Resilient Future with Aging Transportation Assets

Skye Levin, P.E.
VHB
RIDOT Corridor Projects Program

STIP: 2022-2031 (Revision 10 with Pending Changes)

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<tr>
<th>Municipality</th>
<th>Description</th>
<th>Responsible Agency</th>
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<td>Jamestown</td>
<td>This project includes repairs to bridges and North Road in Jamestown. Bridges #313 and 285: Replacement. In addition to bridge work, roadway resurfacing and resaliing along North Road and East Shore Road will be included. Roadway work will be performed in conjunction with handing ramp and sidewalk repairs. This project may require additional funding beyond 2031.</td>
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<tr>
<th>Phase</th>
<th>Funding</th>
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<th>Asset Type</th>
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<th>Facility Carried</th>
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<tr>
<td>Bridge</td>
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<td>Conesus #1</td>
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<td>Jamestown</td>
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<td>Southwest Avenue</td>
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<td>Install ADA ramps; Upgrade Crosswalk; Geometry, 52.5 ft</td>
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Final Adoption September 9, 2021
Overview:

- Addresses all RIDOT assets in Jamestown
- Planned as a resiliency project
- Accelerated 5 years under IIJA Amendment
- Key Scope Elements
  - Replace Round Swamp Bridge (#289)
  - Resurface North Road
  - Safety improvements at Southwest Ave and Conanicus Ave
Challenges:

Funding:
- Current STIP Budget: $27.5M
- Revised Estimate: $94.3M
- Discretionary Grant Restrictions

Community Feedback:
- Narragansett Tribe
- Residents
- Town of Jamestown

Archaeological Resources

Environmental Permitting

Coordination with Town Projects
Up to 3 feet of SLR by 2050

12 feet
Challenges:

- Condition of Bridge #289
  - Built in 1934
  - Serious Condition
  - Hydraulic opening too small
- Flooding and Sea Level Rise
  - Both bridges in project are projected to be overtopped by 2050
  - 100-Year Storms could bring 12 feet
- Cultural Resources/Section 106
  - Potential for significant delay
  - Part of archaeological district
Bridge Overview

- Built in 1934
  - 88 years in service
  - Original bridge plans available
    - Only 2 pages!

- Bridge carries North Main Street over a tidal inlet

- Structure type
  - Cast in place reinforced concrete slab seated on reinforced concrete abutments and timber piles

- Functionally Obsolete

- Structurally Deficient

- Overall condition state of 3 - Serious
Condition Assessment

- 23 years of available bridge inspection data
  - Downward trend in 2 of the 3 major components

- Component Condition Items
  - Item 58 – Deck
    - Current condition = 6 – Satisfactory
    - Minor defects
  - Item 59 – Superstructure
    - Current condition = 4 – Poor
    - Up to 50% section loss on rebar
    - Up to full length cracking with efflorescence
  - Item 60 – Substructure
    - Current condition = 3 – Serious
    - Spalls up to 1’-0” deep
    - Return wall rotated out of plumb
4'-0" long x 6" wide x up to 2" deep spall with exposed rebar

Full length x up to 1" wide crack

Full length x full height map cracking with efflorescence and up to 1/16" wide cracks

Bridge No. 028901
Northeast return wall, looking southwest

06/08/2021

South Abutment #1
End of the slab, north
5'-0" long x 5'-0" high x up to 1'-8" deep area of heavy spalling/abrasion with exposed, debonded, and severed rebar

1'-0" high x 2'-6" deep void

5'-0" long x 5'-0" high x up to 1'-8" deep spall/abrasion with two (2) exposed, debonded, and severed rebar
Next Steps:

- Commit to an Alternative
- Develop stakeholder engagement & feedback plan
- Amend STIP to reflect increased budget and revised project schedule
- Secure additional funds through Discretionary Grant(s):
  - 2024 PROTECT Grant
  - 2024 Bridge
  - 2024 RAISE
What’s Next…How do we continue this….
Aquidneck Island

- Made up of three Cities/Towns
  - Newport
  - Middletown
  - Portsmouth

- Aging RIDOT Assets much more numerous

- Background Information
  - Portsmouth SNEP Financing Projects
  - Leadership Exchange
  - Military Installation Resilience Review Study
  - University of Rhode Island - Capstones