Seacoast Transportation Corridor Vulnerability Assessment

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Transportation Advisory Committee

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Image Courtesy of EcoPhotography

Seacoast Transportation Corridor Vulnerability Assessment (STCVA)

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

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.

Image Courtesy of Kim Reed

STCVA Goals

- Assess the impacts of projected sea-level rise on the seacoast transportation network (1', 1.7', 4', and 6.3' sea-level rise scenarios.
- Evaluate changes in traffic volume, travel patterns, road capacity, road conditions due to SLR
- Identify & prioritize sites impacted by flooding for further evaluation
- Identify adaptation and resilience strategies for priority sites
- Improve RPC/MPO decision making processes

STCVA Transportation Planning Outcomes

- Enhanced understanding of risks to transportation network from climate change
- Critical links identified and impacts of closures on the transportation network assessed
- Improvement concepts and costs developed for priority locations to better understand scope and scale of building a more resilient system
- Improved resiliency factors for the general project selection process
- Data and analysis available for other planning and project development efforts.
- Policies defined that can facilitate a more resilient transportation system

Identifying & Prioritizing Impacted Roadways

Previous Work on Sea Level Rise Impacts

- Tides to Storms
- Coastal Risks and Hazards Commission
- 2020 NH Science Summary

Regional Travel Demand Model

- Travel Patterns based on residential and employment distribution
- All State Roadways and many local Roads

Transportation System Impacts of Sea Level Rise

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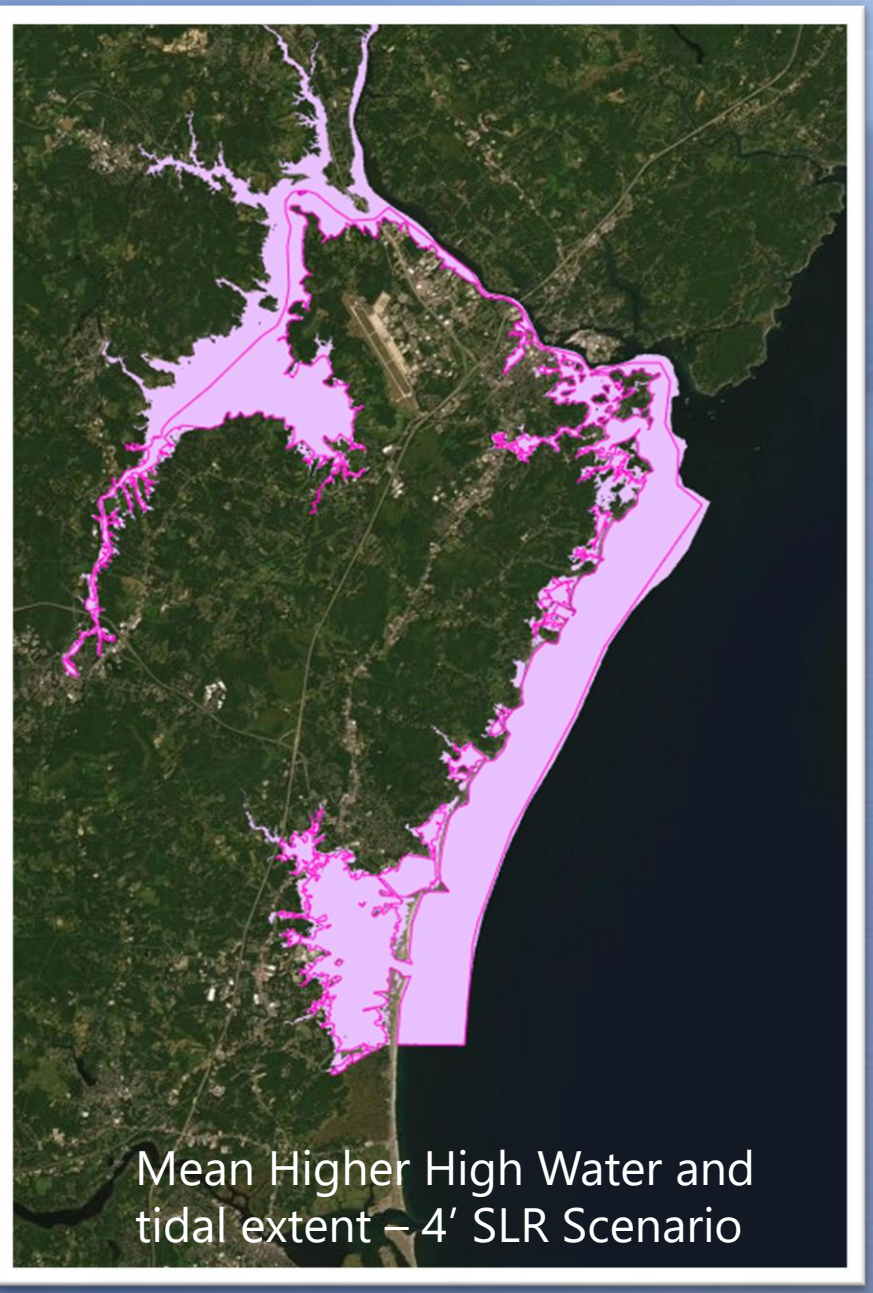
Transportation System Impacts of Sea Level Rise



Mean Higher High Water and tidal extent – 4' SLR Scenario

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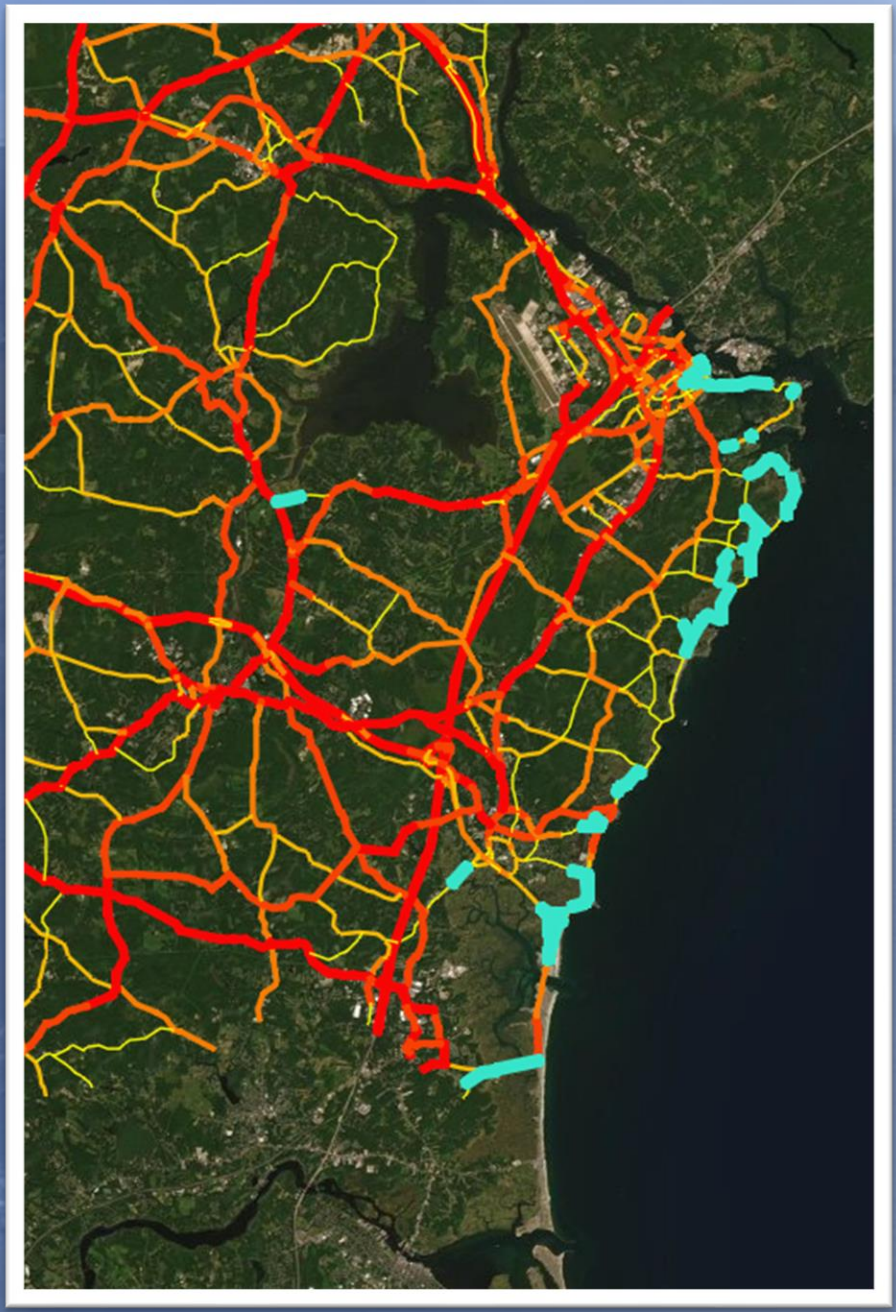

Inundated model links at 4′ SLR

Identify Segments Where Water and Roads intersect

Scenario	Impacted Locations	Approx. Miles Impacted
1′	4 model links	0.5
1.7′	13 model links	1.0
4′	125 model links	16.8
6.3′	259 model links	28.0

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Transportation System Impacts of Sea Level Rise

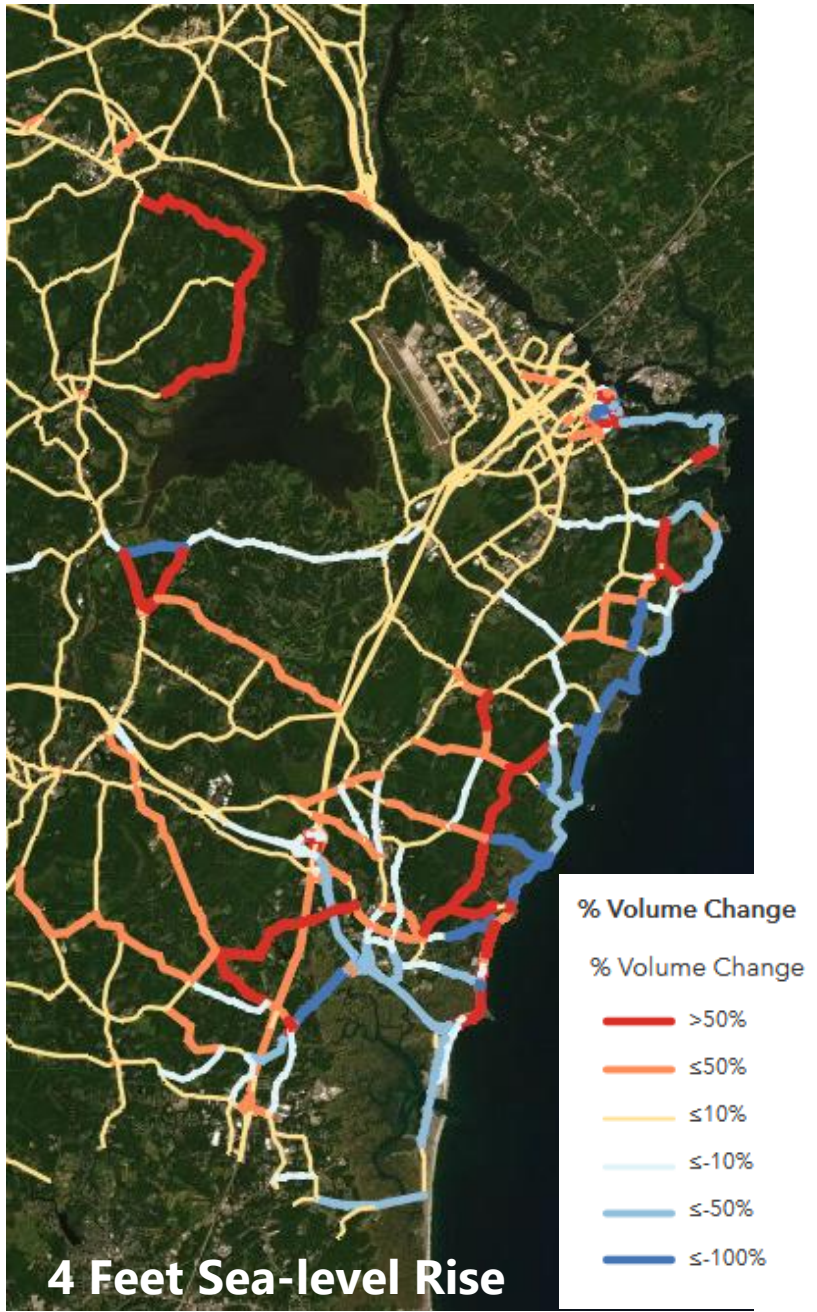
Direct Transportation Network Impacts

- Inundated Links
- Isolated Areas
- Impacts of flooding on infrastructure

Indirect Transportation Network Impacts

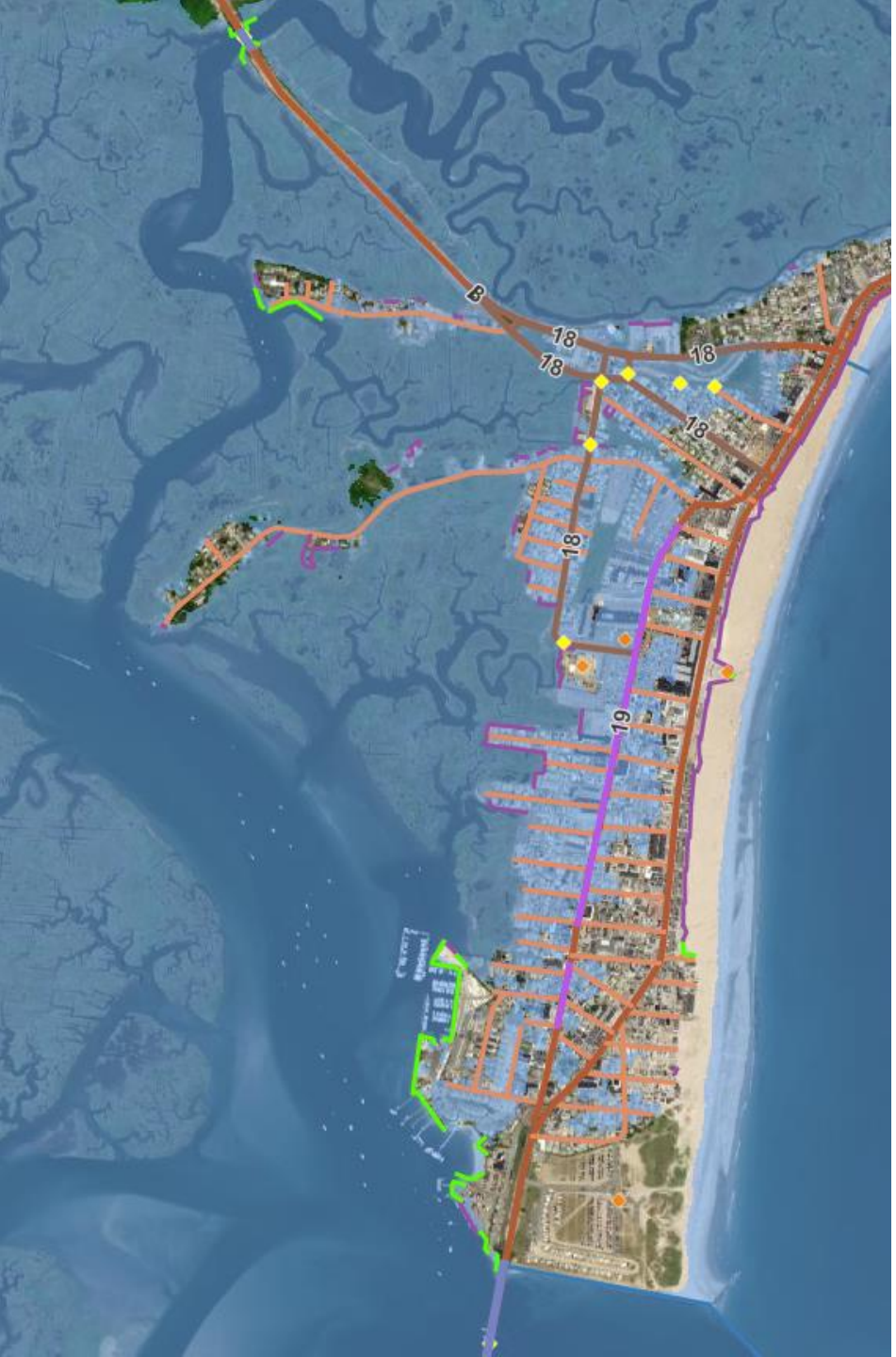
- Travel Pattern Changes
- Traffic Volume Changes
- Impacts on Roadway capacity and condition

Estimate Traffic Impacts of Road Closures



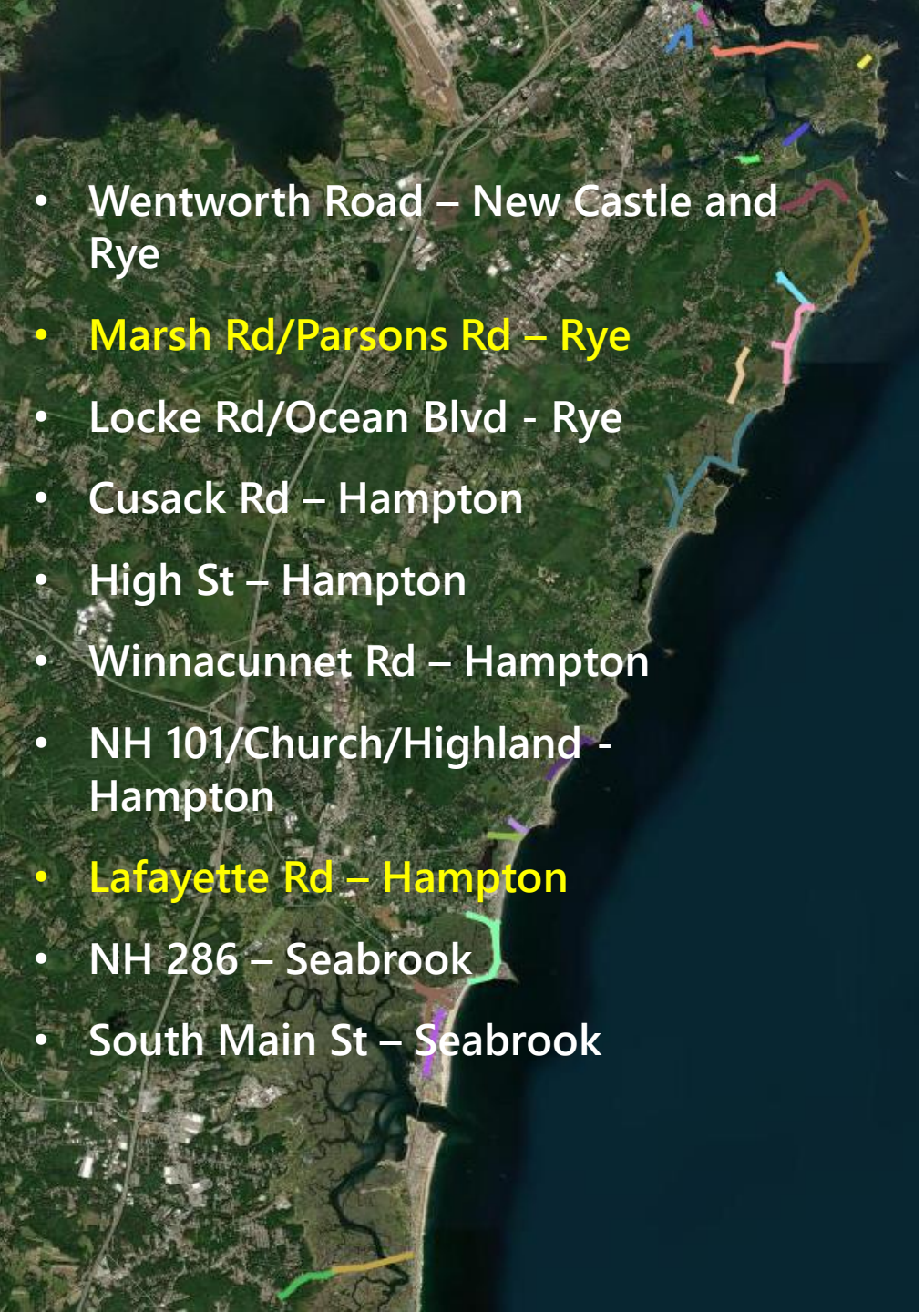
Group Adjacent Impacted Links into Sites

Scenario	Impacted Locations	Sites
1 Foot	4 model links	3
1.7 Feet	13 model links	5
4 Feet	125 model links	24



Score Sites Against Criteria to Determine Criticality

Criterion	Weight	
Functional Classification	20%	Operations
Average Daily Volume (AADT)	20%	
Distance to Emergency Services	15%	Health & Safety
Alternate Route Availability	15%	
Social Vulnerability Index (SVI)	10%	Socioeconomics
Distance to Community Facilities	10%	
Average Land Value per Acre	10%	



Identify Priority Sites for Evaluation

- List of priority sites for further evaluation vetted with NHDOT and other project team members
- Selected 10 sites to:
  - Assess types of impacts and potential adaptation measures
  - Develop conceptual design alternatives
  - Apply New Hampshire Coastal Flood Risk Guidance
- 2 Sites will have more in-depth analysis

Remaining Tasks

- UNH is conducting site analysis this summer
- RPC is working on alternate routing analysis and developing site profiles
- Will meet with the corridor advisory committee late summer
- Community meetings in the fall
- Report and wrap up this winter.

For More Information

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https://www.therpc.org/STCVA