

Connect 2045 Scenario Concepts

- As transportation planning organizations develop long-range plans, it is important to consider the potential effects of possible future conditions.
- Scenario analysis can be a useful tool to better understand the potential influence of alternative futures, aiding development of policies and prioritization of projects.
- The use of scenarios for development of long-range transportation plans (LRTP) is encouraged but not required.
- The River to Sea Transportation Planning Organization (TPO) will be implementing scenarios for Connect 2045 from three perspectives:
 - Technology (page 1)
 - Resiliency (page 2)
 - Funding (page 3)
- Certain factors in the technology and resiliency scenarios are related to the funding scenario. For example, more electric vehicles mean lower gas tax revenues while flooding and storm threats can lead to higher transportation infrastructure costs.
- The final findings of these scenarios will be presented to the BPAC/CAC/TCC and Board in April.

TECHNOLOGY SCENARIO

Technology is transforming transportation in new ways and the pace of change is accelerating. Recognizing the importance of technology, the TPO has completed an *Intelligent Transportation System (ITS) Master Plan* and *Transportation System Management and Operations (TSM&O) Master Plan* that include and recommend technology-related strategies. It is more important than ever to understand how emerging technologies will shape transportation in the TPO area. The increase in automated, connected, electric and shared (ACES) vehicles is becoming an important focus. The approach to technology for the LRTP will focus on ACES through a few key components:

1. Analyze results of the ACES Scenario from the Central Florida Regional Planning Model (CFRPM) version 7. The ACES Scenario was newly created by FDOT District 5 to support TPOs/MPOs with LRTP development. FDOT is expected to provide the results in mid to late January. The ACES Scenarios include five possible futures as proposed by the Federal Highway Administration and advance by FDOT through recent LRTP guidance. These futures range from “slow roll” with the least change to “robotaxis” projecting the most rapid change. The results will be analyzed to determine the appropriate scenarios to inform the LRTP.
2. Identify and prioritize corridors for implementation
 - a. Prioritize based on the needs assessment from the ITS/TSM&O Master Plans and, as appropriate, the results of the ACES Scenarios
 - b. Key corridors will be placed into prioritized tiers for purposes of identifying important areas of focus and potential future pilot projects
3. Consider future action steps that are appropriate to continually analyze ACES such as implementation of an ACES Task Force and/or Committee
 - a. Made up of TPO, local agencies, private sector interests, and public entities
 - b. Evaluate opportunities as they occur
 - c. Make recommendations on potential ACES impacts – help to inform policy-basis for assumptions that the TPO will use

A few resources for more information on technology:

- FDOT – Guidance for Assessing Planning Impacts and Opportunities of ACES (https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/policy/metrosupport/resources/fdot_mpoguidebook_20181005.pdf?sfvrsn=7d194ed6_2)
- USDOT – Preparing for the Future of Transportation: Automated Vehicles 3.0 (<https://www.transportation.gov/av/3/preparing-future-transportation-automated-vehicles-3>)
- USDOT – Connected Vehicle Videos (<https://www.its.dot.gov/communications/video.htm>)

RESILIENCY SCENARIO

Resiliency reflects the ability to anticipate, prepare for, and adjust to changing conditions, and recover rapidly after disruptive events such as flooding, hurricane damage, or major traffic incidents. It is important for the transportation system to be resilient in the face of these disruptions to ensure reliable movement of people and goods.

In order to understand the vulnerability of transportation infrastructure to disruptive events and changes, the TPO has participated in assessments of sea level rise (SLR), coastal flood and coastal storm surge within the planning area. These studies (*Sea Level Rise Vulnerability Assessment - 2016, Resilient Volusia - 2017* and *Resilient Flagler - 2018*) provide significant data that can be useful to evaluate the impact of SLR, 100-yr flood and storm surge in the future. In addition, the East Central Florida Regional Planning Council is leading the Regional Resiliency Action Plan (RRAP). The RRAP recommends the upper and lower boundaries to plan for SLR based upon US Army Corps of Engineers (USACE) and National Oceanic and Atmospheric Administration (NOAA) data. The chart below provides an overview.

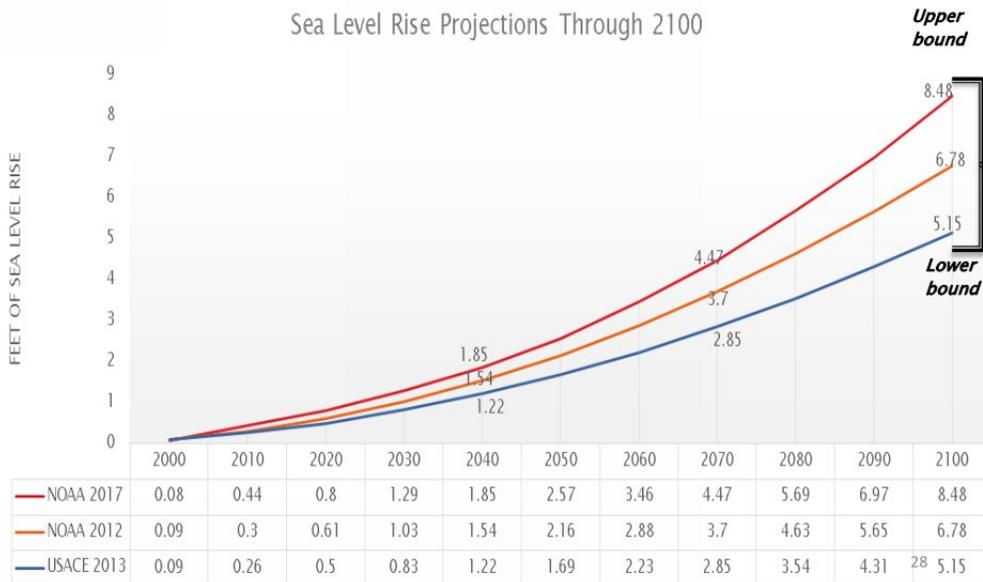


Chart source: East Central Florida Regional Planning Council

The horizon year to be used for the Connect 2045 Resiliency Scenario will be 2040 because it is the furthest data year available that is still within the LRTP horizon. Further data analysis is being conducted to determine the specific approach and whether the emphasis will be on SLR + 100-year flood OR SLR + Storm Surge.

Regardless of the specific approach taken, the analysis will compare the inundation area(s) from the selected approach with the projects identified through the Needs Assessment portion of the study. The results of this analysis will be an identified set of potentially impacted projects that will inform planning decisions and prioritization in the development of Connect 2045.

A few resources for more information on resilience:

- USDOT – White Paper: Integrating Resilience into the Transportation Planning Process (https://www.fhwa.dot.gov/environment/sustainability/resilience/ongoing_and_current_research/planning/integrating_resilience.cfm)
- USDOT – Resilience (<https://www.fhwa.dot.gov/environment/sustainability/resilience/webinars/>)
- NPR – Storm Clouds and Sunshine: How Florida Prepares for Climate Change (<https://the1a.org/shows/2019-02-11/storm-clouds-and-sunshine-how-florida-prepares-for-climate-change>)

FUNDING SCENARIO

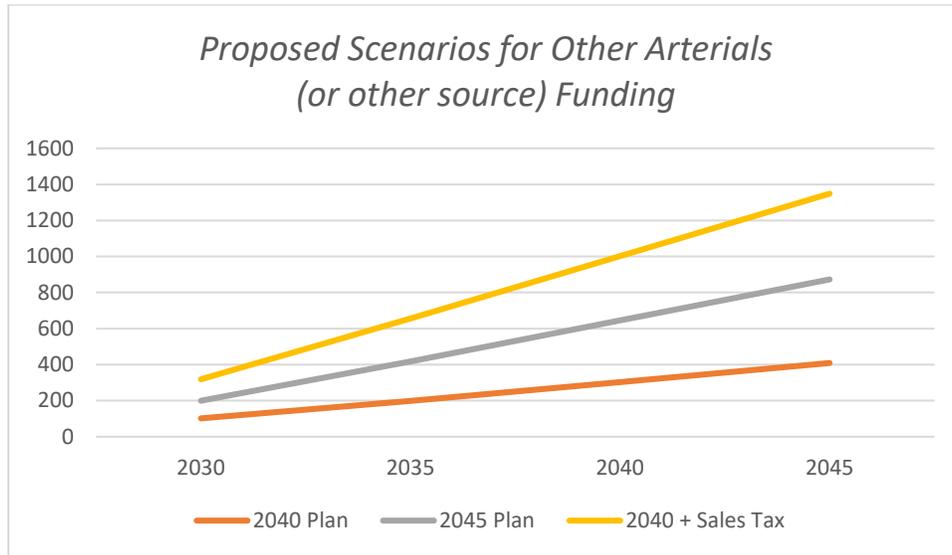
The TPO provides priorities for FDOT to program the TMA (Transportation Management Area is MPO with population greater than 200,000) and Other Arterials funds. Each update, FDOT estimates the amount of these funds expected to be available over the LRTP planning period. This time, while the TMA funds are generally consistent with previous updates, the Other Arterials are approximately double previous update estimates.

Therefore, it is proposed that the funding scenario will compare two alternatives in relation to the baseline which is the 2045 Revenue Forecast that will be used for development of the Connect 2045 Cost Feasible Plan (CFP). The LOW and HIGH scenarios will serve as lower and upper thresholds that provide a high-level overview of how these alternative futures might impact the program of projects included in the CFP. More specifically, the lesser funding of LOW will be used to determine what projects would potentially be excluded from the Connect 2045 CFP, while the greater funding of HIGH will be used to determine Needs Assessment projects that could potentially be added to the CFP.

BASELINE – Connect 2045 Revenue Forecast for developing the Cost Feasible Plan. This will include the level of Other Arterials funds projected by FDOT for this update and depicted as *2045 Plan* in the graph below.

LOW Scenario - The prior Other Arterials revenue forecast for the 2040 LRTP will be used to represent a lower end threshold. The 2040 Revenue Forecast took place at a point where the effects of the recession were still impacting the long-range financial outlook. Therefore, it acts as an appropriate surrogate for a more challenging financial situation. Depicted as *2040 Plan* in the graph below.

HIGH Scenario – The higher scenario is an amount above the BASELINE roughly proportional to the amount that the LOW Scenario is below. For the purposes of developing the specific threshold, the figure is based on the estimate of 25% of a 1 cent sales tax going to transportation. This is not a policy recommendation. It is intended to be a surrogate for any potential changes in funding that may come in the future, regardless of source. Depicted as *2040 Plan + Sales Tax* in the graph below.



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