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Empowering Communities
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Seacoast Transportation Corridor Vulnerability Assessment

Corridor Advisory Committee
March 13, 2020

Seacoast Transportation Corridor Vulnerability Assessment (STCVA)

- A partnership between:
 - Rockingham Planning Commission
 - NH DES Coastal Program
 - NH Department of Transportation
 - University of New Hampshire
 - 10 NH coastal municipalities
- Funded as a 2019 NOAA Project of Special Merit

This project was funded, in part, by NOAA's Office for Coastal Management under the Coastal Zone Management Act in conjunction with the New Hampshire Department of Environmental Services Coastal Program.



Seacoast Transportation Corridor Vulnerability Assessment (STCVA)

- Project timeline and tasks (refer to handout)
- Corridor Advisory Committee (CAC) charge and role
- Overview of Project deliverables

- RPC Transportation planning process

Seacoast Transportation Corridor Vulnerability Assessment (STCVA)

- Project goals are to:
 - Assess the impacts of projected sea-level rise on the seacoast transportation network
 - 1.0', 1.7', 4.0' and 6.3' at 2050
(Tides to Storms and consistent with 2020 NH Science Summary)
 - Project area from Route 1A to I-95 west to include major local connector roads
 - Evaluate changes in traffic volume, travel patterns, road capacity, road conditions using travel demand model
 - Identify priority sites in the network impacted by flooding
 - Identify adaptation and resilience strategies for priority sites
 - Improve RPC/MPO decision making processes

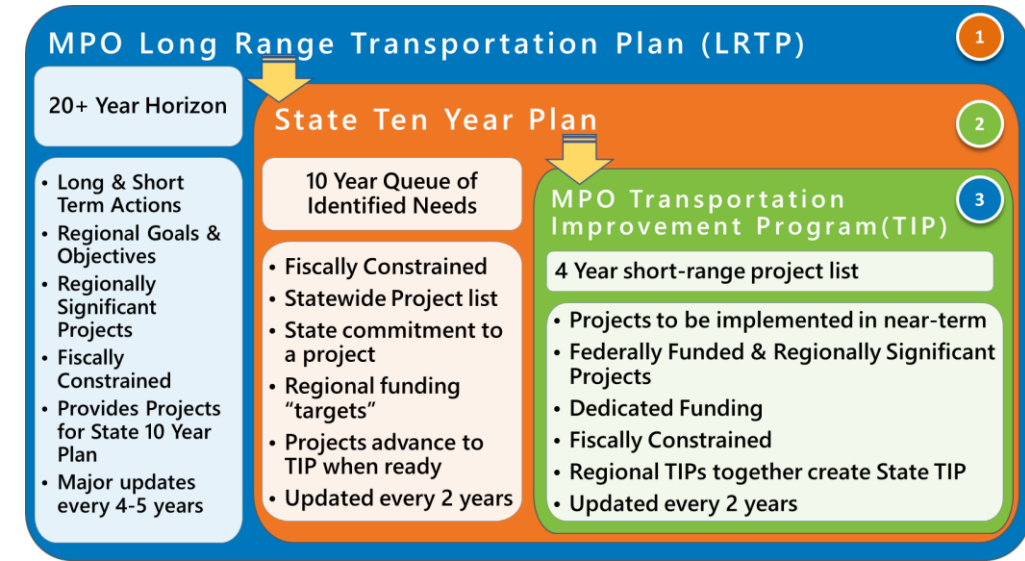
Seacoast Transportation Corridor Vulnerability Assessment (STCVA)

- Capitalize on municipal expertise and experiences
- Understand NHDOT and municipal roadway network management, policies and planning
- Inform state and local hazard mitigation planning efforts
- Inform coastal region climate adaptation and resilience planning

Transportation Planning Approach

MPO Core Functions

- Establish a **Continuing, Cooperative, and Comprehensive (3Cs)** transportation planning process
 - Prepare a **Long Range Transportation Plan (LRTP)** with a 20+ Year horizon
 - Develop a short-range **Transportation Improvement Program (TIP)** with a 4 year horizon
 - Identify and monitor system **Performance targets**
- Provide a **FORUM** to address issues that transcend municipal boundaries
- Serve as a **RESOURCE** to provide technical planning assistance to communities and facilitate regional coordination
- A **VOICE** for informing the legislature and state and federal agencies about the region's needs and priorities



Importance of Resiliency Planning

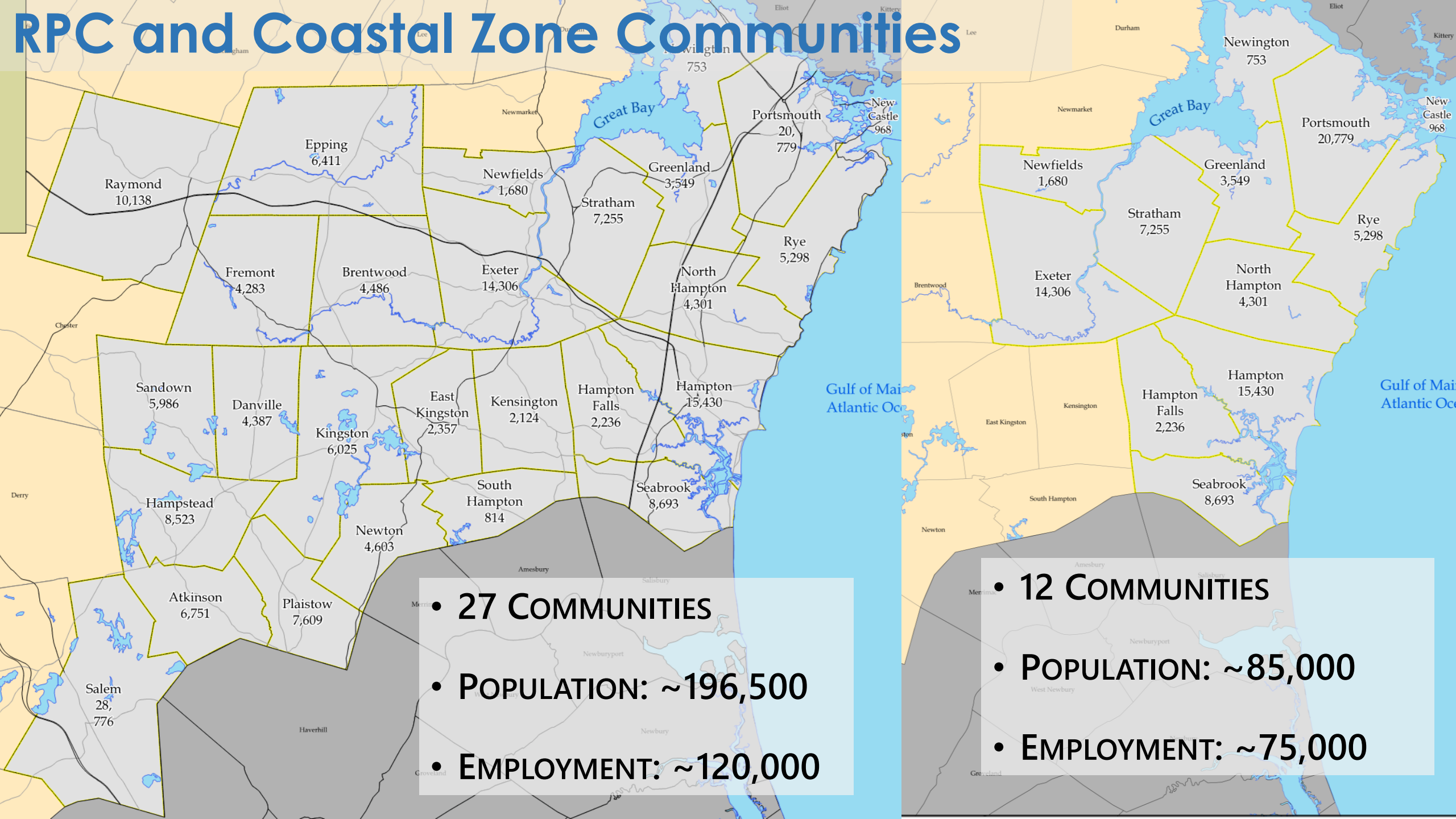
MPO's purpose is to plan for the long-term needs of the regional transportation system

- Provides the means for people to access social, economic, and environmentally valuable/desired locations
- Current science indicates that planners need to account for sea level rise to maintain access to those locations in coastal NH

Planning a Resilient Transportation System helps to

- Reduce the likelihood of systemic disruptions to functionality
- Increase the capacity to absorb these disruptions and still function
- Ensure that all have the ability to access the transportation system during disruptions
- Reduce the time that is needed to return to normal functioning

RPC and Coastal Zone Communities



- 27 COMMUNITIES
- POPULATION: ~196,500
- EMPLOYMENT: ~120,000

- 12 COMMUNITIES
- POPULATION: ~85,000
- EMPLOYMENT: ~75,000

STCVA Transportation Planning Outcomes

- Enhanced understanding of risks to transportation network from climate change
- Identify critical links and impacts of closures on the rest of the transportation network
- Develop improvement concepts and costs to better understand scope and scale of building a more resilient system
- Improve use of resiliency factors in the project selection process
- Provide data and analysis for other planning and project development efforts.
- Define policies that can facilitate a more resilient transportation system

Integrating STCVA & Resiliency into Transportation Planning

- **L RTP**

- Fully incorporate into goals and objectives
- Develop focused performance metrics
- Identify long-term project needs
- Better understand investment options

- **TIP/Ten Year Plan**

- Better define project selection criteria
- Enhance MPO data and decision-support tools
- Information to feed into project development efforts

[23 CFR 450.306\(b\)](#)

“consideration and implementation of projects, strategies, and services that will address the following factors: . . . (9) Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.”

[23 CFR 450.324\(f\)\(7\)](#)

“Assessment of capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure, provide for multimodal capacity increases based on regional priorities and needs, and reduce the vulnerability of the existing transportation infrastructure to natural disasters.”

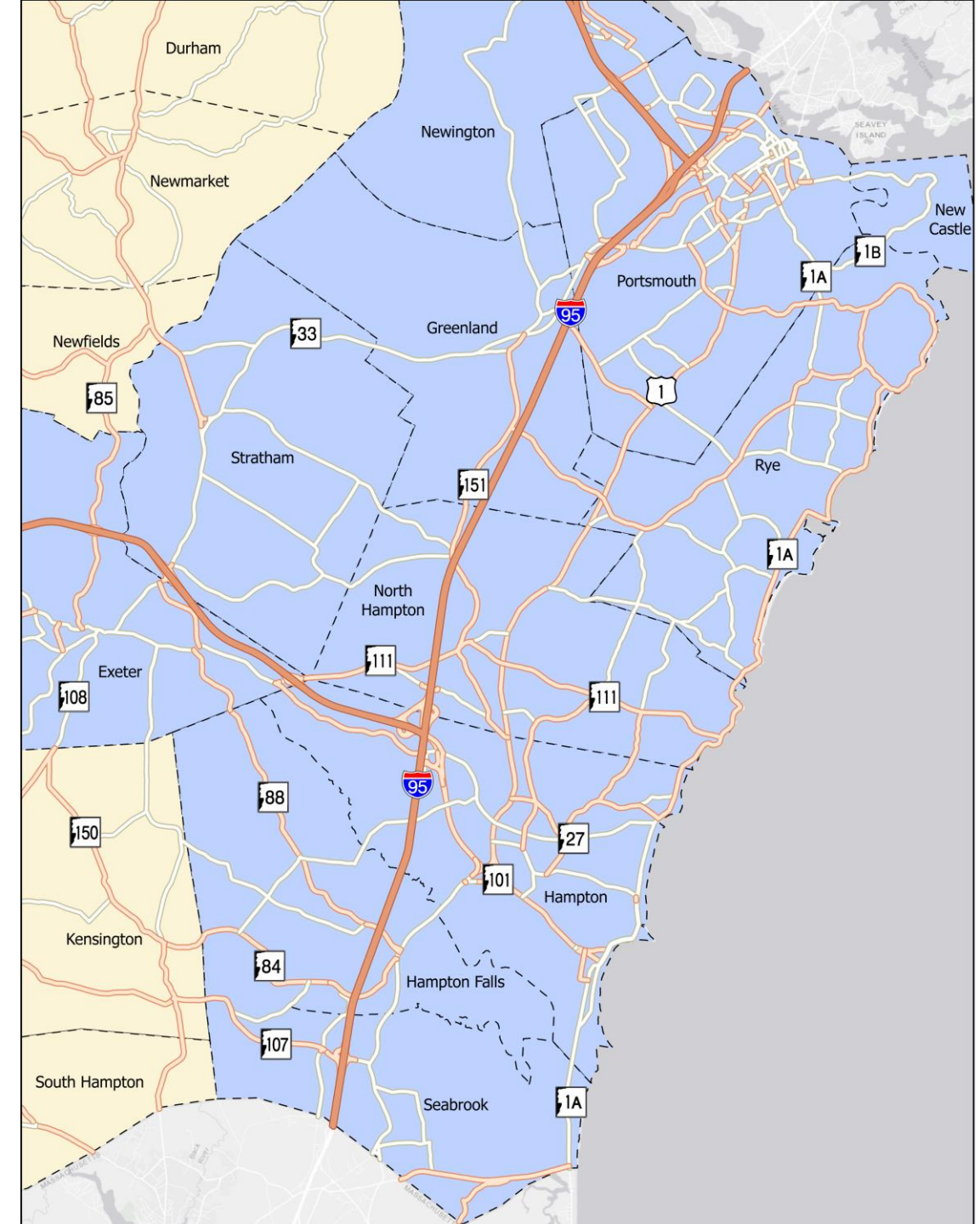
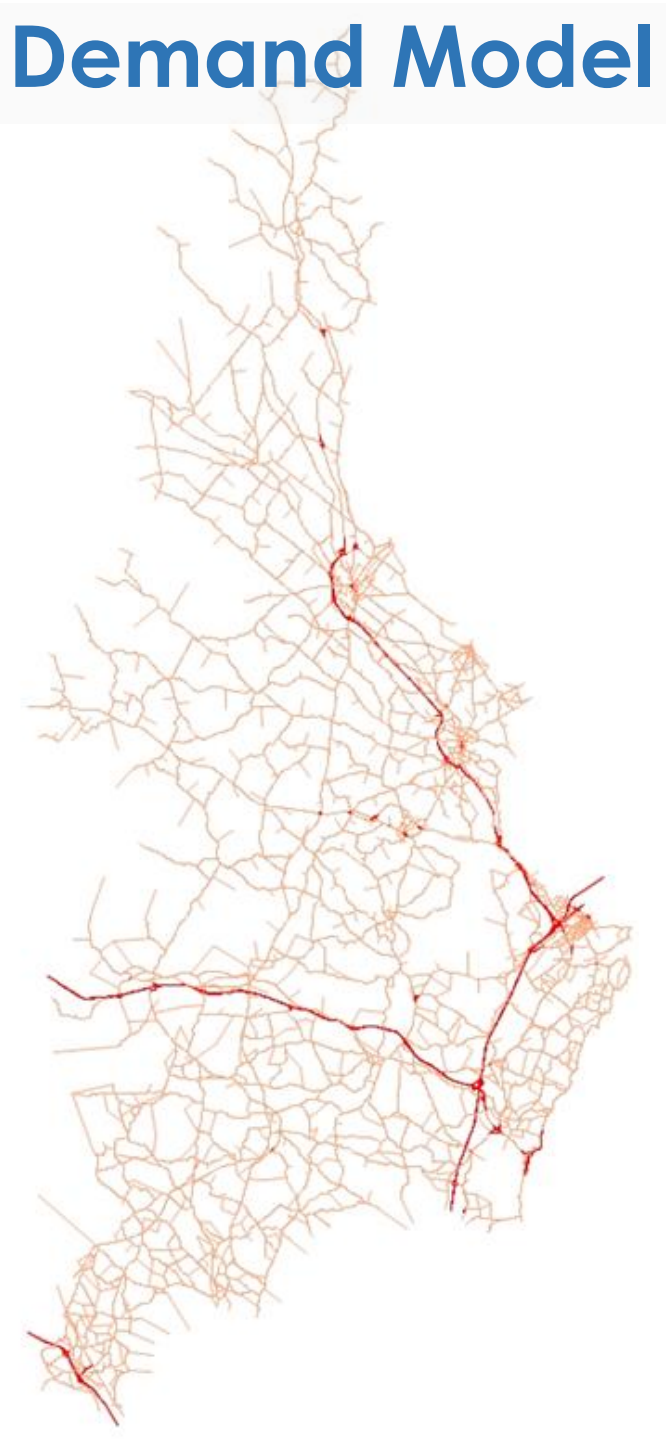
Addressing STCVA Goals

- Assess the impacts of projected sea-level rise on the seacoast transportation network (**model**)
- Evaluate changes in traffic volume, travel patterns, road capacity, road conditions using travel demand model (**model**)
- Identify priority sites in the network impacted by flooding (**model & project team and partners**)
- Identify adaptation and resilience strategies for priority sites (**project team and partners**)
- Improve RPC/MPO decision making processes (**project selection criteria and performance metrics**)

Regional Travel Demand Model

- Demographic data – employment, population
- Uses demographic projections aggregated into zones to estimate future travel in the region.
- Model attempts to find most efficient path for all trips between zones.
- Many, but not all, roads are included
- Focusing on impacts on coastal corridors

Regional Travel Demand Model



STCVA Goals - Regional Travel Demand Model

- Overlaying sea-level rise projections and determining what model links and nodes are impacted
- Attempting to understand how the system operates with the traffic capacity of effected links being extremely low or eliminated
- Conducting Select Link Analysis to understand origin and destination of each trip through impacted links
- Conducting Select Zone Analysis to understand the origin and destination of trips between zones
- Other analyses based on usefulness

STCVA Goals – Adaptation and Resilience Strategies

- Travel demand model can help identify priority locations
- Identifying strategies will be a collaborative effort with all project team and study partners
- Can utilize Federal Highway Administration frameworks to help organize and categorize options.
- Adaptation and Resilience – protect, accommodate, retreat, avoid

STCVA Goals - RPC/MPO Decision Making Process

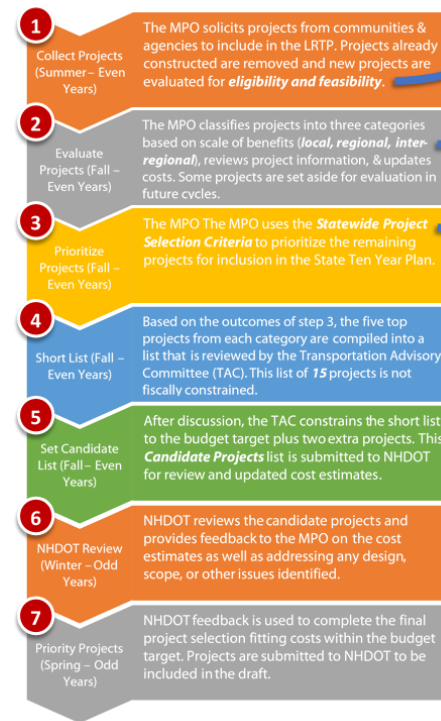
- **Modify Project Selection Criteria to better incorporate resiliency planning**
 - Facility Importance is already included but needs to be better defined
 - Need to better address exposure to risk
 - Address proposed impacts of project

“The degree to which the proposed project will address natural hazard mitigation measures”

- **Develop Performance Metrics to track progress towards regional goals**

- Pavement & Bridge Condition (State Highways)
- Highway Safety
- Travel Time Reliability (State Highways)
- Need to track change in exposure to risk
- Other metrics?

The RPC MPO Project Solicitation and Selection Process



Project Eligibility and Feasibility Considerations

- How immediate is the need for the project? 5 Years? 10? 20? More?
- Is the approach reasonable given limited resources?
- Is the approach consistent with MPO Goals and Objectives?
- Is the proposal consistent with NHDOT Bridge & Pavement Strategies?
- Is the proposal eligible for Federal funding?
- Is the proposal likely to meet environmental permit requirements?

MPO Project Classification by Scale of Impacts/Benefits

	Local	Regional	Inter-Regional
Focus	Safety, accessibility, and multi-modal connections within communities	Multi-modal connections between communities and regional activity centers	Mobility & intermodal improvements to connect to Northeast
Project Types	<ul style="list-style-type: none"> - Local bike/ped and transit projects - Highway projects on "main street" state highways and some local roads - Multi-modal access to services for all - Complete Streets & context sensitive design 	<ul style="list-style-type: none"> - Primarily on State Highways - Regional transit improvements - Regional bike/pedestrian facilities - Strategic capacity improvements 	<ul style="list-style-type: none"> - National Highway System Roadways - High speed Safety - Delay reduction on critical roadways - Freight mobility and travel time improvements - Road/Bridge Condition

- Statewide Project Selection Criteria**
- **Congestion:** The extent to which the project is intended to impact traveler delay upon completion
 - **Freight Mobility:** The degree to which the project impacts the movement of goods
 - **Alternative Modes:** The extent to which the project impacts accommodations for alternative modes of travel
 - **Traffic Volume:** Motor Vehicle Volume (AADT)
 - **Facility Importance:** The extent to which the facility moves people & goods between major locations (TIF Functional Class)
 - **Safety Measures:** The degree to which proposed improvements impact safety
 - **Safety Performance:** 5 Year Average safety performance (crash rate/severity)
 - **Service Life:** Extent to which the project impacts the service life of the pavement (keep good roads good)
 - **Bridge Condition:** The degree to which the current asset requires work (fix worst first)
 - **Regional Support:** The degree to which a project is supported by the RPC, locality, and feasibility of construction
 - **Resiliency:** The degree to which the proposed project will address natural hazard mitigation measures

For More Information

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The screenshot shows the website for the Rockingham Planning Commission (RPC). The header includes the logo, contact information (Phone: 603-778-0885, Fax: 603-778-9183), a search bar, and a navigation menu with links to Commission, Communities, Regional & Community Planning, Transportation, Environment, and Maps and Data. The main content area is titled "Climate Change" and contains the following text:

Climate Change

Changes in New Hampshire's climate are well documented in local records of sea level, growing seasons, range of flora and fauna, precipitation and temperature. Similar to national trends and climate model projections, the state has experienced more extreme weather events including floods, drought and rising tides.

Some degree of future impact will be influenced by changes to the atmosphere and warming of land, atmosphere and oceans already in progress. Longer term impacts will reflect decisions made today that influence how climate may change further into the future. Such decisions include energy choices such as fossil based versus renewable sources, land use and environmental protection, and transportation systems.

New Hampshire and its municipalities have many opportunities and time to prepare and adapt to a changing climate. This effort will require understanding of recent climate projections and assessments, applying technology and data to solve problems, and learning from other states and communities that have successfully implemented effective strategies and solutions.

Refer to the [Climate Change Chapter](#) of RPC's Regional Master Plan for more information about climate change impacts on the region.

Several statewide and regional efforts have advanced understanding of climate change in New Hampshire, providing guidance, resources, science and strategies for adaptation:

- [NH Multi-Hazard Mitigation Plan](#)
- [NH Climate Action Plan](#)
- [NH Coastal Risks and Hazards Commission](#) (RSA 483E)
- [NH Coastal Adaptation Workgroup](#)

Additional resources are available on the [State and Regional Efforts](#) page.

The left sidebar of the website lists various planning topics, with "Climate Change" highlighted. Other topics include Regional & Community Planning, Regional Master Plan, Regional Impact Developments, Housing, Historical Resources, Economic Development, Agriculture, Hazard Mitigation, CRISE, High Water Mark Initiative, Setting Sail, Tides to Storms, State and Regional Efforts, Exeter Stormwater Resilience, and Energy.

