if FDOT could communicate its forecast of developments likely to occur within the transportation system in coming decades before MPOs engage in their long-term planning so that the implications of issues like new driving technologies may be factored in.

* MOTION by Commissioner Townsend to approve the conceptual Scope of Work for the 2045 LRTP.

** SECONDED by Councilwoman Caraballo Carried UNANIMOUSLY

9g. 2019 Staff Performance Bonus Program and Cost of Living Adjustment: Consideration of the proposed Performance Bonus Program and Cost of Living Adjustment for the TPO Staff for 2019.

Mr. Buchwald explained the methodology for the implementation of potential increases to staff salaries and noted that the overall increase would not exceed \$20,000 in cost for the fiscal year. He further noted that the potential salary increases would not apply to him and expressed appreciation for the significant effort consistently put forth by his staff.

* MOTION by Commissioner Townsend to approve the proposed 2019 Performance Bonus Program and Cost of Living Adjustment.

** SECONDED by Vice Mayor Martin Carried UNANIMOUSLY

10. FDOT Comments – None.

11. Recommendations/Comments by Members – Members commented on the success of the Crosstown Parkway Grand Opening celebration.

12. TPO Staff Comments – Mr. Buchwald announced the TPO staff’s planned participation in celebration of Mobility Week and the Treasure Coast Scenic Highway at the November Friday Fest in downtown Fort Pierce where staff would also kick off the 2045 LRTP public outreach. Mr. Buchwald then described the upcoming statewide MPO-related events in which he would be participating.

13. Next Meeting: The next St. Lucie TPO Board meeting is a regular meeting scheduled for 2:00 pm on Wednesday, December 4, 2019.

14. Adjourn – The meeting was adjourned at 3:35 pm.

Respectfully submitted:

Approved by:

Rachel Harrison
Recording Specialist

Commissioner Linda Bartz
Chairwoman



Coco Vista Centre
466 SW Port St. Lucie Blvd, Suite 111
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AGENDA ITEM SUMMARY

Board/Committee: St. Lucie TPO Board

Meeting Date: December 4, 2019

Item Number: 8a

Item Title: 2020 Meeting Dates

Item Origination: Annual administrative business

UPWP Reference: Task 1.1 – Program Management

Requested Action: Approve or disapprove

Staff Recommendation: It is recommended that the proposed 2020 meeting dates be approved.

Attachments

- Proposed 2020 Meeting Dates



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St. Lucie Transportation Planning Organization Board **PROPOSED**

2020 Meeting Dates
(Approved: _____)

Wednesday, February 6th

Wednesday, April 3rd

Wednesday, June 5th

Wednesday, August 7th

Wednesday, October 2nd

Wednesday, December 4th

All meetings start at 2:00 pm

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AGENDA ITEM SUMMARY

Board/Committee: St. Lucie TPO Board

Meeting Date: December 4, 2019

Item Number: 9a

Item Title: Annual Officer Elections and Appointments

Item Origination: St. Lucie TPO By-Laws, Rules, and Procedures

UPWP Reference: Task 1.1 - Program Management

Requested Action: Elect a Chairperson and a Vice-Chairperson and confirm or approve the following appointments:

- TPO Executive Committee
- Florida Metropolitan Planning Organization (MPO) Advisory Council (MPOAC)
- Treasure Coast Transportation Council (TCTC)
- St. Lucie Local Coordinating Board for the Transportation Disadvantaged (LCB) Chairperson

Staff Recommendation: Not applicable

Attachments

- 2020 Board Member Roster
- 2019 Board Members and Appointments

2020 Board Member Roster

Voting Member

Representing

Mayor Linda Hudson	City of Fort Pierce
Commissioner Jeremiah Johnson	City of Fort Pierce
Councilwoman Jolien Caraballo	City of Port St. Lucie
Vice Mayor Shannon Martin	City of Port St. Lucie
Councilwoman Stephanie Morgan	City of Port St. Lucie
Mayor Gregory Oravec	City of Port St. Lucie
Commissioner Linda Bartz	St. Lucie County
Commissioner Chris Dzadoovsky	St. Lucie County
Commissioner Frannie Hutchinson	St. Lucie County
Commissioner Cathy Townsend	St. Lucie County
Kathryn Hensley	St. Lucie County School Board
Darrell Drummond	Transit

Board Alternates

Representing

Commissioner Reginald Sessions	City of Fort Pierce
Councilman John Carvelli	City of Port St. Lucie
Commissioner Sean Mitchell	St. Lucie County
Padrick Pinkney	Transit

Non-Voting Advisor

Florida Department of Transportation



2019
BOARD MEMBERS AND APPOINTMENTS
(Committee/Council Appointments are Italicized)

Voting Members

Representing

Commissioner Linda Bartz, Chairwoman <i>Executive Committee, MPOAC 1st Alternate</i>	St. Lucie County
Darrell Drummond, Vice Chairman <i>Executive Committee, TCTC Member, MPOAC 2nd Alternate</i>	Transit
Mayor Linda Hudson	City of Fort Pierce
Commissioner Jeremiah Johnson <i>Executive Committee</i>	City of Fort Pierce
Councilwoman Jolien Caraballo	City of Port St. Lucie
Mayor Gregory Oravec	City of Port St. Lucie
Vice Mayor Shannon Martin <i>Executive Committee</i>	City of Port St. Lucie
Councilwoman Stephanie Morgan	City of Port St. Lucie
Commissioner Chris Dzadoovsky <i>TCTC Alternate</i>	St. Lucie County
Commissioner Frannie Hutchinson	St. Lucie County
Commissioner Cathy Townsend <i>LCB Chairwoman</i>	St. Lucie County
Kathryn Hensley <i>Executive Committee, TCTC Member, MPOAC Member</i>	St. Lucie County School Board

Alternates

Representing

Commissioner Reginald Sessions	City of Fort Pierce
Councilman John Carvelli	City of Port St. Lucie
Commissioner Sean Mitchell	St. Lucie County
Padrick Pinkney	Transit

Non-Voting Advisor

Florida Department of Transportation

Acronyms

MPOAC: Florida Metropolitan Planning Organization Advisory Council
TCTC: Treasure Coast Transportation Council
LCB: St. Lucie Local Coordinating Board for the Transportation Disadvantaged

AGENDA ITEM SUMMARY

Board/Committee:	St. Lucie TPO Board
Meeting Date:	December 4, 2019
Item Number:	9b
Item Title:	Jobs Express Terminal Connectivity Study Scope of Services
Item Origination:	Unified Planning Work Program (UPWP)
UPWP Reference:	Task 3.2 - Transit Planning
Requested Action:	Approve the proposed Scope of Services, approve with conditions, or do not approve.
Staff Recommendation:	Because the Jobs Express Terminal Connectivity Study will address first-last mile access to the future Jobs Express Terminal, is consistent with Task 3.2 of the UPWP, and is recommended for approval by the TPO Advisory Committees, it is recommended that the Jobs Express Terminal Connectivity Study Scope of Services be approved by the TPO Board.

Attachments

- Staff Report
- Jobs Express Terminal Connectivity Study Scope of Services



Coco Vista Centre
466 SW Port St. Lucie Blvd, Suite 111
Port St. Lucie, Florida 34953
772-462-1593 www.stlucietpo.org

MEMORANDUM

TO: St. Lucie TPO Board

THROUGH: Peter Buchwald
Executive Director

FROM: Marceia Lathou
Transit Program Manager

DATE: November 22, 2019

SUBJECT: Jobs Express Terminal Connectivity Study Scope of Services

BACKGROUND

The future Jobs Express Terminal in Port St. Lucie will support regional commuter trips to and from the St. Lucie TPO area. Currently, there is no public transportation connecting St. Lucie County residents with the employment, educational, and healthcare opportunities in South Florida. The facility which provides bus access and parking spaces for users of express bus service and carpools/vanpools will address this need.

The Jobs Express Terminal is a priority project for the TPO, City of Port St. Lucie, and the Florida Department of Transportation (FDOT). The project is included in the TPO's current Transportation Improvement Program (TIP) and is fully funded for construction which is planned to start in 2020 with completion in 2021.

The Jobs Express Terminal will be located just east of the interchange of I-95 and Gatlin Boulevard. The features of the project include:

- Connection to the existing access road for the Gatlin Plaza shopping complex;
- Capacity to park 162 vehicles;
- Six bus shelters for drop-off or pick-up;
- Pedestrian-level lighting;
- Landscaping; and,
- Electric vehicle charging stations.

Strategies are required to better connect the future Jobs Express Terminal to activity centers and multi-family residential areas in the Tradition Parkway/Gatlin Boulevard area particularly by users who do not own or choose not to use a personal automobile, a need known as the “first-last” mile.

To improve first-last mile access to the Terminal, a Jobs Express Terminal Connectivity Study is included in Task 3.2 of the FY 2018/19 – FY 2019/20 Unified Planning Work Program (UPWP). The Study will identify and evaluate infrastructure and operational solutions that improve access for bicyclists, pedestrians, and local bus riders to and from the Jobs Express Terminal.

ANALYSIS

The following goals were established to guide the Study:

- Evaluate and develop a plan for multimodal access to and from the Jobs Express Terminal, focusing on connectivity with nearby destinations and residential locations.
- Attract transit riders to the use of the Terminal and the services that potentially may be offered there such as express bus service to regional destinations.
- Integrate new and emerging technologies especially in consideration of Mobility on Demand (MOD), first/last mile connections, public/private partnerships to provide customer-centric services, and choice demand management services. This technology may also include the use of new alternative vehicle applications such as electric, connected, and automated vehicles.

The Jobs Express Terminal Connectivity Study will be conducted by Tindale Oliver who is one of the General Planning Consultants of the TPO. The project will be completed by June 30, 2020, with a lump sum budget of \$47,361.90.

The Jobs Express Terminal Connectivity Study Scope of Services was reviewed and recommended for approval by the TPO Advisory Committees at their meetings during the week of November 18th.

RECOMMENDATION

Because the Jobs Express Terminal Connectivity Study will address first-last mile access to the future Jobs Express Terminal, is consistent with Task 3.2 of the UPWP, and is recommended for approval by the TPO Advisory Committees, it is recommended that the Jobs Express Terminal Connectivity Study Scope of Services be approved by the TPO Board.

SCOPE SUMMARY
ST. LUCIE JOBS EXPRESS TERMINAL CONNECTIVITY STUDY
Revised by Tindale Oliver – October 25, 2019

INTRODUCTION

The St. Lucie Jobs Express Terminal on Gatlin Boulevard is currently in the design stage. This multimodal transportation facility is a priority project of the St. Lucie Transportation Planning Organization (TPO), the City of Port St. Lucie, and the Florida Department of Transportation (FDOT). Designed to support regional commuter trips to and from St. Lucie County area, the facility will be located along the south side of Gatlin Boulevard just east of the I-95 and Gatlin Boulevard interchange. The Jobs Express Terminal Park-and-Ride is funded for construction in 2020 and will include:

- Connection to the existing access road for the Gatlin Plaza shopping complex
- Parking capacity for 162 vehicles
- Bus parking and shelters for 6 buses
- Pedestrian-level lighting, aesthetically-pleasing landscaping, and ADA accessibility

At the request of the St. Lucie TPO, this scope summary was prepared for conducting a connectivity study for the Jobs Express Terminal. The study will identify and evaluate infrastructure and operational solutions that improve connectivity to and from the Terminal.

The following goals were established to guide the Terminal connectivity study:

- Evaluate and develop a plan for multimodal access to and from the Jobs Express Terminal, focusing on connectivity with nearby destinations and residential locations.
- Attract transit riders to the use of the Terminal and the services that potentially may be offered there, such as express bus to regional destinations.
- Integrate new and emerging technologies, especially in consideration of Mobility on Demand (MOD), first/last mile connections, public/private partnerships to provide customer-centric services, and choice demand management services. This technology may also include the use of new alternative vehicle applications such as electric, connected, and automated vehicles.

SCOPE OUTLINE

Key elements of the scope of services are outlined below:

- Task 1 - Participate in a kickoff meeting and up to two (2) review meetings. Two of these meetings will be conducted using Go To Meeting and one will be attended by Tindale Oliver staff in person.
- Task 2 - Review the summary of relevant plans and studies prepared by the TPO staff. This summary should include the following information:

- 2017 Transportation Connectivity Study
- Transit Development Plan
- Other relevant planning studies
- Relevant multimodal facility plans (e.g., sidewalk, greenways, trails, etc.)
- Planned roadway improvements and resurfacing, restoration and rehabilitation (3R) projects
- Task 3a - Conduct multimodal safety assessment of Gatlin Boulevard from west of SW Village Parkway to east of SW Rosser Boulevard.
 - Multimodal safety assessment will focus on:
 - Opportunities to implement pedestrian geometric design, signage & pavement marking, and signal timing/phasing best practices, such as Lead Pedestrian Interval (LPI), at intersections.
 - Review of intersection and roadway lighting and identification of opportunities for lighting upgrades
 - Identification of opportunities for additional controlled pedestrian crossing locations
- Task 3b - Evaluate pedestrian and bicycle network connectivity.
 - Review the inventory of pedestrian facilities (0.5 miles) and bicycle facilities (2 miles) provided by the TPO staff.
 - Conduct a field review to verify the inventory and:
 - Identify opportunities to improve connections.
 - Prioritize improvements.
 - Consider multimodal trail connection along the FPL property from SW Dreyfus Boulevard to SW Import Drive.
- Task 3c – Evaluate transit network connectivity and identify new and emerging technologies that may serve the facility.
 - Integrate relevant projects from the TDP and evaluate their effectiveness
 - Identify opportunities to improve transit connections and for use of emerging technologies.
- Deliverables for Task 3:
 - Short-term and longer-term recommendation concepts
 - Feasibility reviews
 - Develop planning-level cost estimates for high-priority multimodal safety, pedestrian and bicycle needs. Limited to eight improvements and cost estimates based on generalized estimates from FDOT’s Long Range Estimates.
 - Develop planning-level cost estimates for recommended transit improvements.
- Task 4 - Prepare draft and final report. The draft report will be provided to the TPO staff for one round of comments prior to its presentation to the TPO committees and Board.
- Task 5 - Develop presentation and present to TPO committees and Board.

PROJECT BUDGET

This project will be completed with a not-to-exceed, lump sum budget of \$47,361.90.

PROJECT SCHEDULE

The study will be completed by June 30, 2020. The draft recommendations report will be provided in early May 2020 and finalized following approval by the TPO Board in June 2020.

St. Lucie TPO Jobs Express Terminal Park-and-Ride Access Study

Task	Principal	PM	Sr. Planner	Chief Engineer	Sr. Engineer	Project Planner	Engineer	Planner	Graphics	Hours	Cost
	\$ 269.00	\$ 229.84	\$ 127.44	\$ 219.44	\$ 196.95	\$ 101.44	\$ 102.86	\$ 81.34	\$ 90.56		
1. Participate in a kickoff meeting, Two (2) GoTo Meeting, and One (1) Draft/Final Review Meeting Prior to Board Presentatoin		4			12		8			24	\$ 4,105.64
2. Review the summary of relevant plans and studies prepared by the TPO staff. This summary should include the following information:			10	0	2	0	0	0	0	12	\$ 1,668.30
o 2017 Transportation Connectivity Study			2								
o Transit Development Plan			2								
o Other relevant planning studies			2								
o Relevant multimodal facility plans (e.g., sidewalk, greenways, trails, etc.)			2								
o Planned roadway improvements and 3R projects			2								
3a. Conduct multimodal safety assessment of Gatlin Boulevard from west of SW Village Parkway to east of SW Rosser Boulevard and Evaluate Bicycle/Pedestrian Network Connectivity	2	14	10	28	24	4	132	28	0	242	\$ 32,162.08
o Multimodal safety assessment will focus on:					16		40				
§ Opportunities to implement pedestrian geometric design, signage & pavement marking, and signal timing/phasing best practices at intersections.											
§ Review of intersection and roadway lighting and identification of opportunities for lighting upgrades											
§ Identification of opportunities for additional controlled pedestrian crossing locations											
3b. Review the inventory pedestrian facilities (0.5 miles) and bicycle facilities (2 miles) provided by the TPO staff.						4					
o Consider multimodal trail connection along the FPL utility easement from SW Dreyfus Boulevard to SW Hayworth Avenue.				4			8				
o Conduct a field review to verify the inventory and:								4			
§ Identify opportunities to improve connections.					4		16				
§ Prioritize improvements.					4						
3c. Evaluate transit network connectivity and emerging technologies											
o Identify relevant TDP improvements and evaluate effectiveness		2						4			
o Identify opportunities to improve transit connections and for use of emerging technologies		8	10					16			
o Deliverables:											
§ Short-term and longer-term recommendation concepts drawings				8			32				
§ Feasibility reviews				8			16				
§ Develop planning-level cost estimates for eight high-priority multimodal safety, pedestrian, and bicycle projects				8			16				
§ Develop planning-level cost estimates for recommended transit improvements		4						8			
4. Prepare draft and final report. The draft report will be provided to the TPO staff for one round of comments prior to its presentation to the TPO committees and Board.	2	2			4		12	8	4	32	\$ 4,032.76
5. Develop presentation and present to TPO committees and Board.	1	0	0	0	20	0	8	0	4	33	\$ 5,393.12
o Prepare presentation	1				8		8		4		
o Present to three (3) Committees					8						
o Present to Board					4						
Total	5.00	20.00	20.00	28.00	62.00	4.00	160.00	36.00	8.00	343.00	\$ 47,361.90



Coco Vista Centre
466 SW Port St. Lucie Blvd, Suite 111
Port St. Lucie, FL 34953
772-462-1593 www.stlucietpo.org

AGENDA ITEM SUMMARY

Board/Committee: St. Lucie TPO Board

Meeting Date: December 4, 2019

Item Number: 10a

Item Title: Sea Level Rise Mapping

Item Origination: Unified Planning Work Program (UPWP)

UPWP Reference: Task 3.9 – Environmental Planning

Requested Action: Discuss and provide comments to Staff.

Staff Recommendation: It is recommended that the Sea Level Rise Mapping of the St. Lucie TPO area be reviewed and comments be provided to Staff.

Attachments

- Staff Report
- Draft Sea Level Rise Mapping



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MEMORANDUM

TO: St. Lucie TPO Board

THROUGH: Peter Buchwald
Executive Director

FROM: Yi Ding
Transportation Systems Manager

DATE: November 27, 2019

SUBJECT: Sea Level Rise Mapping

BACKGROUND

As climate change continues to threaten both natural and built environments, the risk of impact to transportation infrastructure rises. Scientific studies predict that sea level rise will accelerate and, therefore, transportation infrastructure along the seacoast continues to be vulnerable to inundation.

One of the tasks of the Unified Planning Work Program (UPWP) of the St. Lucie TPO is Task 3.9 – Environmental Planning. The purpose of this task is to continue the integration of environmental considerations into the TPO's metropolitan planning program. Task 3.9 of the UPWP includes the completion of local Sea Level Rise Mapping to identify transportation infrastructure exposed to current and future flooding.

ANALYSIS

The Sea Level Rise Mapping was completed by using two online visualization tools: 1) National Oceanic and Atmospheric Administration (NOAA) Coastal Flood Exposure Mapper used for an overview of coastal hazard risks and vulnerability within the study area; 2) Sea Level Scenario Sketch Planning Tool used to identify transportation infrastructure exposed to potential future flooding.

After exploring the study area with those tools, the sea level rise projected with the NOAA intermediate high rate suggested that all roads in St. Lucie area are mostly unaffected until past 2060 but begin to suffer impacts by 2080.

By mapping the location of projected impacts, the spatial information technologies such as the SLS Sketch Planning Tool assist to increase the visual understanding of the future expansion of coastal water bodies and the potential inundation of vulnerable transportation facilities and infrastructure by mapping the location of projected impacts.

For the 2080 time period, approximately 2.6 miles of roadway will experience inundation. The value will increase to 14 miles of roadway of inundation by 2100. The following table identifies vulnerable road segments from the scenario:

2080 NOAA Int High Projection					
Road Name	From	To	Length of Segment (ft)	Feet Affected	% Affected
N. BEACH CSWY	US-1	Indian River County Line	40852	2337	6%
BINNEY DR	Seaway Dr.	S. Ocean Dr.	3870	640	17%
S. OCEAN DR	Harbour Isle Dr.	Martin County Line	88333	10754	12%
Total			133056	13731	10%
2100 NOAA Int High Projection					
Road Name	From	To	Length of Segment (ft)	Feet Affected	% Affected
S. INDIAN RIVER DR	Savannah Rd.	Martin County Line	61421	366	1%
AVE H	N. 7th St.	Coast	2032	838	41%
AVE C	US-1	N. Indian River Dr.	1197	196	16%
N. BEACH CSWY	US-1	Indian River County Line	40852	8336	20%
BINNEY DR	Seaway Dr.	S. Ocean Dr.	3870	3001	78%
S. OCEAN DR	Harbour Isle Dr.	Martin County Line	88333	61010	69%
SEAWAY DR	US-1	Harbour Isle Dr.	6569	255	4%
Total			204275	74002	36%

At the TPO Advisory Committee Meetings during the week of November 18th, the Sea Level Rise Mapping was reviewed and discussed. As transportation facilities within St. Lucie TPO will not be majorly impacted by sea level rise in the near future, the Sea Level Rise Mapping study serves as a guide to begin the preliminary discussions to develop a framework for a comprehensive Transportation Asset/Service Vulnerability Assessment, which will focus on identifying the impacts of extreme weather such as high tide and heavy rains to local transportation facilities and ways to improve the climate adaptation/resiliency of the transportation assets and services.

RECOMMENDATION

It is recommended that the Sea Level Rise Mapping of the St. Lucie TPO area be reviewed and comments be provided to Staff.



Sea Level Rise Mapping

Using the Sea Level Scenario Sketch Planning Tool and
NOAA Coastal Flood Exposure Mapper

Prepared by the St. Lucie Transportation Planning Organization

Contact: Yi Ding
St. Lucie Transportation Planning Organization
466 SW Port St. Lucie Boulevard, Suite 111
Port St. Lucie, Florida, 34953
Telephone: (772) 462-1593
Email: dingy@stlucieco.org

The St. Lucie TPO satisfies the requirements of various nondiscrimination laws and regulations including Title VI of the Civil Rights Act of 1964. Public participation is welcome without regard to race, color, national origin, age, sex, religion, disability, income, or family status. Persons wishing to express their concerns about nondiscrimination should contact Marceia Lathou, the Title VI/ADA Coordinator of the St. Lucie TPO, at 772-462-1593 or via email at lathoum@stlucieco.org.

Kreyòl Ayisyen: Si ou ta renmen resevwa enfòmasyon sa a nan lang Kreyòl Ayisyen, tanpri rele nimewo 772-462-1593.

Español: Si usted desea recibir esta información en español, por favor llame al 772-462-1593.



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APPENDICES

Appendix A: Coastal Flood Exposure Mapper Q & A

Appendix B: Sea Level Scenario Sketch Planning Tool Map Viewer User Guide

1. PROJECT BACKGROUND

As climate change continues to threaten both natural and built environments, the risk of impact to transportation infrastructure rises. Scientific studies predict that sea level rise will accelerate and, therefore, transportation infrastructure along the coast continues to be vulnerable to inundation.

The St. Lucie TPO's Unified Planning Work Program (UPWP) initiated efforts to assess vulnerabilities of local transportation assets and services to extreme weather and other environmental conditions and for identifying ways to improve the climate adaptation/resiliency of the assets and services.

This document is a case study assessing local transportation system vulnerability to sea level rise by using Sea Level Scenario Sketch Planning Tool and the National Oceanic and Atmospheric Administration (NOAA) Coastal Flood Exposure Mapper. It is a selected scenario planning exercise and demonstration of geospatial hazard assessment tools.

2. SEA LEVEL RISE OVERVIEW

2.1 Sea Level Rise (SLR)

Sea level has been rising over the past century, and the rate has increased in recent decades. There are two kinds of SLR: global and local. Global SLR is occurring mainly due to thermal expansion and melting of land ice. Land ice accounted for about 65% of the total SLR budget. Local SLR rates depend on natural geologic processes as well as land use processes and groundwater withdrawal. The local SLR rates in the Treasure Coast and Southeast Florida are very similar to the global sea level rise rates.

2.2 SLR Trend

In the Treasure Coast and Southeast Florida, sea level has risen 5.5 inches in the past 50 years, according to tide gauge data (Source: noaa.gov). Sea level is measured by tide gauges and, more recently, satellite altimetry.

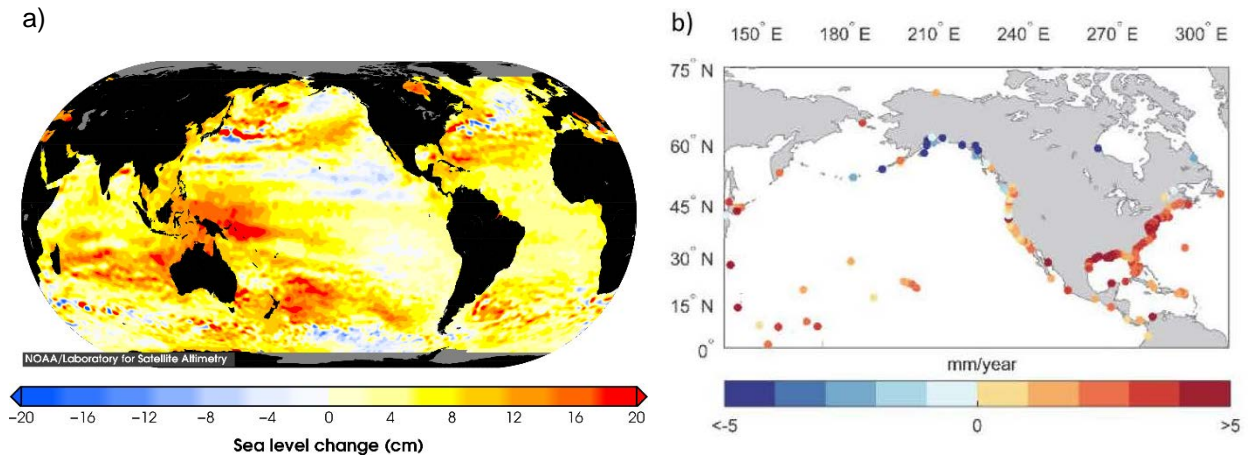


Figure 1. a) Total sea level change since 1993 from TOPEX/Poseidon, Jason-1 and Jason-2 (www.star.nesdis.noaa.gov/sod/Isa/SeaLevelRise) and b) relative sea level trends based upon full record (>30-year period of record in all cases) measured and published for NOAA tide gauges through 2018 (tidesandcurrents.noaa.gov/sltrends).

2.3 SLR Projection Curves

A total of five SLR projection curves from National Oceanic and Atmospheric Administration (NOAA) and the U.S. Army Corps of Engineers (USACE) are commonly used to project SLR (Please note: there are 3 USACE projections and 4 NOAA projections, but 2 of the projections are the same).

The graph below shows the projected amounts of relative SLR from 2000 – 2100 using these five SLR projection curves. The graph was generated from the USACE Sea Level Change Curve Calculator and NOAA sea level trends from 2018. In this study, the intermediate-high rate (green curve) was selected for the mapping purpose because it **represents** the average of all scenarios.

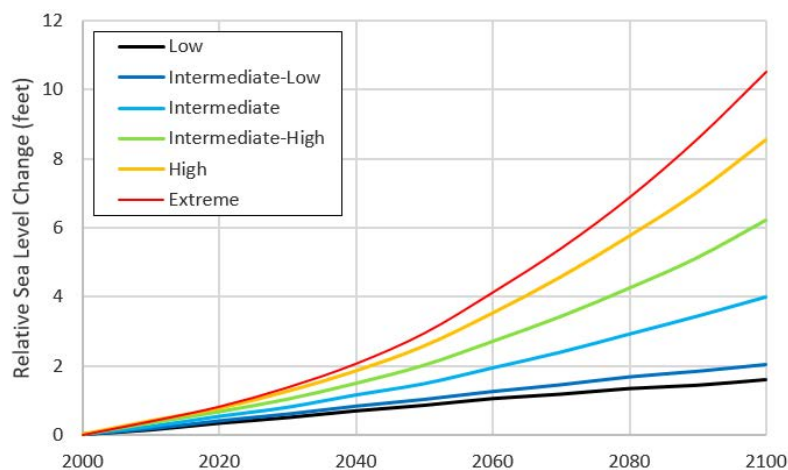


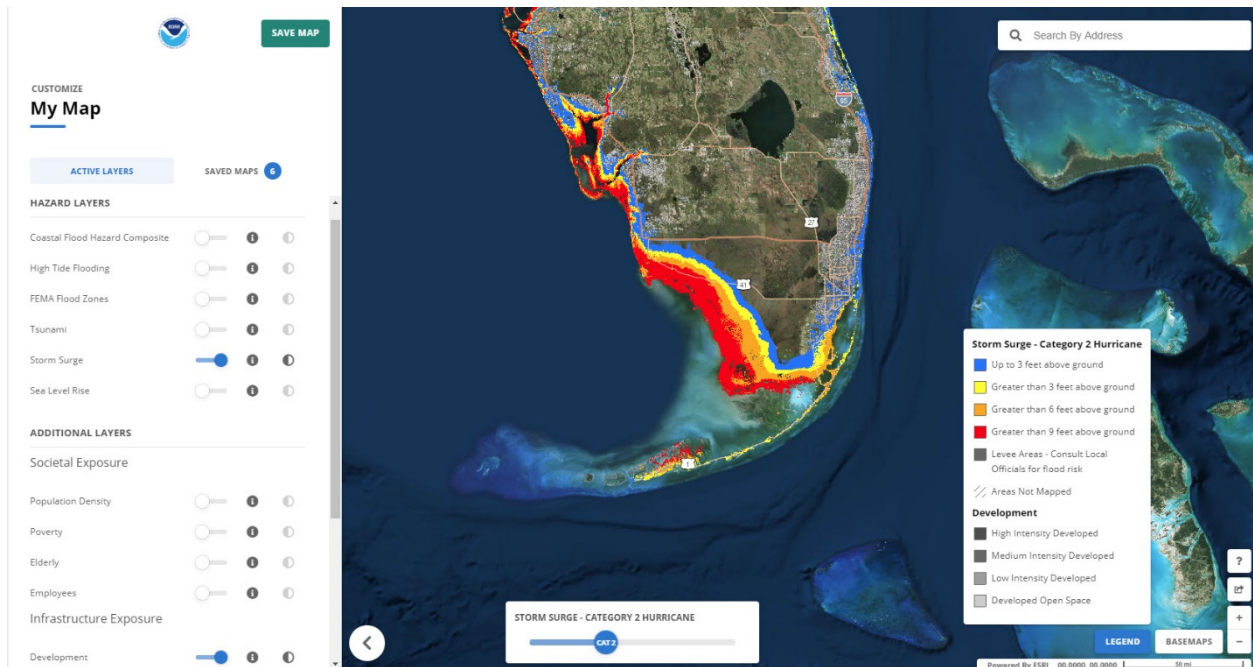
Figure 2. Relative Sea Level Projections (2000-2100). The low and extreme scenarios represent the minimum and maximum of plausible future sea level rise. Data source: NOAA Technical Report NOS CO OPS 083

3. SLR MAPPING

In this study, two visualization tools are used to create simulations and graphics of potential conditions of SLR and its impacts to transportation infrastructure within the St. Lucie TPO area. These online interactive tools do not require specific software or hardware.

3.1 NOAA Coastal Flood Exposure Mapper

<https://coast.noaa.gov/digitalcoast/tools/flood-exposure.html>



This free online visualization tool can be used to assess coastal hazard risks and vulnerabilities. The tool creates a collection of user-defined maps that show the overview of vulnerability within the St. Lucie TPO area to the following events:

- Coastal Flood Hazard
- High Tide Flooding
- Storm Surge
- Sea Level Rise

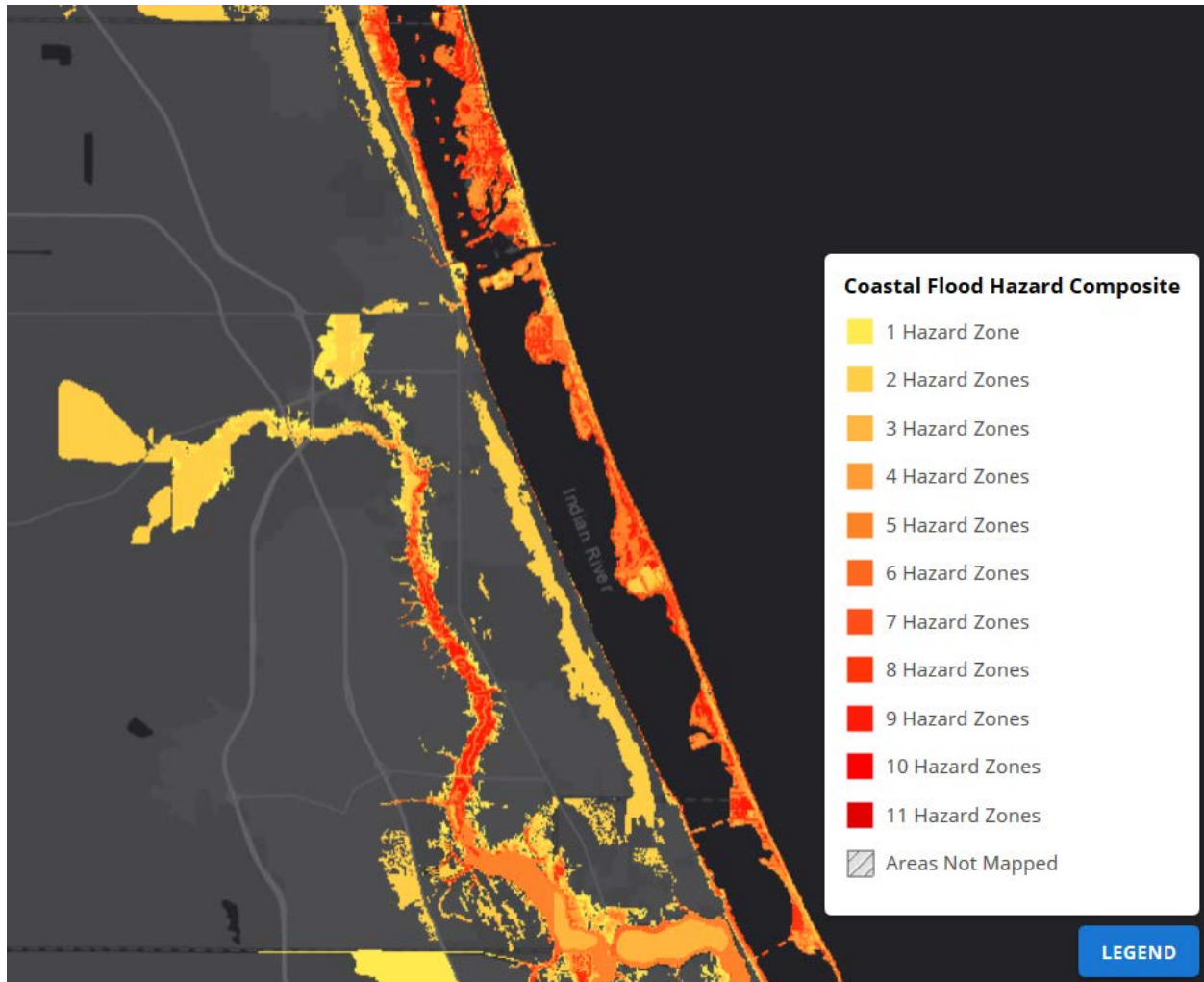


Figure 3. Coastal Flood Hazard Composite

Figure 3 shows areas prone to flooding from one or more of the following hazards:

- High tide flooding
- High risk (1% annual chance for A and V zones) and moderate risk (0.2% annual chance) flooding (designated by the Federal Emergency Management Agency)
- Storm surge for Category 1 through Category 3 hurricanes
- Sea level rise scenarios of 1, 2, and 3 feet

The darker the color on the map, the more flood hazard zones there are for that area.

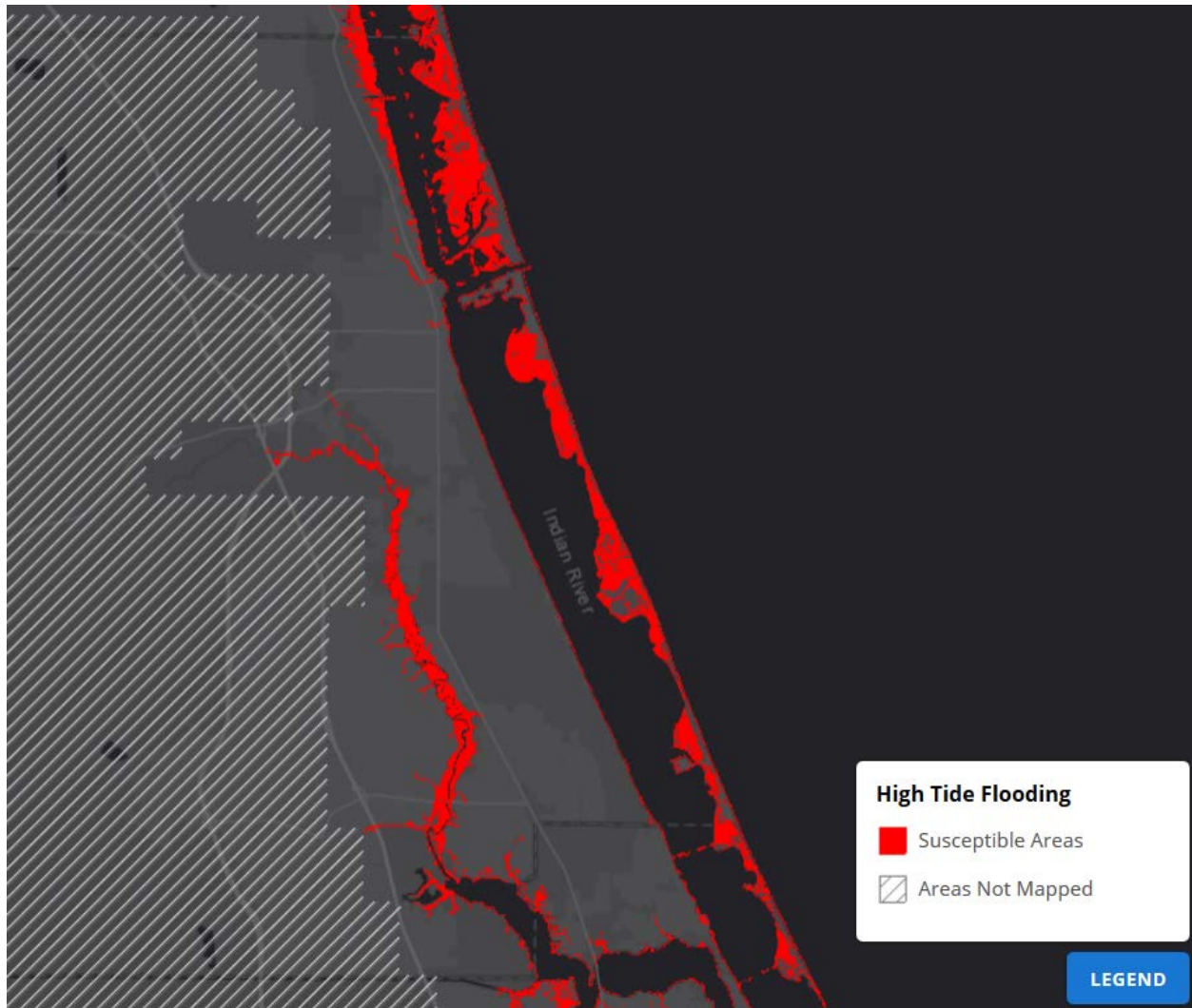


Figure 4. High Tide Flooding

Figure 4 illustrates in red low-lying coastal areas prone to flooding during extreme high tides. Extreme high tides occur a few times per year when the sun, moon, and earth align, or during storm events. Rainfall or wind pushing water over land can increase flooding levels. Annual occurrences of high tide flooding—exceeding local thresholds for minor impacts to infrastructure—have increased 5- to 10-fold since the 1960s in several U.S. coastal cities. In one sense, today’s flood will become tomorrow’s high tide, as sea level rise will cause flooding to occur more frequently and last for longer durations of time.

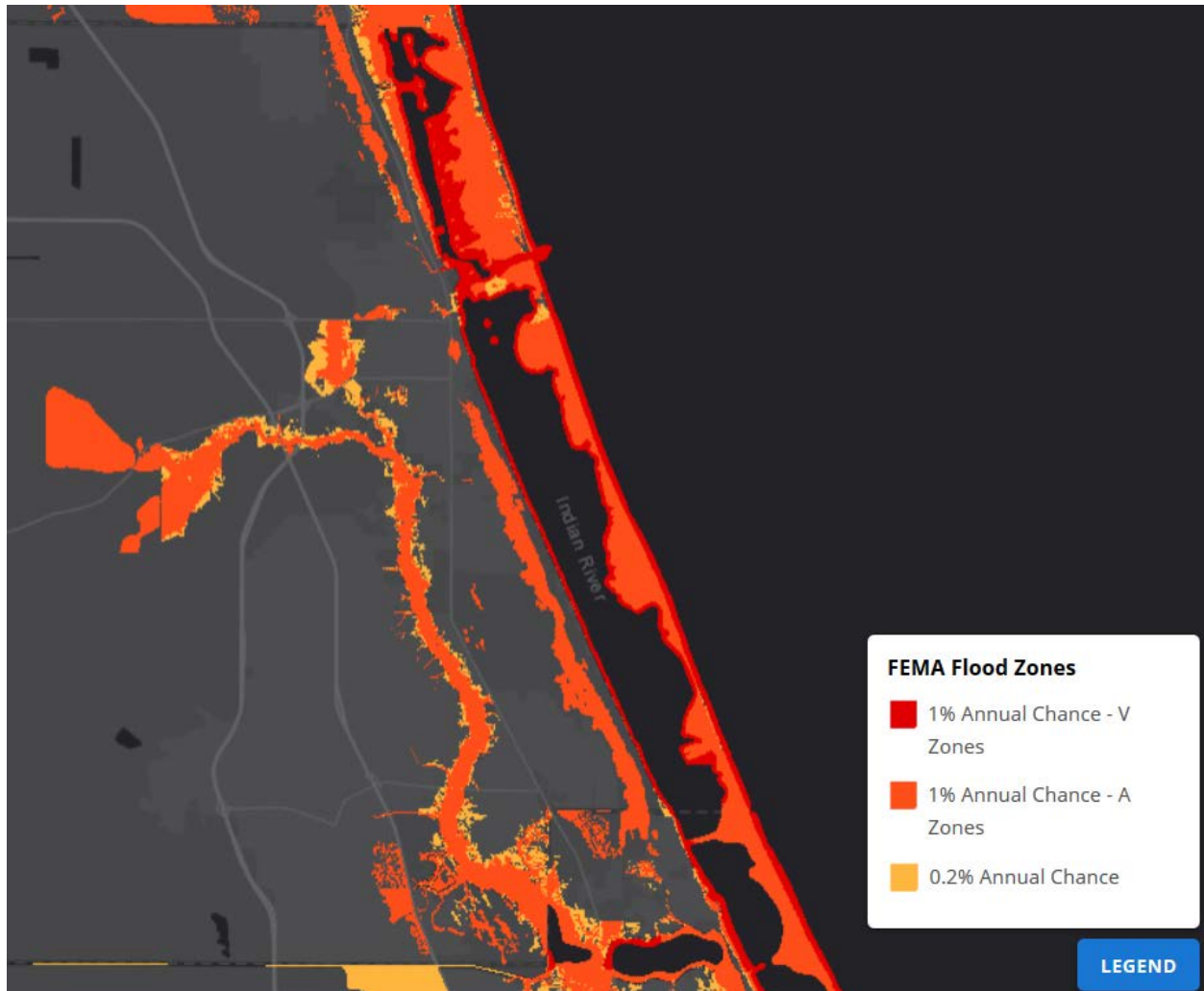


Figure 5. FEMA Flood Zones

Figure 5 shows high-risk for A and V flood zones (1% annual chance, or 100-year floodplain) and moderate-risk (0.2% annual chance, or 500-year floodplain) designated by the Federal Emergency Management Agency (FEMA). Some parts of the flood zone may experience frequent flooding while other areas are only affected by severe storms. High-risk flood zones are also commonly referred to as Special Flood Hazard Areas.

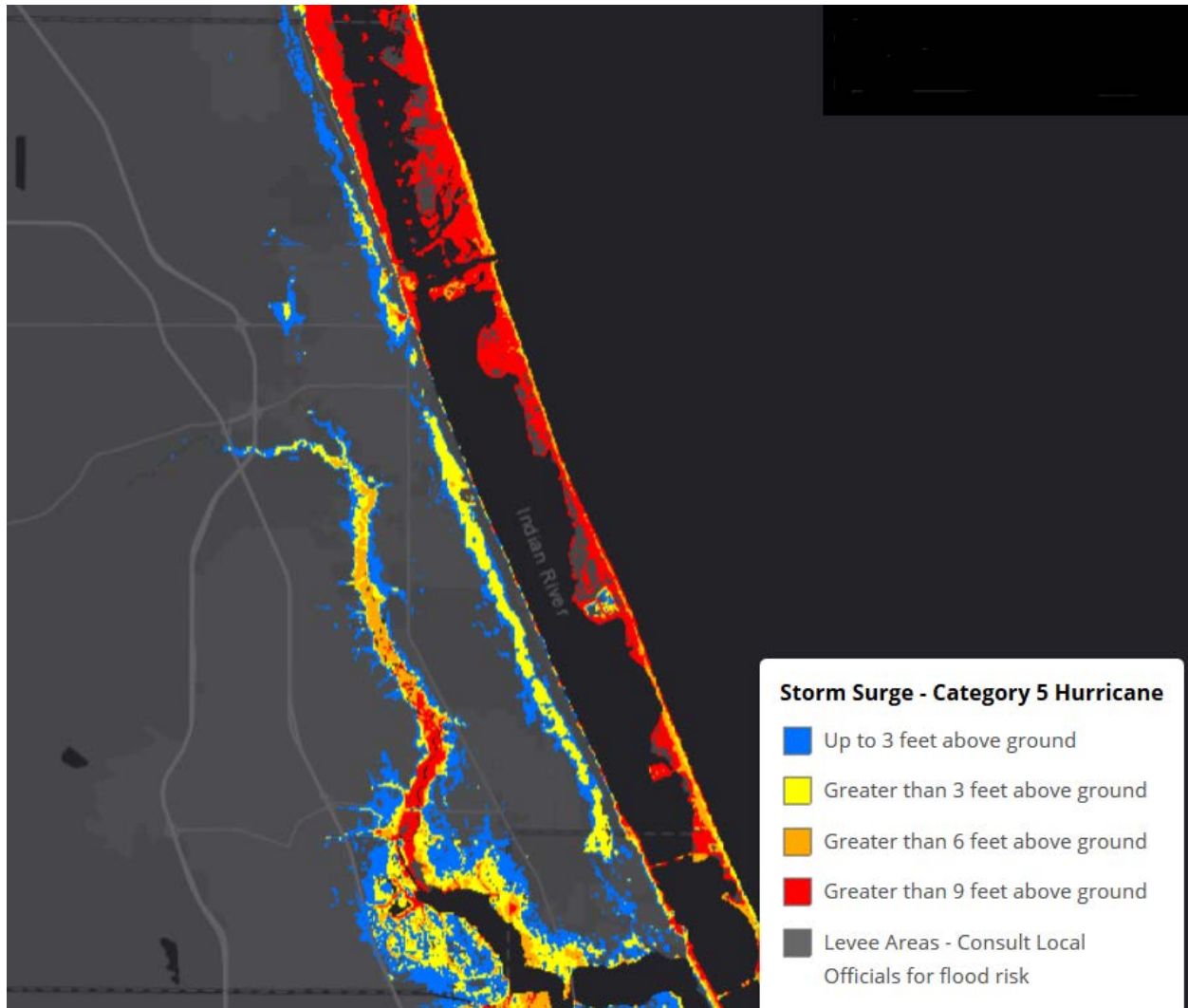


Figure 6. Storm Surge in Category 5 Hurricane

Figure 6 displays the depth of storm surge inundation for a category 5 hurricane, from less than 3 feet above ground (in blue) to greater than 9 feet above ground (in red). Data shown in this map were derived from storm surge inundation maps created by the National Hurricane Center (NHC) Storm Surge Unit with the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model. SLOSH is used to calculate storm surge heights and the extents of inundation for hurricane evacuation studies. Hurricane storm surge heights are influenced by many factors, including hurricane category, size, forward speed, the angle of approach to the shoreline, and the characteristics of the coastline. Since many factors influence storm surge heights, maximum inundations from multiple storm surge scenarios are composited into one data layer.

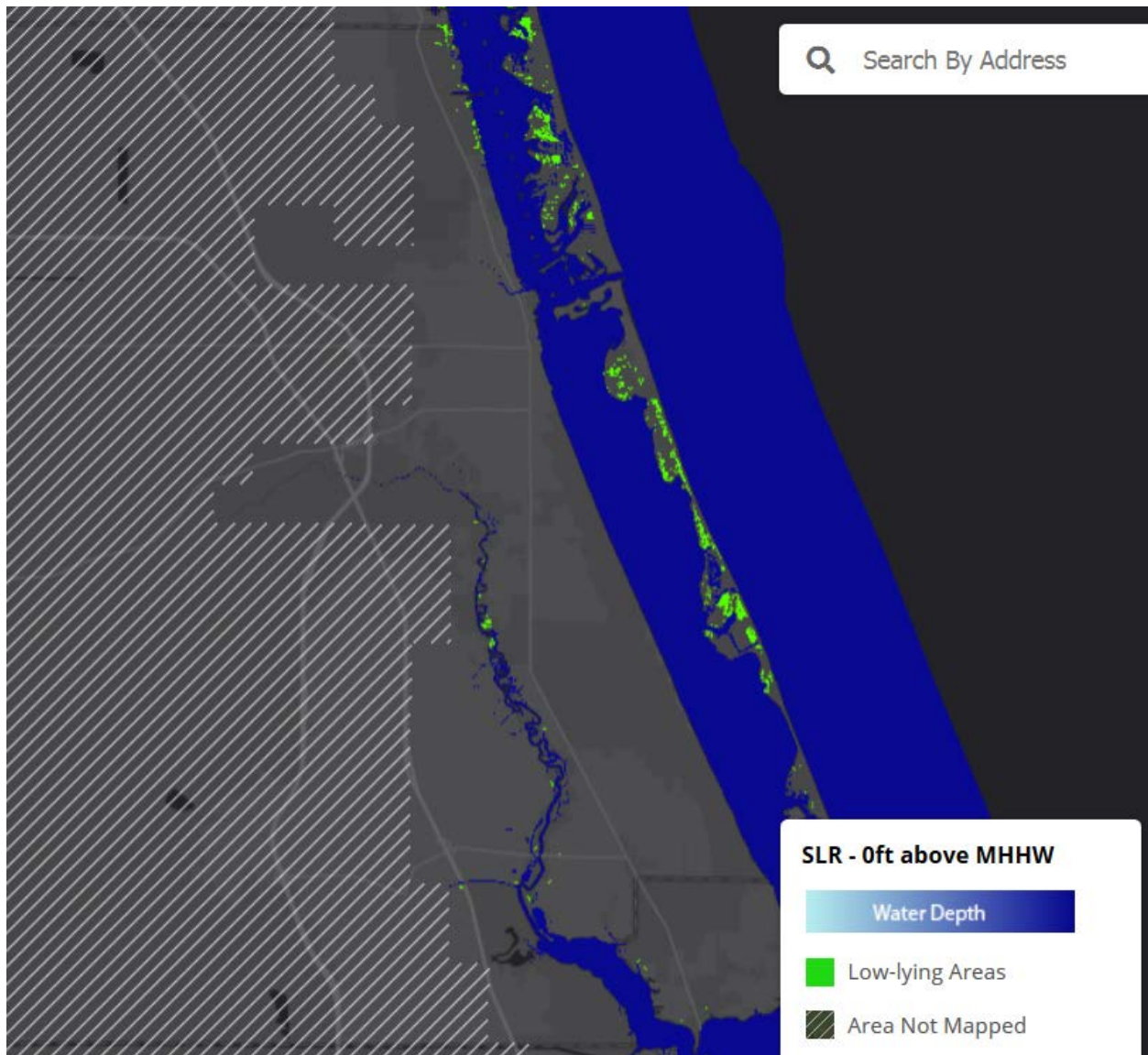


Figure 7. Sea Level Rise – Scenario of 0 ft

Figures 7 and 8 show sea level rise scenarios of 0 and 10 feet, which simulate a rise in water above the average of the highest high tides (called mean higher high water, or MHHW) for hydrologically connected areas. Areas that are hydrologically connected to the ocean are shown in shades of blue (darker blue = greater depth). Low-lying areas, displayed in green, are hydrologically “unconnected” areas that may also flood.

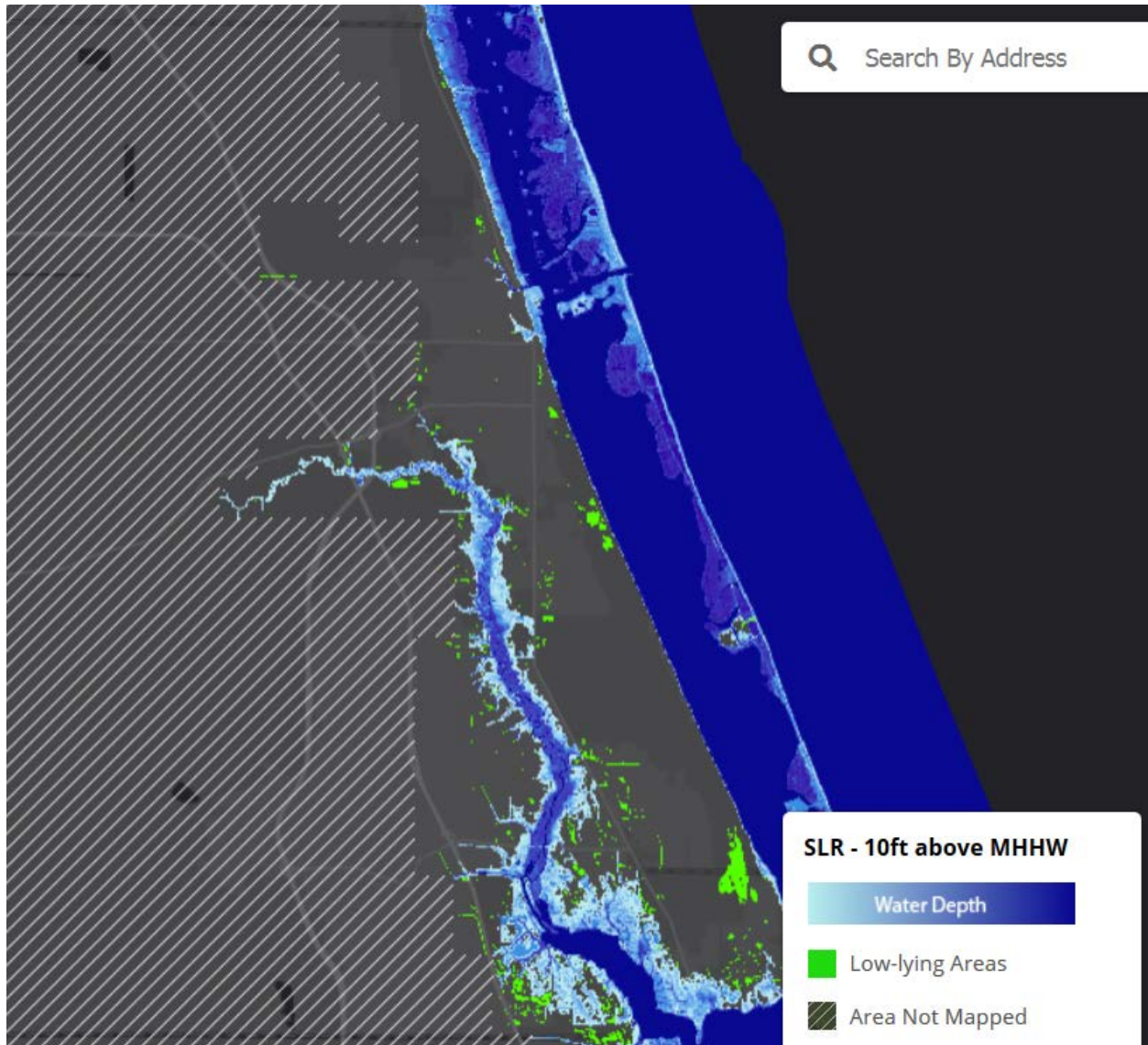
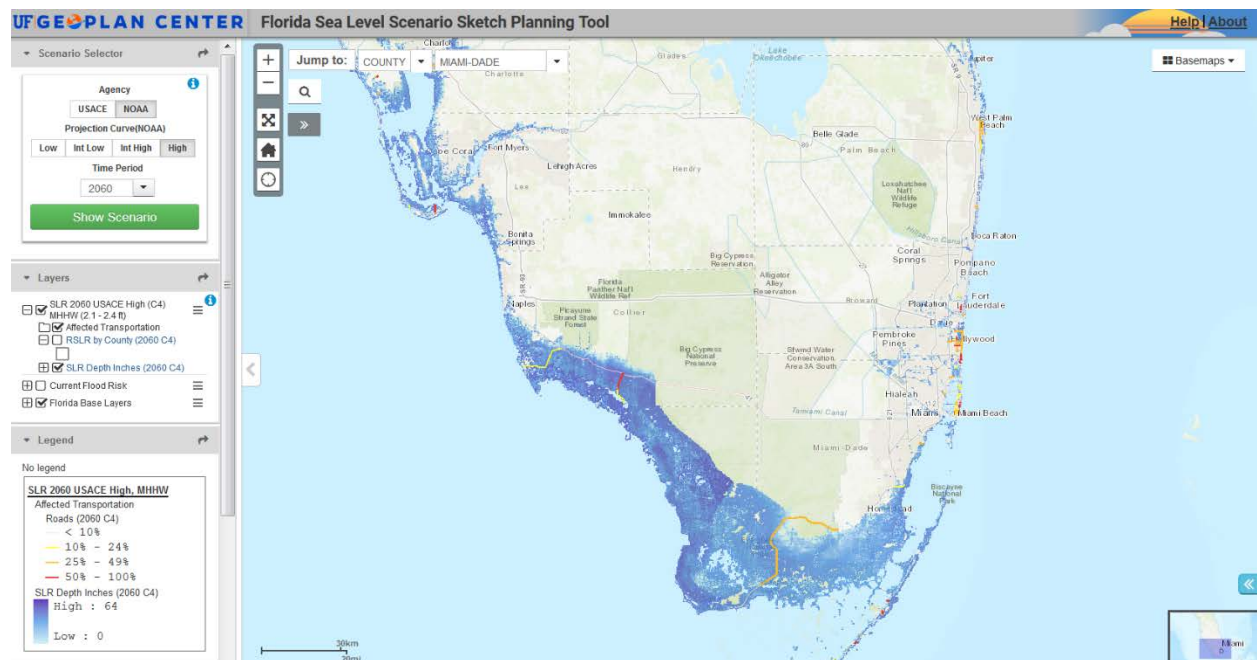


Figure 8. Sea Level Rise – Scenario of 10 ft

3.2 Sea Level Scenario (SLS) Sketch Planning Tool

<https://sls.geoplan.ufl.edu/>



In recent years, the Florida Department of Transportation (FDOT) has expressed concerns over the continuation and acceleration of sea level rise impacts in the future and the need to integrate this critical issue into its planning processes. To further this objective, FDOT provided funding to the University of Florida's Geo Plan Center to develop the Florida Sea Level Scenario Sketch Planning Tool. This tool is an interactive, web based, geospatial application designed to identify the transportation infrastructure in Florida that are most likely to be impacted by tidal inundation from the projected sea level rise.

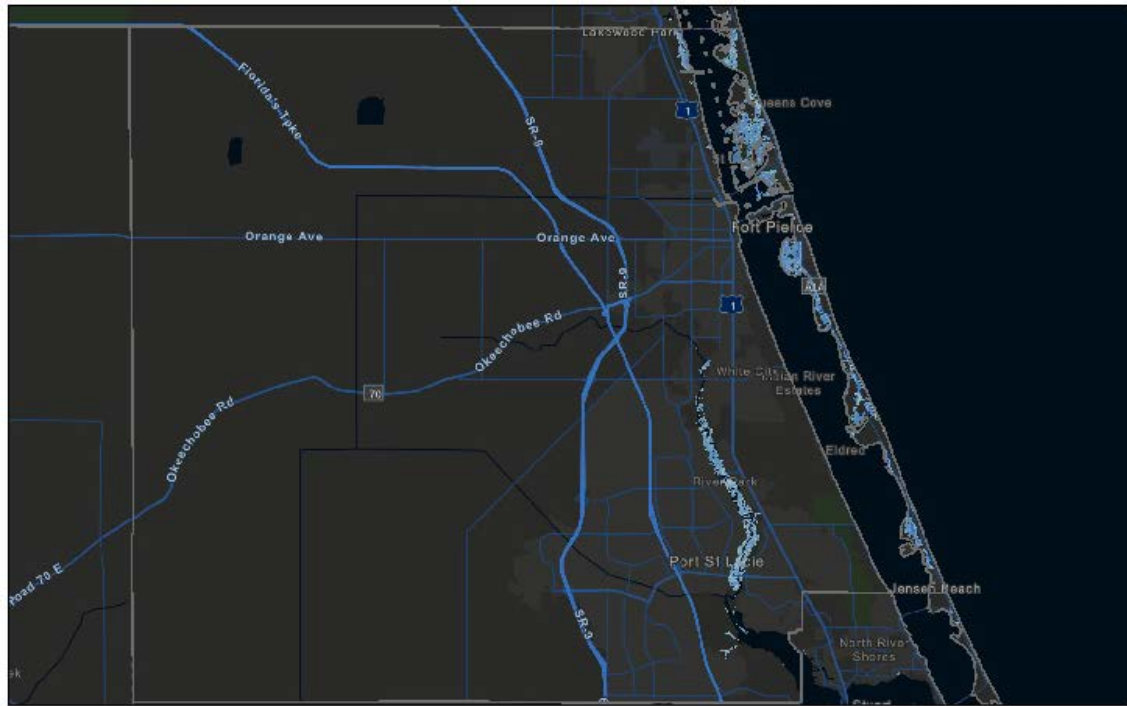
With the online map viewer, users can visualize when and where inundation is projected to occur and which transportation facilities are potentially vulnerable to inundation due to SLR. The map viewers can display SLR inundation scenarios and affected transportation infrastructure for four decades (2040, 2060, 2080, and 2100) with five SLR rates (USACE and NOAA). In this study, NOAA Intermediate High Rate Scenario was selected to project the inundation within the St. Lucie TPO area.

After exploring the study area with the Sketch Planning Tool, the SLR projections reveal that all roads in the area are mostly unaffected up until year 2060 (see figure 9), but begin to suffer impacts by 2080 (see figure 10).

For the 2080 time period, approximately 2.6 miles of roadway will experience inundation. The value will increase to 14 miles of roadway of inundation by 2100. The following table and figures quantify and illustrate vulnerable road segments for the scenario.

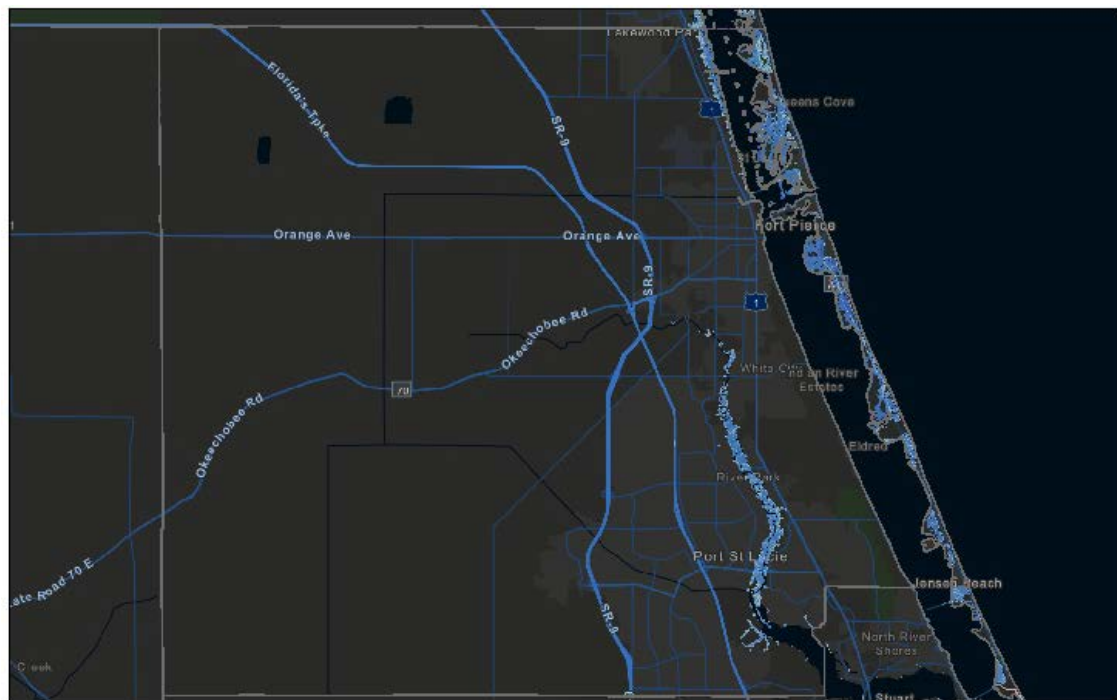
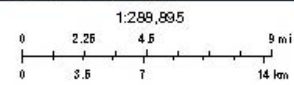
2080 NOAA Int High Projection					
Road Name	From	To	Length of Segment (ft)	Feet Affected	% Affected
N. BEACH CSWY	US-1	Indian River County Line	40852	2337	6%
BINNEY DR	Seaway Dr.	S. Ocean Dr.	3870	640	17%
S. OCEAN DR	Harbour Isle Dr.	Martin County Line	88333	10754	12%
Total			133056	13731	10%
2100 NOAA Int High Projection					
Road Name	From	To	Length of Segment (ft)	Feet Affected	% Affected
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AVE H	N. 7th St.	Coast	2032	838	41%
AVE C	US-1	N. Indian River Dr.	1197	196	16%
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BINNEY DR	Seaway Dr.	S. Ocean Dr.	3870	3001	78%
S. OCEAN DR	Harbour Isle Dr.	Martin County Line	88333	61010	69%
SEAWAY DR	US-1	Harbour Isle Dr.	6569	255	4%
Total			204275	74002	36%

Table 1. Flooded Roadways by 2080 and 2100 (NOAA Int High Projection)



SLR Depth Inches
High: 50
Low: 0

2040 SLR



SLR Depth Inches
High: 69
Low: 0

2060 SLR

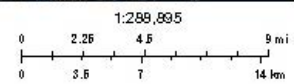


Figure 9. No Flooded Roadways by 2060 (NOAA Int High Rate)

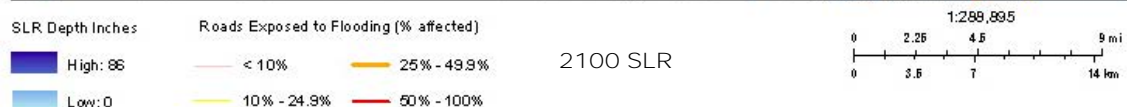
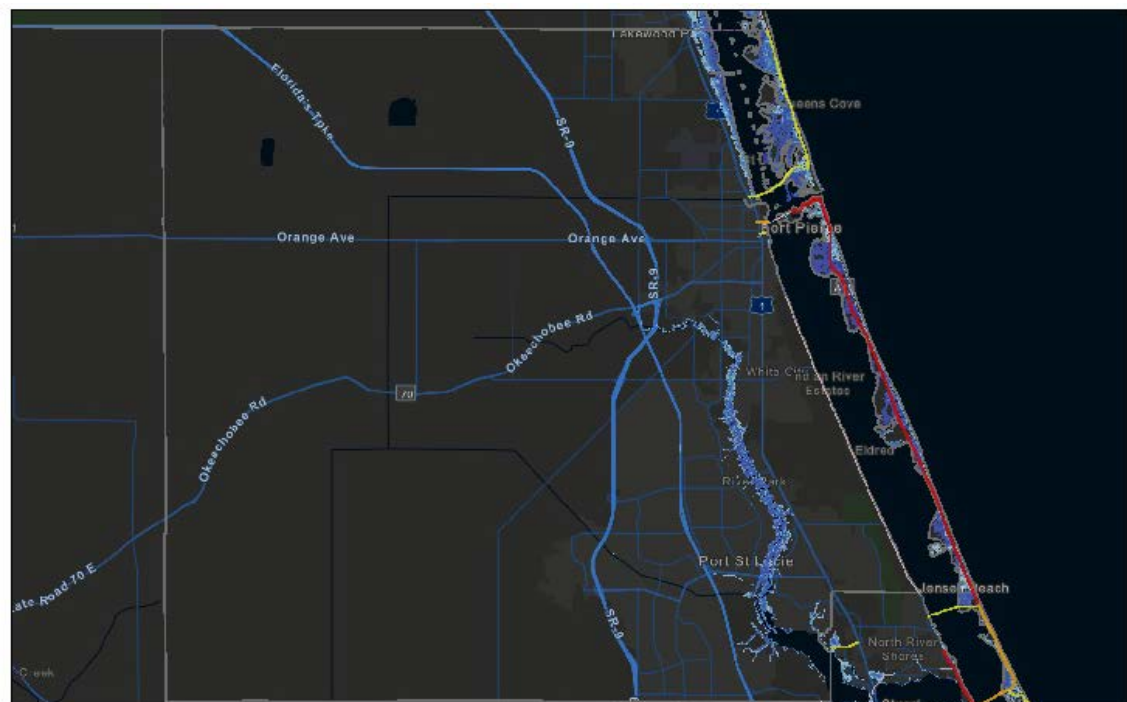
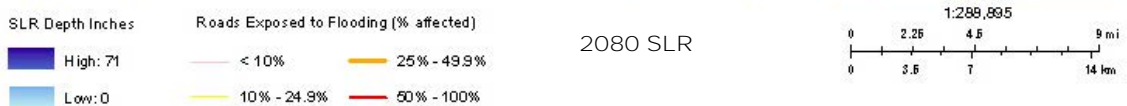
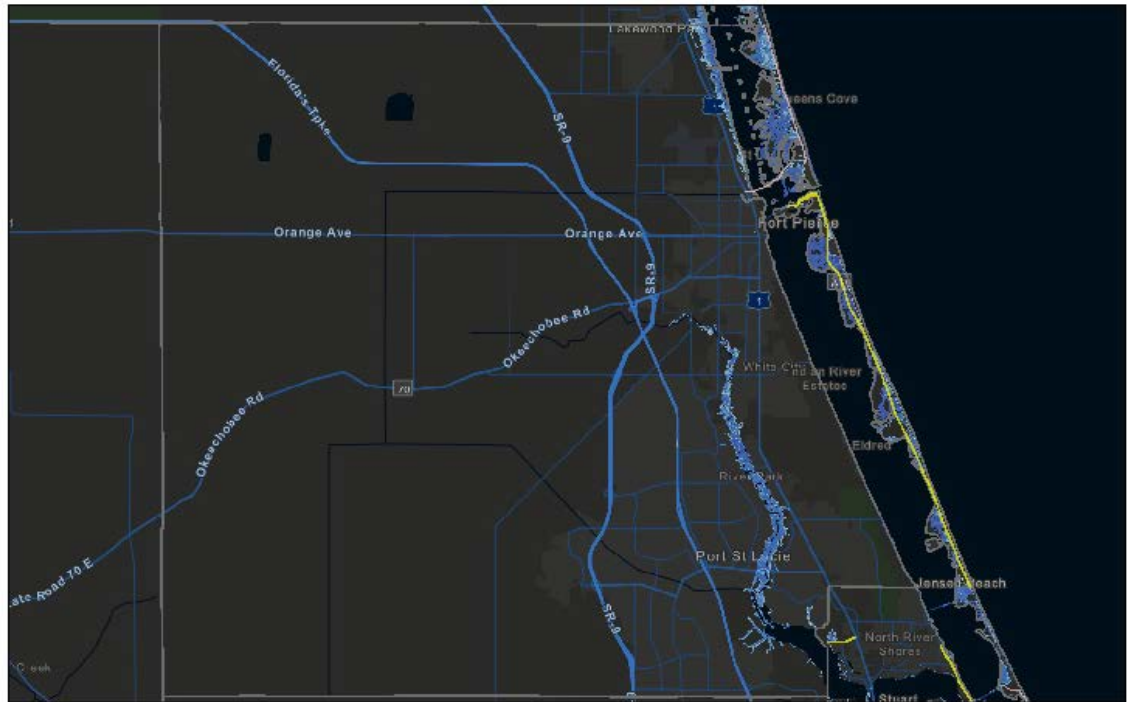


Figure 10. Flooded Roadways by 2080 and 2100 (NOAA Int High Projection)

4. CONCLUSION

It is evident that sea level rise poses the greatest threat to coastal communities due to their proximity to oceans and other large bodies of water. Consequently, the risk of roadway flooding in these areas from tidal inundation, groundwater lifting and higher storm surges will increase.

Spatial information technologies such as the SLS Sketch Planning Tool help to increase the visual understanding of the future expansion of coastal water bodies and the potential inundation of vulnerable transportation facilities and infrastructure by mapping the location of projected impacts. The technology also helps to inform the St. Lucie TPO and local jurisdiction's processes of planning, prioritizing and directing resources toward transportation infrastructure design, construction, improvement and maintenance.

Based on the SLR projected by the Sketch Planning Tool with NOAA intermediate high rate, the following road segments will be impacted by 2080:

- 6% of N. Beach Causeway from US-1 to Indian River County line
- 12% of S. Ocean Drive from Harbour Isle Drive to Martin County line
- 17% of Binney Drive

By 2100, the following road segments will be impacted:

- 1% of S. Indian River Drive from Savannah Road to Martin County line
- 4% of Seaway Drive from US-1 to Harbour Isle Drive
- 16% of Avenue C from US-1 to N. Indian River Drive
- 20% of N. Beach Causeway from US-1 to Indian River County line
- 41% of Avenue H from N. 7th Street to the coast
- 69% of S. Ocean Drive from Harbour Isle Drive to Martin County line
- 78% of Binney Drive

The Sea Level Rise Mapping study serves as a guide to begin the preliminary discussions necessary to develop a framework for a comprehensive transportation system vulnerability assessment. The St. Lucie TPO will continue to coordinate with other government agencies and non-governmental entities in the TPO area to assess existing and projected transportation facilities conditions related to climate change and sea level rise and to develop appropriate strategies.

Appendix A: Coastal Flood Exposure Mapper Q&A

Frequent Questions



Coastal Flood Exposure Mapper

NOAA Office for Coastal Management
coast.noaa.gov/digitalcoast/tools/flood-exposure.html

At what scale is the tool meant to be used?

The mapper is a screening-level tool with existing national data that are locally relevant. The mapper was developed to get the conversation started around coastal flood hazard risks and associated vulnerabilities, but we encourage users to obtain local data to conduct more detailed analyses, if necessary.

At what scale are the data being displayed?

For the contiguous United States, map data are displayed down to the neighborhood level—roughly 1:9,000. For Hawaii and U.S. territories in the Pacific and Caribbean, map data are displayed one additional level down—to roughly 1:4,500.

What is the boundary for coastal counties shown in the mapper?

The county data set used in the mapper is a generalized county boundary data set that includes a three-kilometer buffer along the shoreline of shore-adjacent counties.

Which coastal counties are included?

Coastal counties within the generalized county boundary data set that have data for one or more coastal flood hazards included. If data are not available for a location, it is not included in the mapper.

Why is my county missing data for one or more of the coastal flood hazards?

Sea Level Rise and High Tide Flooding – Your county may not have suitable lidar-based elevation data and hydro-enforced digital elevation models required for accurate coastal inundation mapping.

FEMA Flood Zones – a) Digital flood data may not exist for your county or may not have existed when the mapper was completed. Check the availability of data for your county on FEMA's Flood Map Viewer. The flood data used in the mapper are a combination of Digital Flood Insurance Rate Maps and Q3 flood data available as of October 2018.

b) Your county may only have paper Flood Insurance Rate Maps (FIRMs). Check to see the availability of FIRMs for your community.

c) Your county may not participate in the National Flood Insurance Program (NFIP), which means that flood maps have not been created. Check your state to determine if your county or community participates. You may also contact your state or local floodplain manager as listed on the Association of State Floodplain Managers' website.

Coastal Flood Hazard Composite – The flood hazard composite includes multiple flood hazard data sets combined (best available as of October 2018), including high tide flooding; FEMA flood data including V zones, A zones, and 500-year zones treated as individual layers; storm surge for category 1, 2, and 3

hurricanes; sea level rise scenarios for 1, 2, and 3 feet above mean high tide; and tsunami run-up zones where available. Flood hazard composites were developed only for counties that have all three of the following hazard data sets: FEMA flood zones, sea level rise scenarios, and high tide flooding.

What is the purpose of the Coastal Flood Hazard Composite map?

The concept for a coastal flooding composite hazard layer was initially developed for coastal areas of New York after Hurricane Sandy to depict geographically dependent susceptibility to coastal flooding, storm surge, and long-range inundation impacts. The mapping method was modified and expanded to the rest of the East Coast, Gulf of Mexico, West Coast, and Pacific and Caribbean islands and territories for the Coastal Flood Exposure Mapper. This map layer aggregates risk information for multiple coastal flood hazards. This map shows the gradient of coastal flood risk that ranges from areas outside the FEMA 1% annual chance floodplain that are still at risk from high magnitude, low frequency events like major landfalling hurricanes and tsunamis, to areas nearer the coast that are also at risk from higher frequency flood events, wave impacts, and long-term sea level change. At any given location the user can query which coastal flood hazards may impact that spot. This layer should not be confused with, and may not be substituted for, any existing regulatory risk maps or associated boundaries. These maps are for planning purposes only.

Does the sea level rise map show scenarios added to FEMA flood zones (base flood elevation)?

No. The sea level rise layers show inundation scenarios of 0 to 10 feet based on the current average highest high tide (called mean higher high water, or MHHW).

Are the data available for download?

The layers displayed in the Coastal Flood Exposure Mapper are available as map services to pull into platforms outside the tool. However, data are not available for download directly from the tool. In most cases, data used in these layers can be downloaded from the authoritative source. View the “Data Sources” documentation for links to the map services and the authoritative sources for each data set.

Are you expanding the mapper nationally?

We have gradually expanded the geographic coverage of the Coastal Flood Exposure Mapper. Currently, the mapper covers coastal areas along the East Coast, West Coast, Gulf of Mexico, Hawaii, and U.S. territories in the Pacific and Caribbean. We are exploring options to expand the mapper to other regions. Please [contact us](#) if interested.

Do you have examples of how communities have used the mapper?

The “Related Stories” section of the Digital Coast mapper home page has several stories describing how communities have used the mapper. We are always interested in learning how the tool has been used. Please [contact us](#) to share your examples. Your story may help others.

How does this tool differ from NOAA’s Sea Level Rise Viewer?

The mapper was designed with a specific audience in mind and was developed based on needs heard during NOAA’s risk and vulnerability trainings for maps that show coastal flood hazards in addition to sea level rise, along with community assets. Sea level rise and high tide flooding data from the Sea Level Rise Viewer are included in the mapper. The Sea Level Rise Viewer is focused specifically on sea level rise, high tide flooding, and marsh impacts.

Can we add our own local data to the mapper?

No, but layers displayed in the mapper are available as map services (links in the “Data Sources” documentation), which you can use in online mapping platforms or desktop software to create maps with local data. Visit the [ArcGIS Online Tutorial](#) to learn how to add data and map services to a map in that free online mapping platform.

Appendix B: Sea Level Scenario Sketch Planning Tool Map Viewer
User Guide

Map Viewer User Guide

Sea Level Scenario Sketch Planning Tool

Version 2, 2017

University of Florida GeoPlan Center



Introduction

The purpose of this document is to guide users on how to use the Sea Level Scenario Sketch Planning Tool Map Viewer (Version 2). The map viewer visualizes transportation assets and their exposure to **current flood risk** (100-year and 500-year floodplains and hurricane storm surge zones) and **future flood risk** using sea level rise (SLR) scenarios from the U.S. Army Corps of Engineers (USACE, 2013) and the National Oceanic and Atmospheric Administration (NOAA, 2012)/ National Climate Assessment.

The SLS Sketch Planning Tool was created by the University of Florida GeoPlan Center with funding from the Florida Department of Transportation. SLR scenarios and transportation analyses were updated in 2017 with updated input data and a new map viewer was developed for data visualization. The SLS Sketch Planning tool can assist in understanding how and when future sea level rise may impact the transportation system.

The SLS Sketch Planning Tool includes: (1) Online map viewer for visualizing current and future flood risk under SLR scenarios and potentially affected transportation infrastructure. (2) GIS data layers of SLR inundation and affected transportation; and (3) ArcMap add-in tool for creating GIS layers of SLR inundation.

Accessing the Map & Supported Browsers

The map viewers are accessible from the project website: <http://sls.geoplan.ufl.edu>

From the website, click on the “View Maps” tab at the top of the page to access the map viewers.

The Map Viewer is best viewed in Google Chrome or Mozilla Firefox.

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SLR Projections and Areas Mapped

Users can explore areas of projected inundation and potentially affected infrastructure under five SLR scenarios at time periods (2040, 2060, 2080, and 2100).

SLR Projection Curves

A total of **five SLR projection curves** from USACE (2013) and NOAA (2012) can be displayed in the viewer. **Please note:** there are 3 USACE projections and 4 NOAA projections, but 2 of the projections are the same.

The table to the right shows the five SLR projections available for display in the Map Viewer. In the map, each scenario is named with a “C1” through “C5” to indicate the SLR curve. C1 is the *lowest* rate of SLR, while C5 is the *highest* rate of SLR.

The graph shows the projected amounts of relative SLR from 2000 – 2100 using these five SLR projection curves. The graph and SLR projections were generated from the USACE Sea Level Change Curve Calculator (2015.46) and NOAA sea level trends from 2015.

USACE Sea-Level Change Curve Calculator

<http://www.corpsclimate.us/ccaceslcurves.cfm>

USACE (2013). *Incorporating Sea Level Change into Civil Works Programs.* [ER 1100-2-8162.](https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1100-2-8162.pdf)

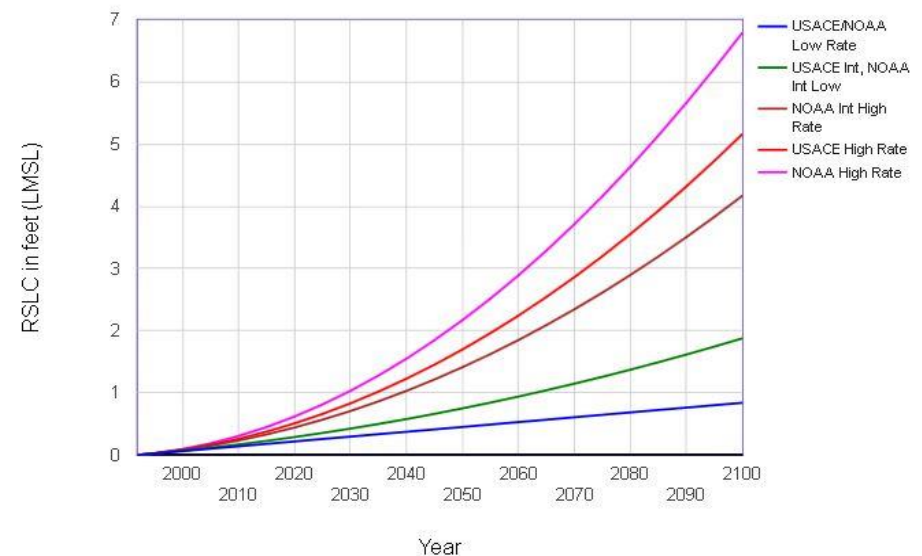
http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1100-2-8162.pdf

NOAA (2012). *Global Sea Level Rise Scenarios for the United States National Climate Assessment.*

https://scenarios.globalchange.gov/sites/default/files/NOAA_SLR_r3_0.pdf

SLR Projection Curves

SLR Curve	SLR Curve Description	Amount of SLR (relative to mean sea level) by 2100
C5	NOAA High Rate (2012)	~ 6.6 feet (or 2.0 m)
C4	USACE High Rate (2013)	~ 5.0 feet (or 1.5 m)
C3	NOAA Intermediate High Rate (2012)	~ 3.9 feet (or 1.2 m)
C2	USACE Intermediate Rate (2013) / NOAA Intermediate Low Rate (2012)	~ 1.6 feet (or 0.5 m)
C1	USACE Low Rate (2013)/ NOAA Low Rate (2012)	~ 8 inches (or 0.2m)



U.S. Army Corps of Engineers and National Oceanic and Atmospheric Administration Relative Sea Level Change Projections for Key West, FL

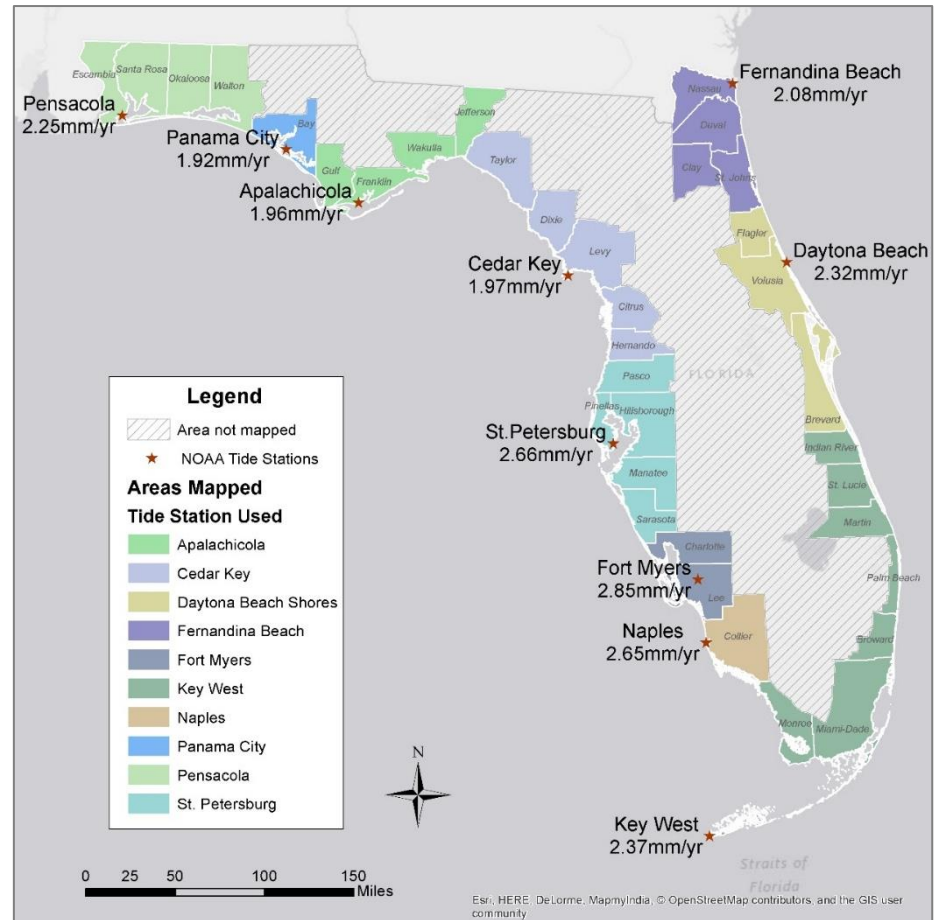
Areas Mapped, Sea Level Trends & Tide Stations Used in Inundation Mapping

SLR scenarios were mapped by county using local tide gauge data and sea level trends. The map to the right shows the coastal areas mapped and tide stations used for each county. Some areas were not mapped due to the lack of high resolution elevation data.

The USACE Sea-Level Change Curve Calculator (2015.46) and 2015 NOAA sea level trends for ten Florida tide stations were used to generate relative SLR values for five SLR curves by decade from 2040 - 2100. Only four decades (2040, 2060, 2080, 2100) are currently displayed in the map viewer, but all are available for download.

Projected inundation was mapped on top of Mean Higher High Water (MHHW), using a tidal surface grid (obtained from NOAA Office of Coastal Management) that represented MHHW conditions around the State. Inundation surfaces were mapped using a 5-meter horizontal resolution, lidar-based Digital Elevation Model (DEM).

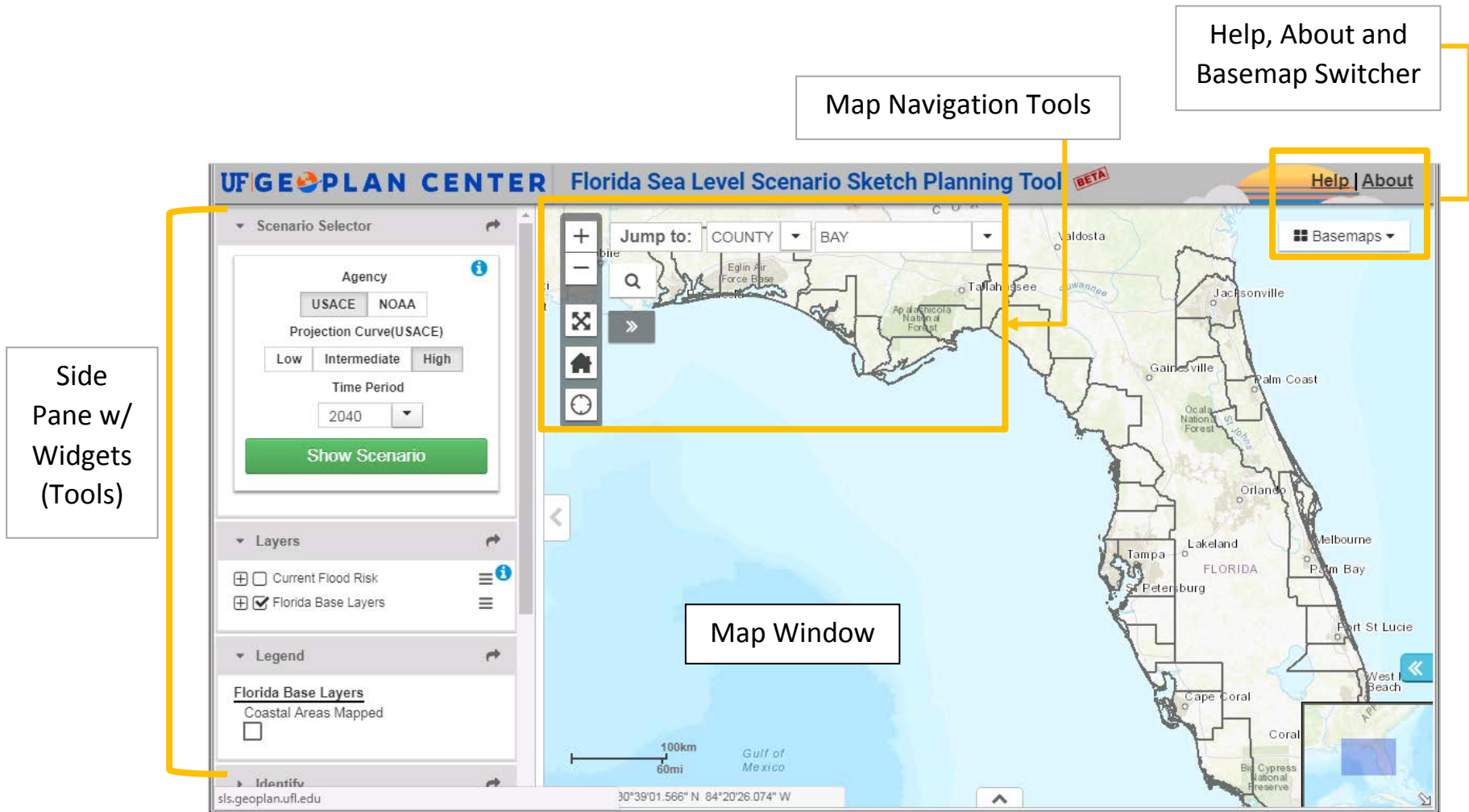
A straight bathtub model and enhanced bathtub model with hydro-connectivity assessment were both produced. Only the hydro-connectivity model outputs are displayed in the map viewer, though bathtub models are available for download.



Coastal Areas Mapped and Tide Stations used by County for Inundation Mapping

Map Viewer – Overview

This is the default view of the Map Viewer. This User Guide will explain how to use the map navigation tools and additional tools, called “widgets” located in the Side Pane.



Map Navigation Controls

The Map controls are in the top left corner of the map. On opening the map viewer, the default map control is pan. Left-click and drag the mouse to pan on the map.

Vertical Navigation Bar



Fixed Zoom In/ Zoom Out:

Zooms in and out of the map. If you have a scroll wheel on your mouse or keyboard, then you can zoom in or out on the map, regardless of the map control selected.



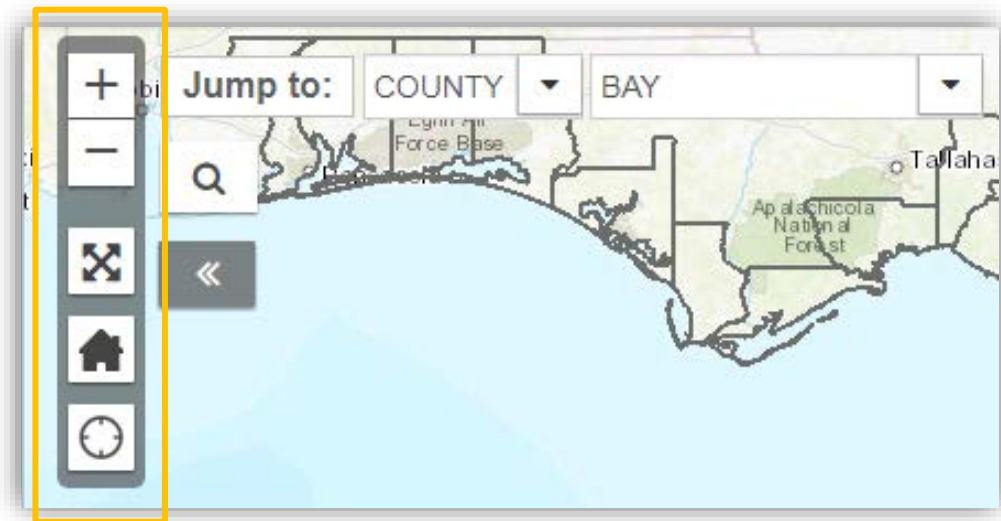
Full Screen: Expands the browser to the full extent of your computer screen. To get out of full screen, simply hit the Esc button.



Home: Zooms to the default extent of the map, which is the State of Florida.



Locate Me: Zooms the map to your current physical location (level of accuracy depends on your location). You first need to allow the map to access your location.



After clicking the Locate Me button, the compass icon will change to a square stop icon and on the map, there will be a blue dot with a blue circle around it. Remember to click on the Stop button to close the Locate Me. Your map will stay in the same place.

Jump to

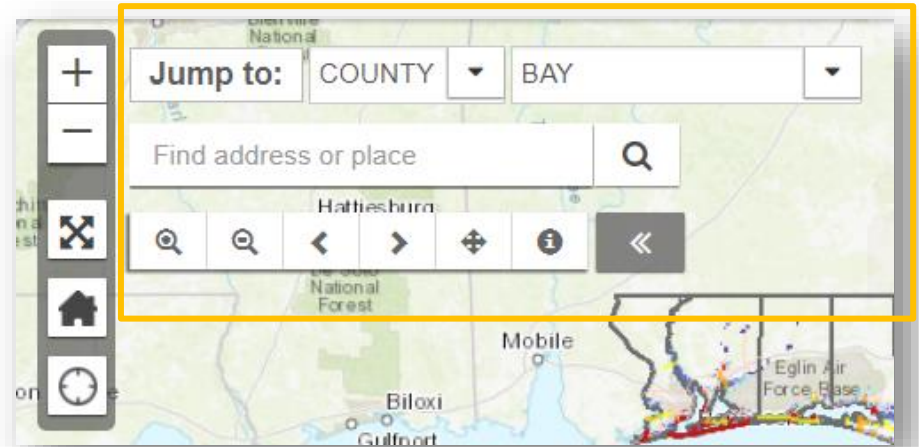
Zooms to predefined regions. First, choose a region type (County, FDOT District, MPO or State). Then select a region from the list.



Address Locator

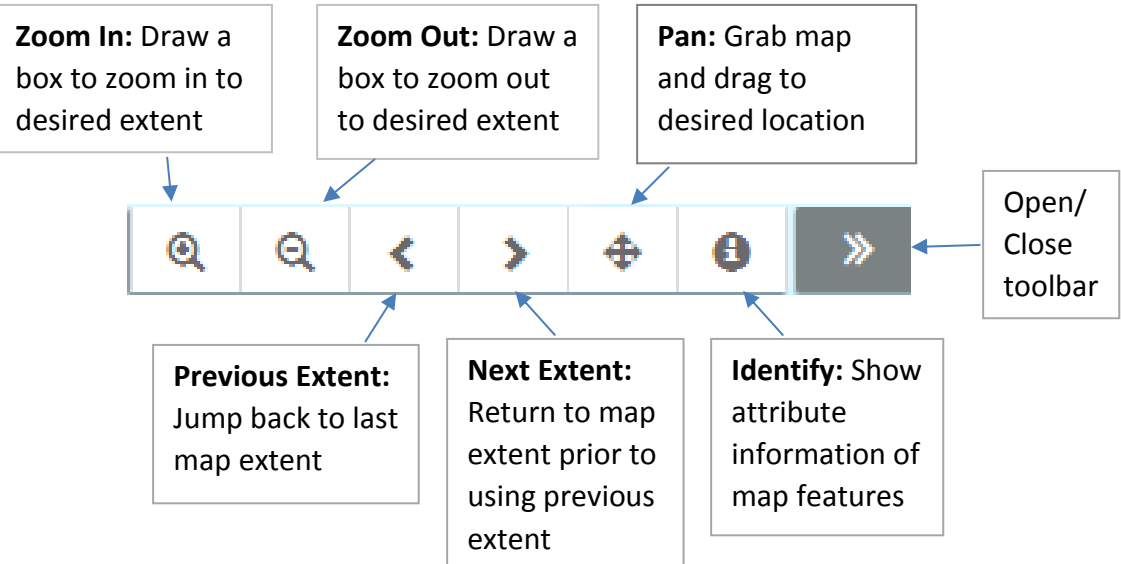
Zooms to an address. First, click on the magnifying glass to open the tool. Then enter a valid address in the input box and hit enter. The map will zoom to that address. The input box will auto-complete with known addresses.

To minimize the address locator, first click **in** the box (where it says “Find address or place”) and then click anywhere on the map.



Additional Map Navigation Toolbar

Toolbar with additional map navigation tools. By default, the toolbar is closed. Click the double arrows to open the tool bar.



Help

The Help link opens a pop-up window that contains introductory information about the map viewer, a list of map navigation short cuts for the mouse and keyboard, and links to User Guides. This is the same pop-up window that appears on the first load of the website.

About

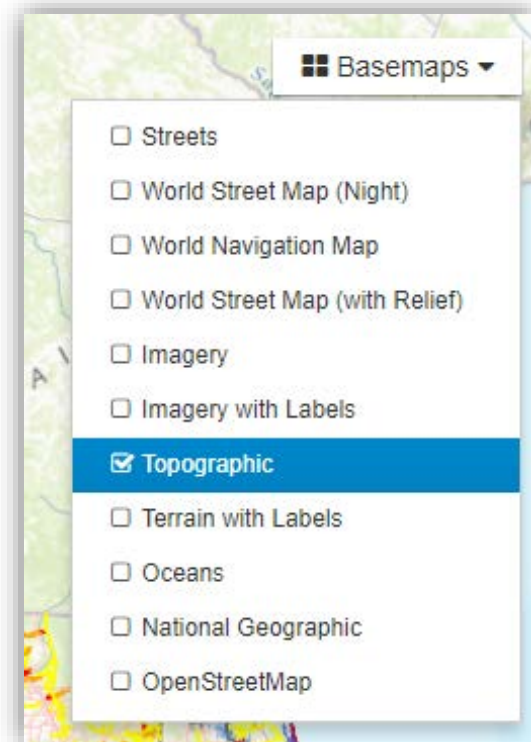
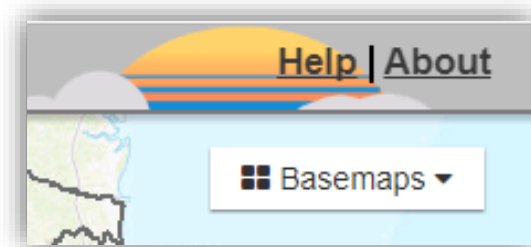
The About link will open the Sea Level Scenario Sketch Planning Tool main website in another browser tab or window. The website contains more information about this project.

Basemap Switcher

The widget allows you to change the basemap of your map. The topographic basemap is displayed by default.

To change the basemap, first click on the basemap menu to see the available maps. Then check the basemap you would like to use and the map will be refreshed with your choice.

These basemaps are pulled from ArcGIS online, and periodically, they are unavailable. If the basemap you chose does not display, then choose another one.



Widget Controls

Widgets are tools that allow you to interact with the map and data. The widgets are in the side pane (left side of map viewer) and each widget is represented by a gray bar.

The widgets are designed to open and close. You can open the widget to see more detail and close the widget to save space and reduce visual clutter. Some widgets are open by default, including the Scenario Selector, Layers and Legend widgets.

Additionally, the widgets are designed to “dock” and “undock” from the left side pane to give you flexibility on where you want to place the tools.

Open/ Close Widgets

To open a widget, click on the gray bar near the widget name. Closed widgets have an arrow pointing to the right, while open widgets have an arrow pointing down.

Dock/ Undock Widget

Undocking allows you to move the widget outside of the side pane. To undock, drag and pull from the grey bar. The left pointing arrow indicates the widget is undocked.

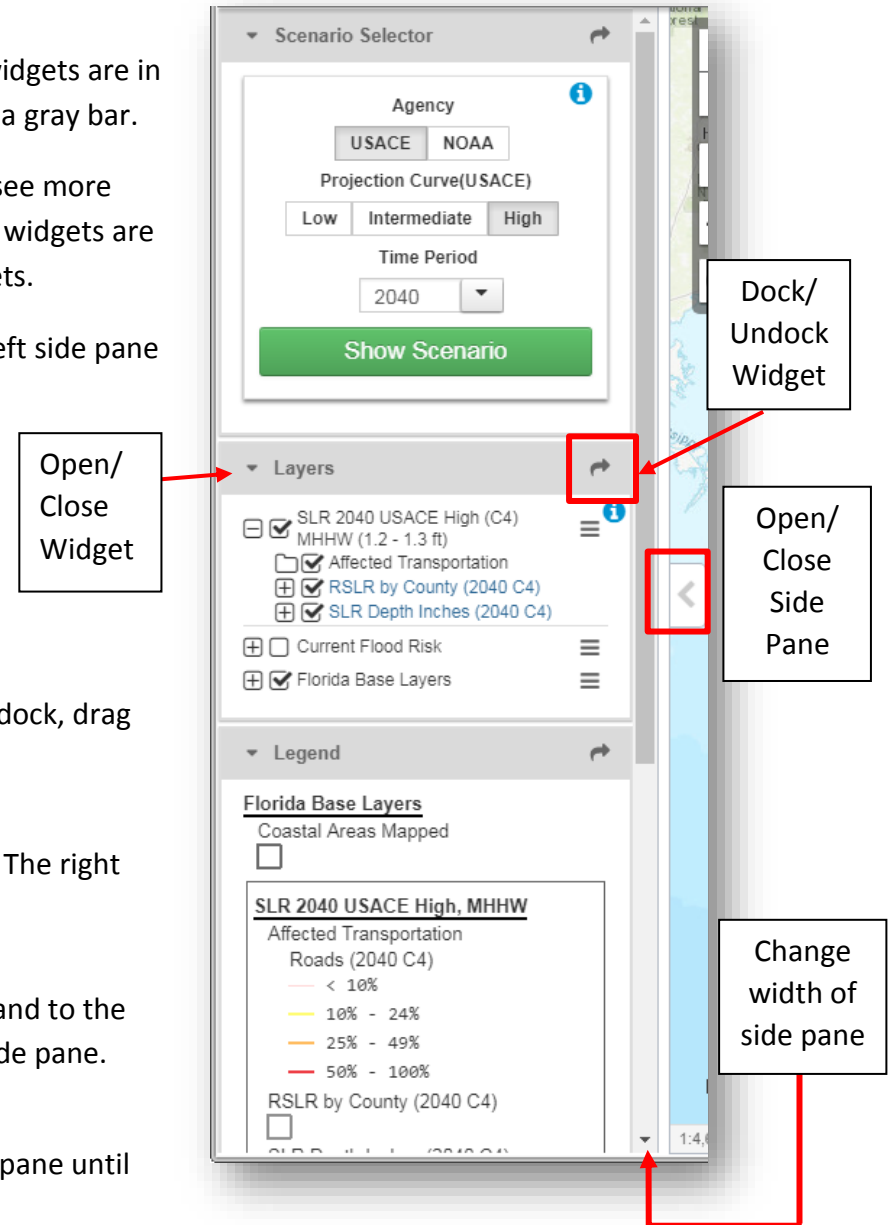
To dock the widget back to the side pane, click on the left pointing arrow. The right pointing arrow indicates the widget is docked.

Open/ Close Side Pane

Click the left pointing arrow to close the side pane. The map will now expand to the full extent of the browser. Click on the right pointing arrow to open the side pane.

Change Width of Side Pane

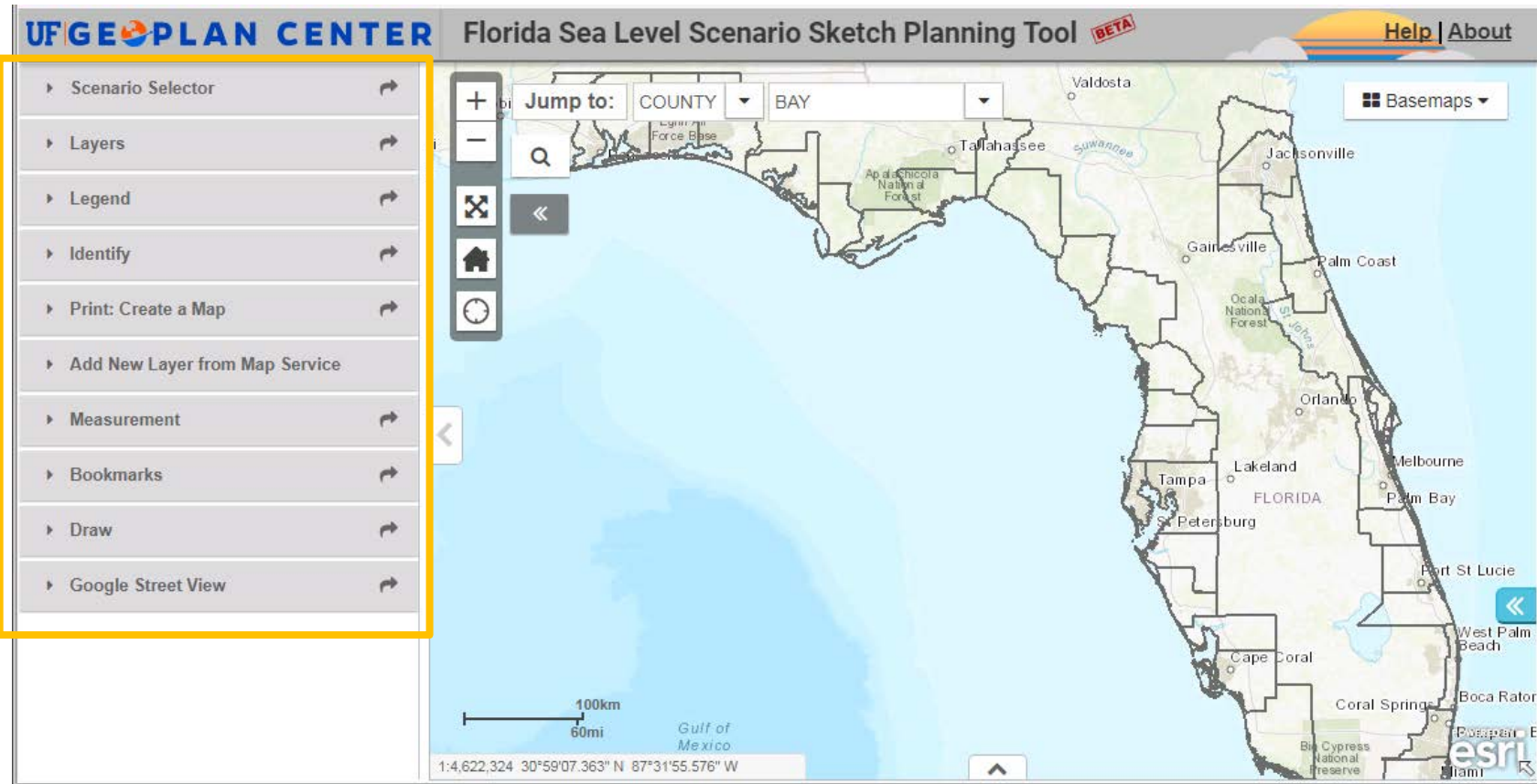
To change the width of the side pane, mouse over the right border of the pane until you see the double arrows, then drag to the desired width.



Tools aka “Widgets”

The widgets are located in the side pane on the left side of the map viewer. Below is a view of the map with all widgets closed. If you have not read the prior page on Widget Controls, then you should do that now.

The following pages will go into detail on each widget. We will first discuss the Layers Widget, then the Scenario Selector Widget, and then the other widgets in the order they are shown below. Since the Scenario Selector adds layers to the Layers widget, it is important to discuss the Layers Widget first.



Layers

The Layers widget includes the map layers available for display. Each group of layers is a map service. By default, two map services are included in the widget:

Current Flood Risk & Florida Base Layers.

- **Current Flood Risk** includes current floodplain and storm surge layers and roadways exposed to current flood risks.
- **Florida Base Layers** contains base roads data, a polygon layer representing areas mapped, and elevation data.
- SLR Scenario data layers must be added by the user through the Scenario Selector.

Please see the information icon for more information about the data layers.

Working with Layers

Open/ Close Map Service

To open the map service, click on the plus + sign to the left of the name. To close the map service, click on the minus – sign to the left of the name.

Open/Close Folders

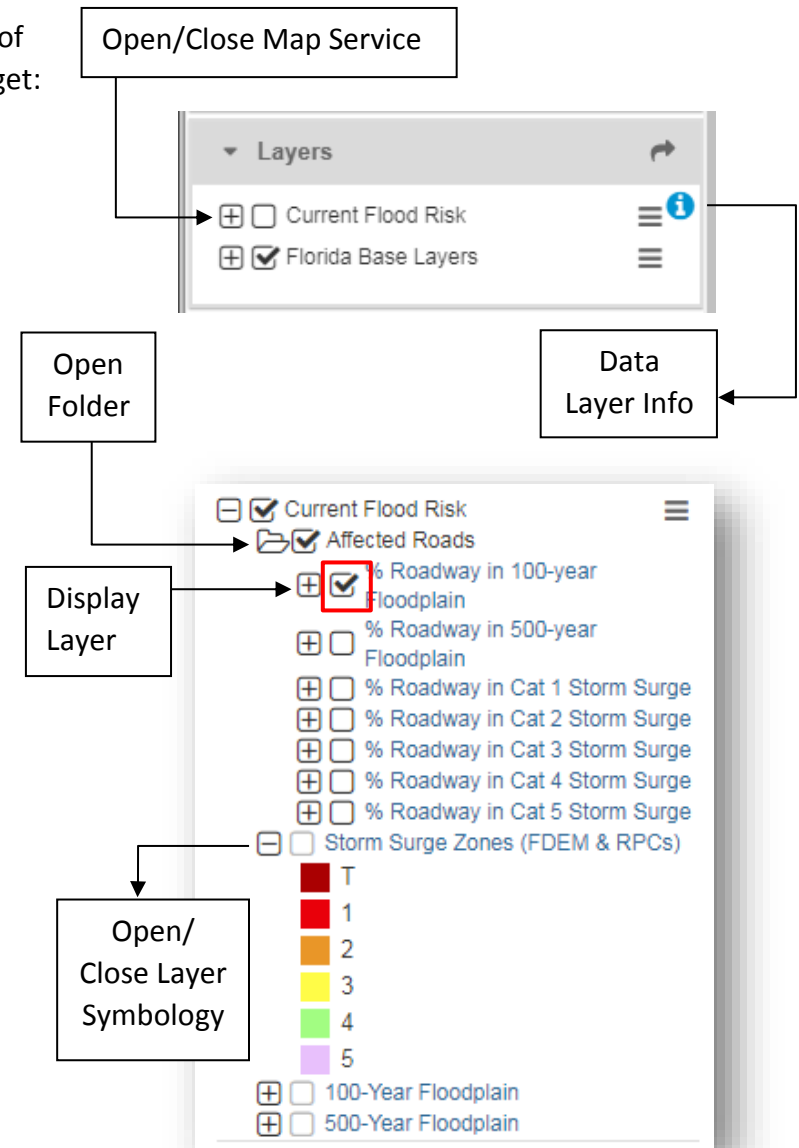
Click on the closed folder icon to open that folder and see the individual layers. To close the folder, click on the open folder icon.

Turning on Visibility of Layers

To “turn on” or display a layer on the map, check the empty box next to the layer name. Layers that are visible in the map will already have a check box.

Show/ Hide Symbology

The plus signs next to individual layers control whether show/ hide legend



Layer Controls:

On the right side of each map service, there is a menu with additional layer settings.



Move Up/ Move Down

Allows you to re-order the map services in the Layers Widget. Move up will move the map service up and Move Down will move the map service down. The option will be greyed out if that operation is not available.

Turn On All Sublayers/ Turn Off All Sublayers

Controls layer visibility. Turns on or off all the layers in that map service.

Transparency

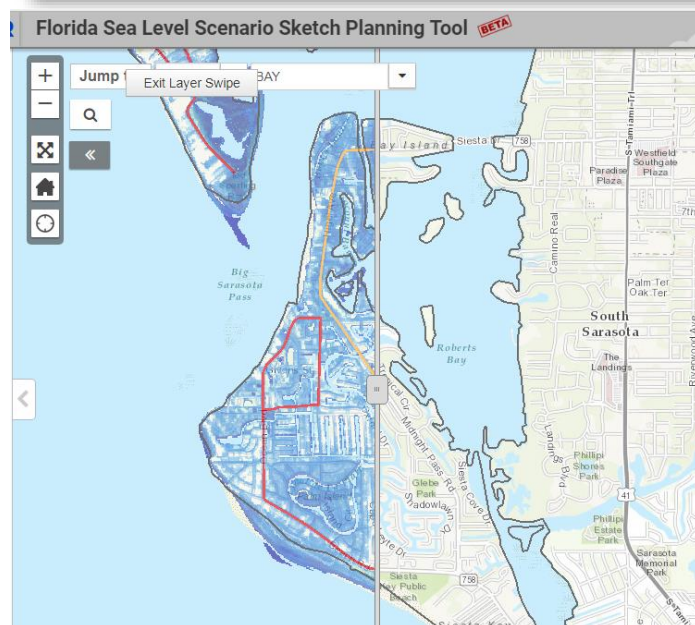
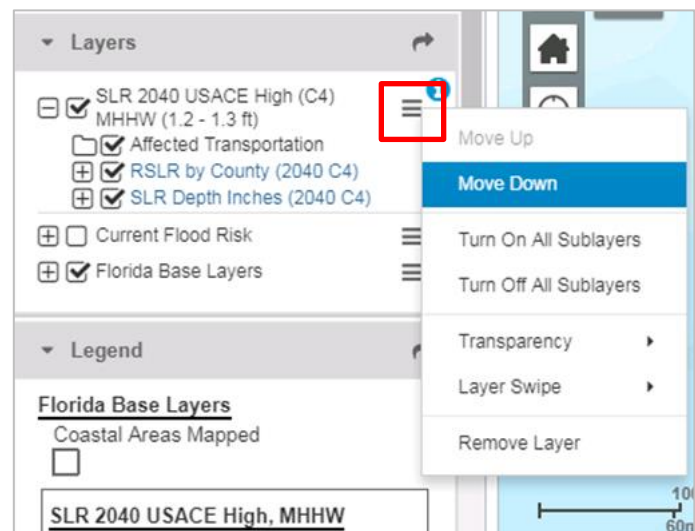
Allows you to change the transparency of the map layers. A slider bar allows you to change the map layer transparency from 0 to 100%, where 0% is opaque and 100% makes the map layers completely transparent/ invisible. The transparency setting controls all the layers in the map service.

Layer Swipe

Allows you to pull or swipe one map service on and off over the map. You can do a vertical or horizontal swipe. The example to the right shows a vertical swipe, with SLR layers. **Tip:** When using Layer Swipe with two SLR scenarios, start the swipe from the scenario with more SLR.

Remove Layer

Removes SLR Scenario map services from the Layers Widget. We recommend looking at no more than 3 scenarios at a time. The maximum number of scenarios that can be added is 6.



Scenario Selector

The Scenario Selector is how you add SLR layers to the map. It requires 3 inputs: Agency, Projection Curve and Time Period.

- 1. First, choose an Agency:** This is the source agency of the SLR projection.
USACE = United States Army Corps of Engineers
NOAA = National Oceanic and Atmospheric Administration
 After selecting the Agency, the Projection Curves will automatically change to show the curves for that agency.

2. Next choose a Projection Curve

Projection Curve (USACE):

- Low** = About 8 inches (or 0.2m) SLR by 2100
- Intermediate** = About 1.6 feet (or 0.5 m) SLR by 2100
- High** = About 5 feet (or 1.5 m) by 2100

Projection Curve (NOAA):

- Low** = About 8 inches (or 0.2m) SLR by 2100
- Int Low** = Intermediate Low, about 1.6 feet (or 0.5 m) SLR by 2100
- Int High** = Intermediate High, about 3.9 feet (or 1.2 m) by 2100
- High** = About 6.6 feet (or 2.0 m) by 2100

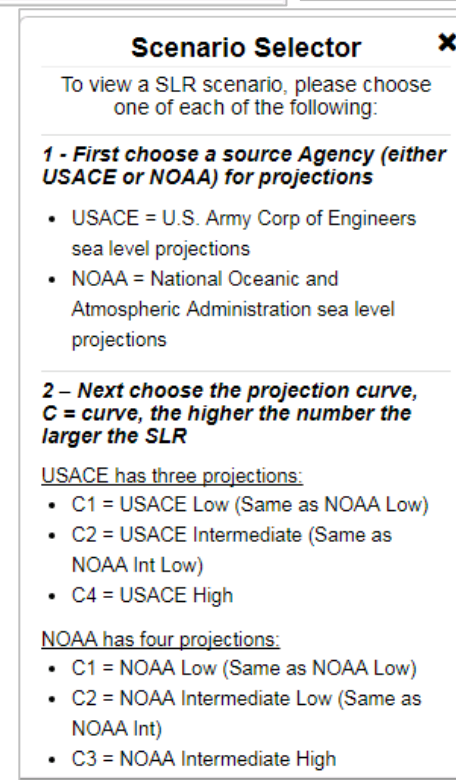
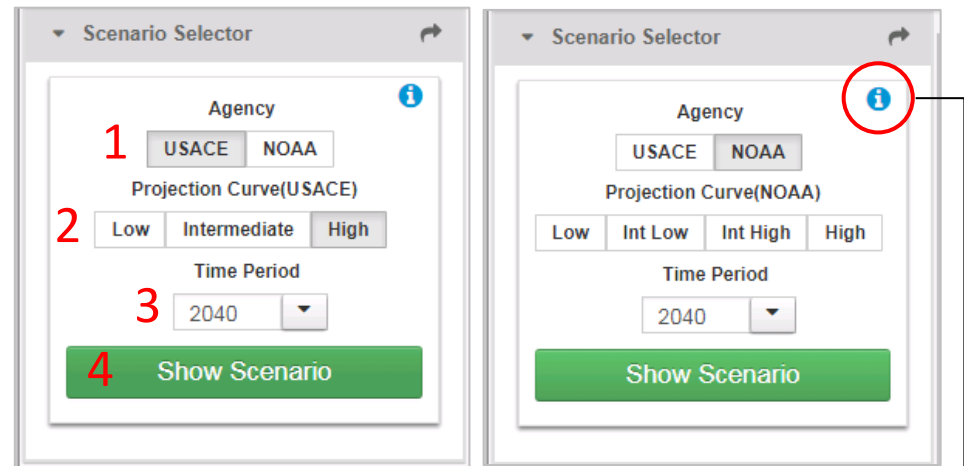
3. Next, choose a Time Period

Decades available: 2040, 2060, 2080, 2100

4. Finally click “Show Scenario”

The map layers for the scenario selected will be added to the map.

Click on the blue information icon to access the pop-up help.



Scenario Selector
Pop-up Help

Using the Scenario Selector

1. After choosing a scenario and clicking “Show Scenario”, a message will appear in the top right to indicate whether the scenario loaded properly.

The screenshot displays the 'Florida Sea Level Scenario Sketch Planning Tool' interface. On the left, the 'Scenario Selector' panel includes options for Agency (USACE, NOAA), Projection Curve (Low, Intermediate, High), and Time Period (2060), with a 'Show Scenario' button. Below it, the 'Layers' widget lists several layers, with 'SLR 2060 USACE High (C4) MHW (2.1 - 2.4 ft)', 'Affected Transportation', 'RSLR by County (2060 C4)', and 'SLR Depth Inches (2060 C4)' checked. The map shows Florida with various scenario layers overlaid. A green message box in the top right corner reads 'Scenario Added FL SLR 2060 USACE High, MHW'. A red arrow points from this message box to the 'Show Scenario' button in the Scenario Selector panel.

2. Scenario layers are displayed on the map

3. Scenario layers are added to the Layers Widget. By default, three layers are visible on the map: Affected Roads, RSLR by County and SLR Depth Inches.

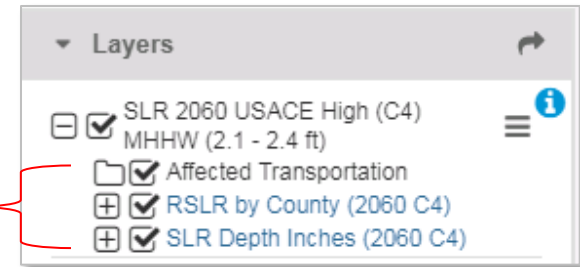
Exploring the SLR Scenario Layers

There are six data layers added with each SLR scenario map service.

Three of these layers are visible on the map by default (these are listed in bold):

1. **Roads:** RCI Roads affected by SLR scenario
2. **RSLR by County:** SLR over MHHW amount by county
3. **SLR Depth Inches:** Extent and depth of flooding in inches
4. SIS Highways: SIS Highways affected by SLR scenario
5. SIS Rails: SIS Rails affected by SLR scenario
6. SIS Facilities: SIS Facilities affected by SLR scenario

Layers visible
by default



For more information on the individual layers, see the [Map Viewer Data Layers Guide](ftp://ftp.sls.geoplan.ufl.edu/pub/sls/docs/Map_Viewer_Data_Guide_v2.pdf)
ftp://ftp.sls.geoplan.ufl.edu/pub/sls/docs/Map_Viewer_Data_Guide_v2.pdf

Scenario Naming

The Scenario Name includes the year and projection curve, and shows the amount of relative SLR above MHHW.

Ex: On the previous page, we chose USACE, High, and 2060.

As a result, the SLR Scenario loaded is:

“SLR 2060 USACE High (C4) MHHW (2.1 – 2.4 ft)”

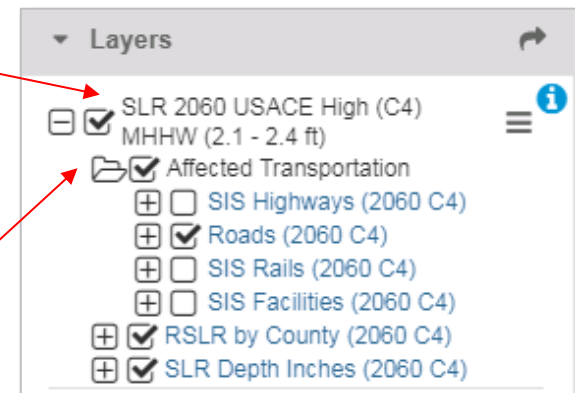
Relative SLR is a range because projections were generated by county and vary slightly based on local sea level trends. All six layers are named with “2060 C4” to indicate the SLR scenario.

SLR Curve Key

- | | |
|----|---|
| C5 | NOAA High Rate (2012) |
| C4 | USACE High Rate (2013) |
| C3 | NOAA Intermediate High Rate (2012) |
| C2 | USACE Intermediate Rate (2013)/ NOAA Intermediate Low Rate (2012) |
| C1 | USACE Low Rate (2013)/ NOAA Low Rate (2012) |

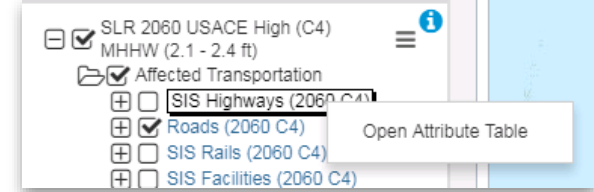
Scenario
Name

Expand Affected
Transportation
folder to show
more layers



Attribute Table

The Attribute Table is accessed from the Layers Widget. To open the Attribute Table, click on the Layer Name to reveal the “Open Attribute Table” option.



On load of the Attribute Table, only records for the features in the map view/ extent are loaded to the table. The “Extent Box” is the map extent used to fetch records from the data layer. The attribute table does not load records automatically as you zoom in/out/pan on the map. If you zoom in or out or pan, then click “Refresh Table” to reload the records in the map view.

Zoom Menu

Zoom to selected features: Zooms to selected feature(s) on map. First select a feature on the map and then select this option.

Zoom to Extent Box: Zooms to blue Extent Box

Clear Menu:

Clear Selected Records: Clears any selected feature from both the table and map.

Clear Extent Box – Clears the blue extent box from the map. Records are kept in the table.

Clear Table – Clears all records in the table.

Refresh Table:

Reloads the records in the attribute table based on the current map view extent

Export

Exports the records in the table to either an Excel Spreadsheet (xlsx or xls) or a comma-delimited files (csv).

NAME	Functional Class	Feet Affected	% Affected	Begin Mile Pt	End Mile Pt	Length of Segn
S CHEROKEE WAY	RURAL: MAJOR CO...	3,009	16	0.000	3.470	18,319.661
THREE SISTERS SP...	URBAN: MINOR CO...	1,107	16	0.000	1.298	6,840.736
W FISHBOWL DR	RURAL: MINOR COL...	4,472	57	0.000	1.494	7,876.092
W FORT ISLAND TRL	RURAL: MINOR COL...	2,270	5	0.000	9.187	48,480.318
W HALLS RIVER RD	RURAL: MAJOR CO...	1,592	10	0.000	3.161	16,666.927
W OZELLO TRL	RURAL: MINOR COL...	7,526	20	0.000	6.964	36,772.057

Legend

The Legend Widget displays the symbology of the map layers currently displayed in the map. This widget is located under the Layers Widget and by default, this widget is expanded/ open.

The Legend Widget automatically builds a legend for the map layers that are currently visible in the map. If you uncheck a layer (to stop displaying it), then you will need to zoom in or zoom out to refresh the Legend.

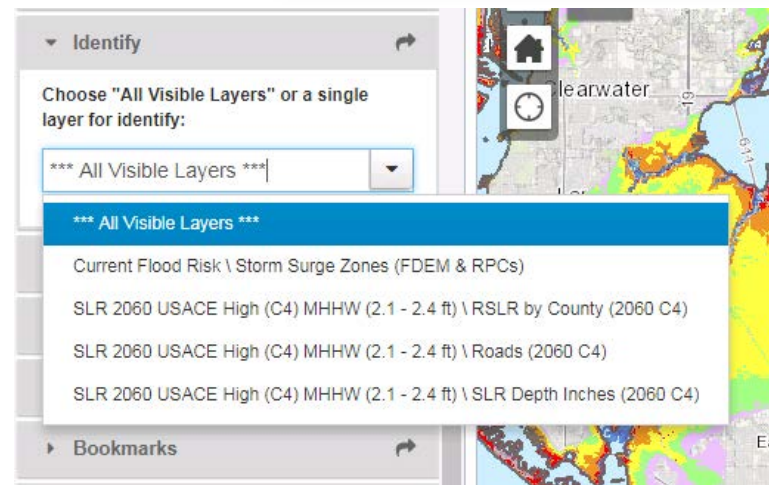
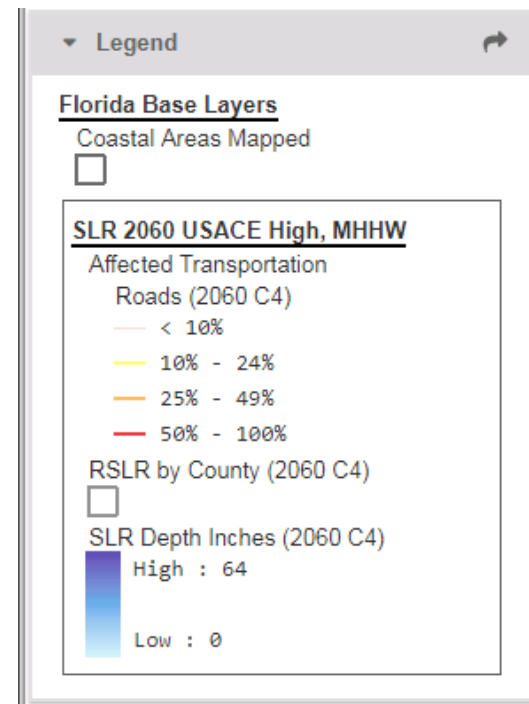
Identify

The Identify Widget controls which layers are available for use in the Identify Tool.

The Identify Tool displays attribute values of features on the map. The Identify Tool is located on the map with the map navigation tools, but can also be accessed by a single left-click on the map (no matter what map navigation tool is selected).

By default, the Identify settings are configured to show attributes from ***** All Visible Layers *****, which means all layers that are *currently* visible in the map.

If you want to only see attribute values of a single map layer, then first open the Identify Widget, next click on the dropdown menu, and then select a single layer.



Print: Create a Map

The Print Widget allows you to create a map of the current map view. This widget is not open by default. First, open the widget by clicking on the arrow on the left side of widget. In the widget, there are various settings to configure.

Print Settings:

Title: Map Title. The default is “Slr Viewer Map”. Change to desired title.

Format: The default file format is PDF. Available formats include: PDF, EPS, GIF, JPG, PNG32, PNG8, SVG, and SVGZ.

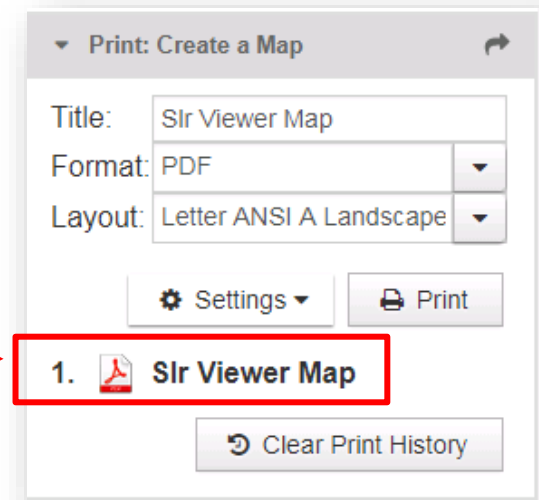
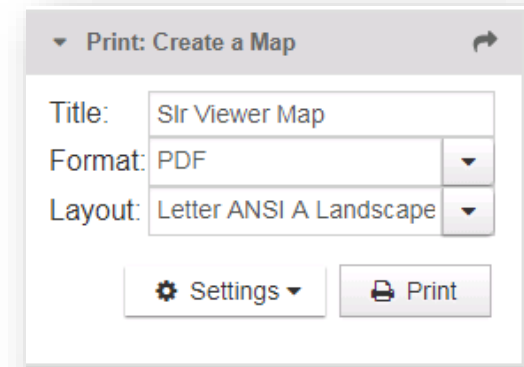
Layout: The layout controls the paper size and printing orientation (portrait or landscape). The default layout is Letter ANSI A Landscape (8.5” x 11”). ANSI is short for the North American ANSI series paper sizes.

Available layouts include: A3 Landscape, A3 Portrait, A4 Landscape, Letter ANSI A Landscape, Letter ANSI A Portrait, MAP_ONLY, Tabloid ANSI B Landscape, Tabloid ANSI B Portrait. Sizes: A3 = 11.7” x 16.5”, A4 = 8.3” x 11.7”, Letter ANSI A = 8.5” x 11”, ANSI B = 11” x 17”. MAP_ONLY: no legend or scale bar included.

Additional Settings Menu: Additional map settings are accessed through the Settings menu. These settings control the map scale/ extent, scale bar units, legend, print quality, and map only option.

Preserve: Map Scale or Map Extent: When creating the map with the desired layout size, choose whether to preserve map scale or map extent.

After choosing the desired options, click the Print button and wait for your map to be produced.

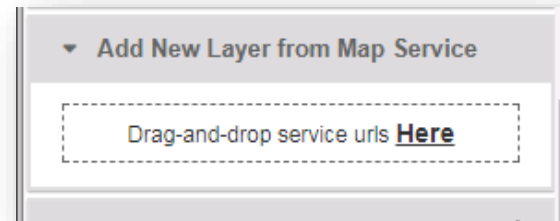


When your map is done, it will appear here. Click on it to open & save.

Add New Layer from Map Service

This widget allows you to add external map service layers to the map viewer.

Using the map service's REST endpoint, you can drag and drop the service URL into the widget.



UFGEOPLAN CENTER

50% - 100%

RSLR by County (2060 C4)

SLR Depth Inches (2060 C4)

High : 64

Low : 0

Identify

Print: Create a Map

Add New Layer from Map Service

Drag-and-drop service urls [Here](#)

Measurement

Bookmarks

Draw

Google Street View

dc_slr/slr_2ft (MapServer)

Service Description: 2ft Sea Level Rise Inundation This dataset was created as part of the National Oceanic and Atmospheric Administration Office for Coastal Management's efforts to create an online mapping viewer depicting potential sea level rise and its associated impacts on the nation's coastal areas. The purpose of the mapping viewer is to provide coastal managers and scientists with a preliminary look at sea level rise and coastal flooding impacts. The viewer is a screening-level tool that uses nationally consistent data sets and analyses. Data and maps provided can be used at several scales to help gauge trends and prioritize actions for different scenarios. The purpose of this dataset is to show potential sea level rise inundation of 2 ft above current Mean Higher High Water (MHHW) for the area. Tiles have been cached down to Level ID 15 (1:18,055). This dataset illustrates the scale of potential flooding, not the exact location, and does not account for erosion, subsidence, or future construction. Inundation is shown as it would appear during the highest high tides (excludes wind driven tides) with the sea level rise amount. The dataset should be used only as a screening-level tool for management decisions. As with all remotely sensed data, all features should be verified with a site visit. The dataset is provided "as is," without warranty to its performance, merchantable state, or fitness for any particular purpose. The entire risk associated with the results and performance of this dataset is assumed by the user. This dataset should be used strictly as a planning reference and not for navigation, permitting, or other legal purposes. For more information visit the Sea Level Rise Impacts Viewer (<http://coast.noaa.gov/slr>).

Map Name: Layers

https://www.coast.noaa.gov/arcgis/rest/services/dc_slr/slr_2ft/MapServer

1:36,112 28°15'43.552" N 82°42'18.939" W

esri

Measurement

The Measurement Widget includes tools to measure area, distance, and location.

Area and distance measurements:



1. First, choose the type of measurement – area or distance.
2. Next, choose the desired units. The default area unit is Square Miles. The default distance unit is Miles.
3. Next, using single left-clicks, draw a polygon of the area you want to measure or draw a line. Use a double-click to finish the drawing.
4. The measurement will be displayed in the widget under where it says: “Measurement Result”. If you want to see the measured amount in a different unit, click the unit dropdown and choose another unit of measurement.

When you move the map, the measurement result will clear itself. Make sure to write the number down if you need to reference it later.

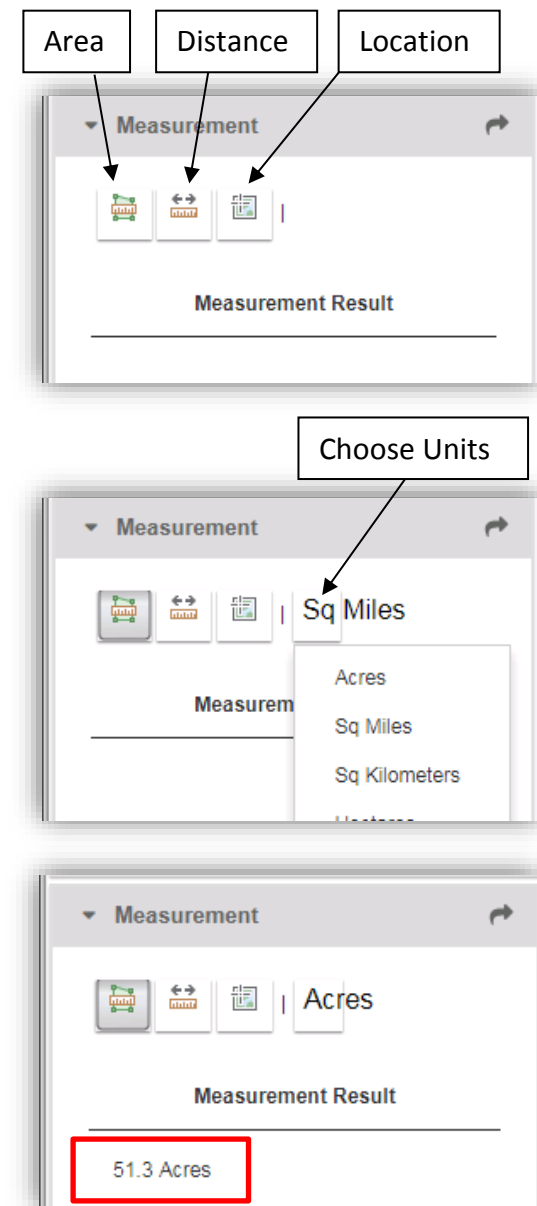
Location Measurement:

The location measurement reveals the latitude and longitude of a location.

First, click the location button. Then choose the units: either Degrees (for decimal degrees) or DMS (for Degrees Minutes Seconds).

Measurement Result		
	Latitude	Longitude
	28.364863	-82.700502
	28.39084	-82.668487

Next, click on the map where you want to reveal the latitude and longitude. The latitude and longitude will display in the widget under “Measurement Result”.



Bookmarks

The Bookmarks Widget allows you to “bookmark” or save a specific geographic area (map extent), so you can easily zoom to that area.

To add a bookmark, first zoom to the map area that you want to save. Then open the widget (it is closed by default) and click “Add Bookmark”. Next, type a name for your bookmark (ex: “Crystal River”).

To zoom to your bookmark, simply click on the Bookmark name.

The bookmarks can be renamed by clicking the pencil icon. They can be deleted using the X icon. Your bookmarks are stored within your browser, so if you clear your browser cache, they will no longer persist.



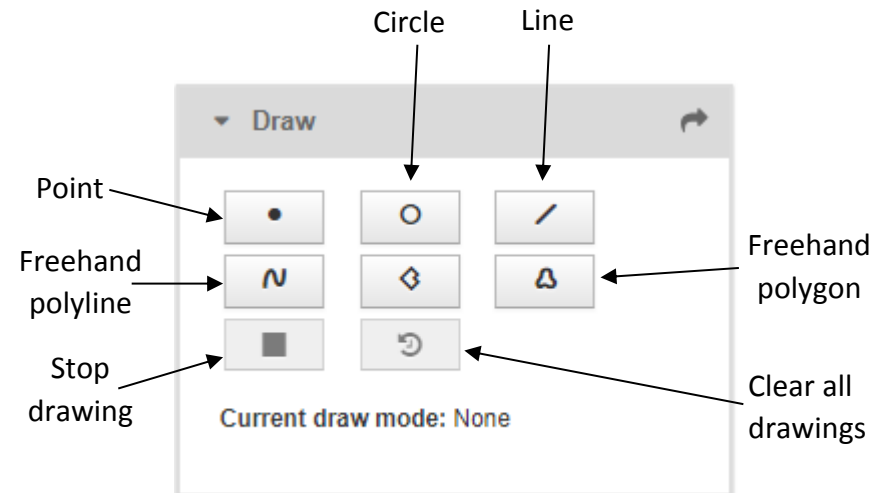
Draw

The Draw Widget allows you to draw lines and shapes directly on the map.

This widget is closed by default.

To draw on the map, first open the Draw widget. Then click on the type of shape you want to draw. Start drawing on the map with a single left-click. You will be prompted on screen with additional instructions on how to continue and/or finish our drawing.

As you zoom in and out on the map, your drawings will persist until you click “Clear All drawings” button or reload your browser.



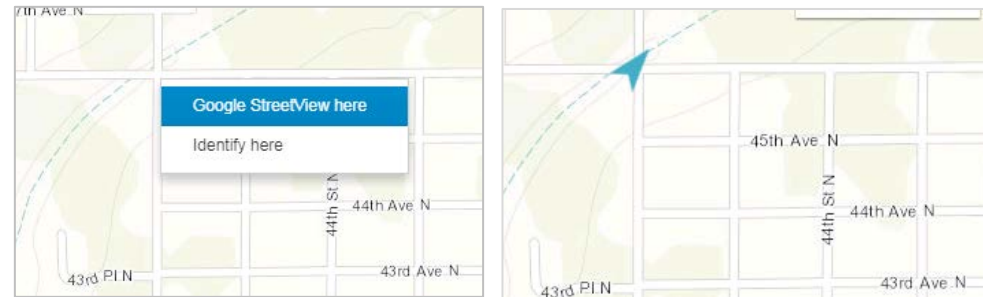
Google Street View

This widget allows you to view Google Street View Panoramas. This tool is useful for exploring road conditions where potential inundation is expected to occur.

This widget is closed by default.

To use the Google Street View Widget:

- Right-click along a road in the map. Click “Google StreetView here”. A blue arrow will appear on the map.
- In the Side Pane, scroll down to the Google Street View Widget. If Street View panorama is available, then you will see it displayed in the widget. If imagery is not available, then you will get the following message: “Unfortunately, Google StreetView imagery is not yet available at that location”.
- In the widget, drag and pull the image to rotate the view. Follow the arrows along the roadways to move the view up or down a street.
- Tip: Undock the widget, drag it onto the map, and pull the bottom right corner of the widget to expand the size of the panorama for better viewing.
- When you are done, click on the X in the widget to clear the Street View panorama (this will also close and dock the widget if it was undocked).





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AGENDA ITEM SUMMARY

Board/Committee: St. Lucie TPO Board

Meeting Date: December 4, 2019

Item Number: 10b

Item Title: FY 2020/21 – 2021/22 Unified Planning Work Program (UPWP) Call for Planning Projects

Item Origination: TPO Staff

UPWP Reference: Task 1.2 – UPWP Development

Requested Action: Discuss and provide comments to Staff

Staff Recommendation: It is recommended that a discussion of planning projects for possible inclusion in the FY 2020/21 – 2021/22 UPWP be initiated.

Attachment

- Staff Report



Coco Vista Centre
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MEMORANDUM

TO: St. Lucie TPO Board

THROUGH: Peter Buchwald
Executive Director

FROM: Marceia Lathou
Transit Program Manager

DATE: November 22, 2019

SUBJECT: FY 2020/21 – 2021/22 Unified Planning Work Program (UPWP) Call for Planning Projects

BACKGROUND

The Unified Planning Work Program (UPWP) is the two-year program of transportation planning activities supported by State and Federal funds undertaken by the TPO. The UPWP includes a description of the planning work and resulting products, who will perform the work, timeframes for completion, costs, and funding sources. The UPWP serves as the foundational document for carrying out the continuing, cooperative, and comprehensive transportation planning process within the TPO area.

The UPWP is required for the TPO to receive funding from the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the Florida Commission for the Transportation Disadvantaged (FCTD), and the Florida Department of Transportation (FDOT).

Planning projects are included in the UPWP based on TPO priorities, the need to satisfy state/federal requirements, and funding constraints. Projects may involve any aspect of surface transportation including roadways, transit, bicycle/pedestrian, and the needs of the transportation disadvantaged.

The current UPWP for FY 2018/19 – FY 2019/20 ends on June 30, 2020. Therefore, it is necessary to initiate the development of the UPWP for FY 2020/21 – FY 2021/22.

It is planned for the draft UPWP to be reviewed by the TPO Advisory Committees at their March meeting with the TPO Board adopting the draft UPWP at its April meeting. A public comment period for the draft UPWP will precede its adoption by the TPO Board.

An initial discussion of the proposed FY 2020/21 – FY 2021/22 UPWP is requested at this time consisting of the identification and discussion of the planning priorities, tasks, projects, and activities that should comprise the proposed UPWP.

ANALYSIS

TPO staff is initiating a call for projects to be included in the FY 2020/2021 – 2021/22 UPWP which extends from July 1, 2020 through June 30, 2022. Eligible projects include concept-level planning, analysis, and design initiatives involving State or Federal funds.

Federal regulations require that the metropolitan transportation planning process shall be continuous, cooperative, and comprehensive, and provide for consideration and implementation of projects, strategies, and services that will address the following factors identified in 23 CFR 450.306(b):

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation;
8. Emphasize the preservation of the existing transportation system;

9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. Enhance travel and tourism.

The following locally-specific transportation planning priorities were identified by the St. Lucie TPO in the UPWP for FY 2018/19 - FY 2019/20 to address the above-listed Federal priorities while also addressing local needs:

- **Project Advancement:** Support the local agencies in advancing the implementation of projects in the Go2040 Long Range Transportation Plan (LRTP), 2040 Regional LRTP, and Transportation Improvement Program (TIP)
- **Previous Planning Efforts:** Build upon and/or implement the results of previous UPWP planning efforts
- **Safety and Security:** Provide for the consideration and implementation of projects, strategies, and services that increase the safety and security of the transportation system
- **Performance-Based Multimodal Planning and Programming:** Continue to perform performance-based multimodal planning which increases mobility options and ensures the most efficient investment of federal transportation funds by linking investment priorities to the achievement of adopted targets
- **Alternative Transportation Facilities:** Support the provision of alternative transportation facilities including sidewalks, bike paths/lanes, and transit, port, airport and Automated/Connected/Electric/Shared-Use (ACES) infrastructure
- **Regional Efforts:** Build upon previous efforts and identify new opportunities for regional coordination and collaboration
- **Public Involvement and Education:** Continue to enhance public involvement and education
- **Livability and Sustainability:** Enhance the livability and sustainability of the local communities
- **Transportation Demand Management:** Support efficient travel behaviors

The following tasks, projects, and activities were completed to date by the St. Lucie TPO over the past two fiscal years in accordance with the priorities identified in the FY 2018/19 - FY 2019/20 UPWP:

Program Management
Legislative Priorities for 2019 and 2020

Traffic Count Management Program
Traffic Counts for 2018 and 2019

Long Range Transportation Plan (LRTP)
Go2040 LRTP Performance Measures and Report
Initiation of 2045 LRTP Development

Transit Planning
Transit Development Plan Major Update
Transit Development Plan Annual Progress Report
Technical Assistance to Transit Agencies

Transportation Improvement Program (TIP)
Transportation Alternatives Program (TAP) Administration
Interactive TIP for FY 2019/20 – FY 2023/24
List of Priority Projects (LOPP) for 2018/19 and 2019/20
FDOT Work Program Review for FY 2019/20 – FY 2023/24 and FY 2020/21 – FY 2024/25

Congestion Management Process (CMP)
2019 CMP Annual Report

Complete Streets Planning
Bicycle Facilities Map Update
East Coast Greenway/Florida SUN Trail Implementation

Safety and Security Planning
Security and Safety Issue Identification
Treasure Coast Community Traffic Safety Team Support
Continuity of Operations Plan (COOP) Activation and Management

Transportation Disadvantaged (TD) Program
Transportation Disadvantaged Service Plan (TDSP) Major Update
Local Coordinating Board for the Transportation Disadvantaged (LCB) Support

Freight Planning
Florida Statewide Freight Committee
St. Lucie Freight Network Management

Environmental Planning
Sea Level Rise Mapping

Automated/Connected/Electric/Shared-Use (ACES) Vehicles
Planning
ACES Vehicle Recommendations for TDP Major Update

Regional Planning and Coordination
Treasure Coast Transportation Council Support
Transportation Regional Incentive Program (TRIP) Administration

Intergovernmental Planning and Coordination
Treasure Coast International Airport Master Plan Update Support
Treasure Coast International Airport Connector Study Support

Public Involvement, Education & Outreach
Public Participation Plan (PPP) Major Update

While tasks, projects, and activities such as the LRTP, TIP, and CMP are required by Federal regulations to be completed by the TPO, there are other transportation planning tasks, projects, and activities that can be completed by the TPO to meet local needs. The following are several tasks, projects, and activities proposed to be included in the FY 2020/21 – FY 2021/22 UPWP to meet Federal requirements and local needs:

Drone Port Study – analysis of appropriate locations for drone ports to ensure the safe routing of unmanned aircraft delivery systems.

Micro-Mobility Study – an analysis of the deployment of micro-transit, e-scooters, car sharing, and bike sharing in three areas identified in the Transit Development Plan (TDP).

Community Profile Updates – an update of the existing Community Profiles based on the most current U.S. Census data.

Crosswalk Markings Visibility Analysis – an analysis of crosswalk markings at signalized intersections to determine the need for restriping and enhancements to increase visibility for non-motorized traffic within crosswalk zones.

2045 Regional Long Range Transportation Plan (RLRTP) – development of a plan that updates the 2040 RLRTP and builds upon the adopted 2045 LRTPs of the St. Lucie TPO, Martin MPO, and Indian River MPO to provide for the efficient movement of people and goods throughout the region.

Update TPO Community Awareness Panels – development of new visualization tools in the TPO’s safety campaign.

Speed Kills Analysis - a local examination of the link between vehicle speed and crash risk and severity.

Electric Vehicle Charging Station Plan – development of criteria for siting electric vehicle charging stations and selection of appropriate locations based on the criteria.

Transit Route Optimization Study – analysis of the potential to improve customer service and grow ridership on existing bus routes and new routes as identified in the Transit Development Plan Major Update.

Automated/Connected/Electric/Shared-Use (ACES) Vehicles for Transit Study – an update of the ACES Vehicles for Transit Study due to rapid changes in transportation technology since its completion in 2019.

At the TPO Advisory Committee Meetings during the week of November 18th, the UPWP Call for Planning Projects was discussed and comments provided by the Advisory Committees were incorporated into the above-listed project proposals.

RECOMMENDATION

It is recommended that a discussion of planning projects for possible inclusion in the FY 2020/21 – 2021/22 UPWP be initiated.