

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 2)
 - Resiliency (page 3)
 - Funding (page 5)
- 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:

- 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. The results of that scenario run were provided by FDOT provided in mid-January and are currently being evaluated. The **ACES Scenarios** include **five possible futures** as proposed by the Federal Highway Administration and advanced 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.
- Identify and prioritize corridors for implementation
 - Prioritize corridors based on the needs assessment from the ITS/TSM&O Master Plans and, as appropriate, the results of the ACES Scenarios
 - Key corridors will be placed into prioritized tiers for purposes of identifying focus areas and potential future pilot projects
- Consider future action steps that are appropriate to continually analyze ACES such as implementation of an ACES Task Force and/or Committee
 - Made up of TPO, local agencies, private sector interests, and public entities
 - Evaluate opportunities as they occur
 - 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_mpguidebook_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.

To understand the vulnerability of transportation infrastructure to disruptive events and changes, the TPO has participated in assessments of sea level rise (SLR) and 100-year 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 storm surge in the future. In addition, the East Central Florida Regional Planning Council (ECFRPC) 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 (see chart). This data is available for Volusia County since it is in the boundary of the ECFRPC.

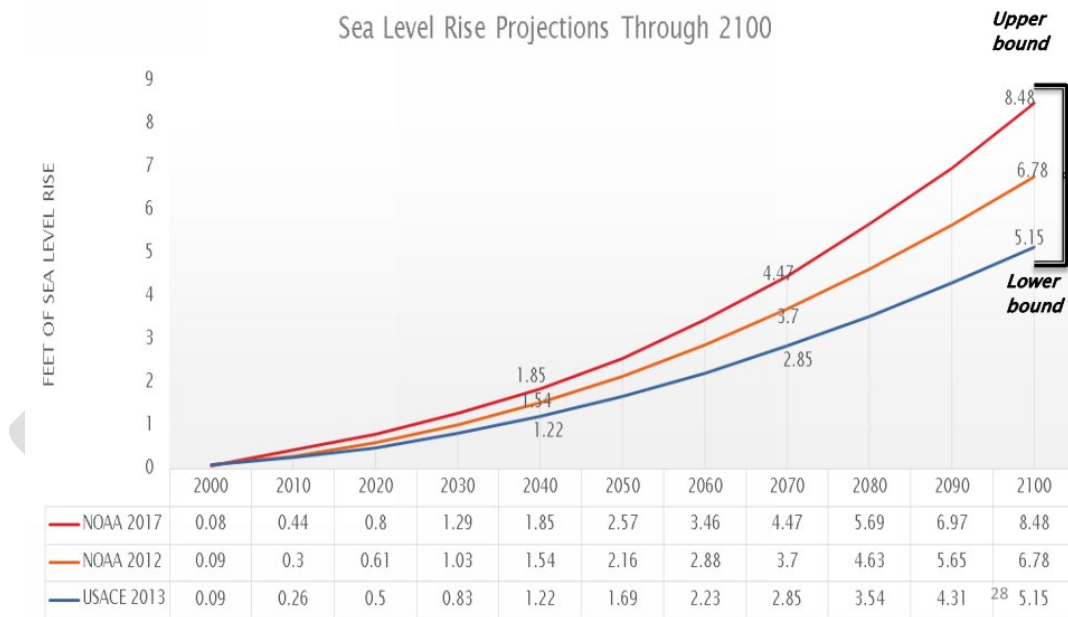


Chart source: East Central Florida Regional Planning Council

The Northeast Florida Regional Council does not presently have similar data for Flagler County.

Consistent data is being pursued for the entire TPO area but if that is not successful, two separate scenarios will be run for Volusia and Flagler, respectively. The horizon year to be used for both will be 2040 because it is the furthest data year within the LRTP horizon. For Volusia, both upper and lower SLR boundaries will be used. For Flagler, only lower boundary will be used unless the data becomes available.

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 (LOW and HIGH) in relation to the baseline 2045 Revenue Forecast to be used for development of the Connect 2045 Cost Feasible Plan (CFP) (this 2045 forecast was discussed with the TPO Board and Committees in January).

The LOW and HIGH scenarios will provide an opportunity to evaluate 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. Here is a summary of the baseline and two scenarios:

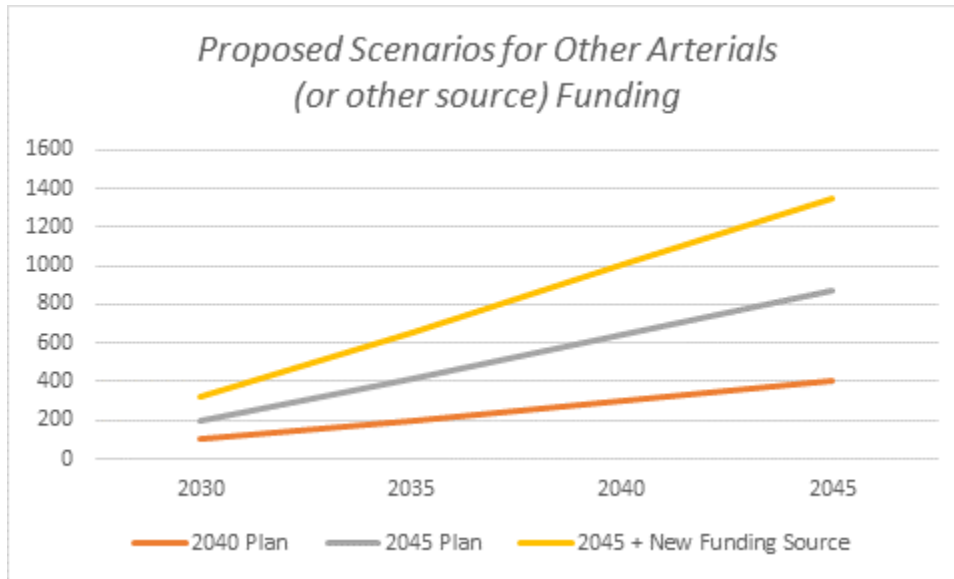
2045 Plan / BASELINE – *Other Arterials Funding* amount is from Connect 2045 Revenue Forecast.

2040 Plan / LOW Scenario – *Other Arterials Funding* amount is from 2040 LRTP Revenue Forecast. Because the 2040 Revenue Forecast was developed when recessionary effects were still impacting long-range financial outlook, it acts as an appropriate surrogate for a more constrained financial situation. The potential factors that could drive a more constrained financial future include:

- growing shortfalls in federal transportation funding due to highway fuel tax remaining at the same level since 1993
- projected reductions in fuel tax revenue due to increasing vehicle fuel economy
- projected reductions in fuel tax revenue due to growth in sales of electric vehicles

2045 + New Funding Source / HIGH Scenario – *Other Arterials Funding* is amount from Connect 2045 Revenue Forecast supplemented by hypothetical new source of funding. For 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. This was used to develop a scenario above the BASELINE that mirrors how much the LOW Scenario is below. The potential factors that could drive a more abundant financial future include:

- increase in federal highway fuel tax
- a new local sales tax
- increase in state funding
- implementation of a new revenue source that based on miles driven rather than gallons of fuel sold



A few resources for more information on funding:

- Congressional Research Service – Report: Funding and Financing Highways and Public Transportation (<https://fas.org/sgp/crs/misc/R45350.pdf>)
- FDOT/CUTR – Report: Autonomous Vehicle (AV) and Alternative Fuel Vehicle (AFV) Florida Market Penetration Rate and VMT Assessment Study (<https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/research/reports/fdot-bdv25-977-48-rpt.pdf>)
- FDOT – Report: Florida’s Transportation Tax Sources – A Primer (https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/comptroller/2019-transportation-tax-source-primer.pdf?sfvrsn=43ccaffd_2)