Drakes Island Road Bridge Replacement Project

May 23, 2023

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How to Comment or Ask Questions Tonight

- In person, raise your hand
- At home, click on the hand symbol at the bottom of your screen
- I will call on you to speak
- Please tell us your name and where you live
- Why a hybrid meeting?
- We are recording the meeting and will follow up with a meeting report on the Town website: search for Drakes Island Road Bridge Replacement

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Introduction

Project Goals:

Build a long-term, safe, high-quality bridge, preserve and enhance the salt marsh habitat, and establish strong community participation and support.

The Town of Wells has hired CMA Engineers to help the community determine what the replacement for this bridge could look like.

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Project Team & Partners

- Town of Wells
- CMA Engineers
- GZA GeoEnvironmental
- Wells National Estuarine Research Reserve
- Rachel Carson National Wildlife Refuge
- Drakes Island Community
- Morris Communications

Project Area

Public Outreach

- Second of two informational meetings
- Primary Purpose:
  Present the results of the alternatives analysis completed since the last meeting
- Collect community input and answer questions
- Project page on Town of Wells website

https://www.wellstown.org/1024/Drakes-Island-Road-Bridge-Replacement-Pr

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Project Schedule & Timing

- Site Investigation & Analysis 2022
- Engineering Study ..... July 2022
- First Public Meeting ..... July 2022
- Second Public Meeting ..... Spring 2023
- Engineering Study Complete ..... Summer 2023
- Preliminary Design 2023/2024
- Final Design 2024/2025
- Project Construction ..... Winter 2025/2026

Completed Data Collection & Analysis

Subsurface Investigations

- Nothing unexpected or locally uncommon

Environmental Permitting

- Good news on historic review and coast guard permitting

Hydrologic & Hydraulic Modeling

- Current bridge is not restricting tides

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Alternatives Analysis Process

The process

- Identify key project elements
- Determine feasible alternatives for each

Alternatives are evaluated based on:

- Cost
- Schedule
- Constructability
- Site & environmental constraints

Goals / outcomes

- Identify a single preferred alternative that meets as many of the project goals as possible

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Existing Bridge Condition

Substructure: 4 – Poor Condition
Superstructure: 7 – Good Condition
Deck: 7 – Good Condition

Elements We Will Cover

- Bridge Substructure
- Bridge Superstructure and Span
- Hydrology and Hydraulics
- Sea-Level-Rise

- Environmental Coordination
- Roadway / Bridge Cross Section
- Island Access During Construction

"No-Build" Option

No improvements are made at this time and the existing bridge and roadway remain as is

"No-build" option is not well suited for this site and is not recommended based on:

- Advanced deterioration of bridge and guardrail
- Limited options for suitable future rehabilitation
- Critical nature of this infrastructure

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Environmental Coordination

Resource Agencies

- United States Army Corps of Engineers
- Maine Department of Environmental Protection
- United States Coast Guard
- Maine Department of Inland Fisheries and Wildlife
- Maine Historic Preservation Commission
- Maine Natural Areas Program

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Bridge Substructure

Existing Bridge Substructure

- Timber piles, abutments, and wingwalls

Proposed Bridge Substructure

Steel piles bearing on bedrock

- Shallow foundations not feasible due to clays and organics
- Will affect construction methods

Hydrologic and Hydraulic Analysis

Parameters Evaluated

- Water surface elevations
- Channel velocities & flows
- Tidal cycles
- Effects on the tide gate to the east

Outcomes

- Confirmation of proposed span length
- Establish design criteria for future phases
- Quantify environmental impacts

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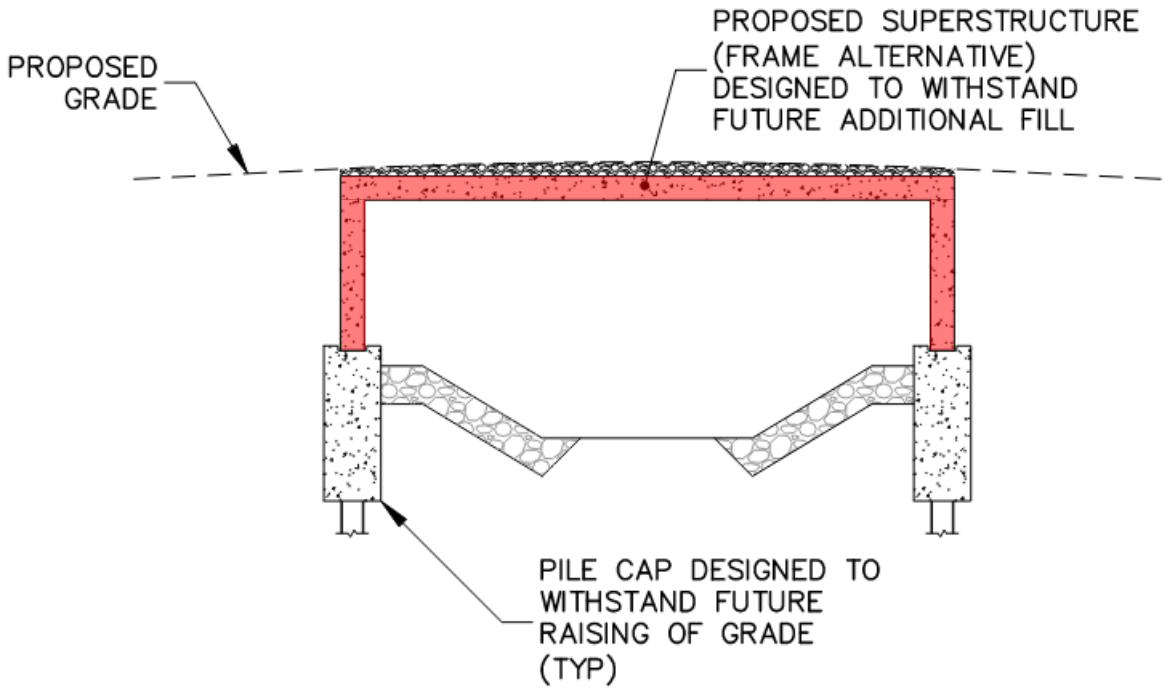
Bridge Superstructure and Span

Existing Bridge Superstructure & Span

- Timber beams spanning 14 ft.
- Timber deck boards with asphalt overlay

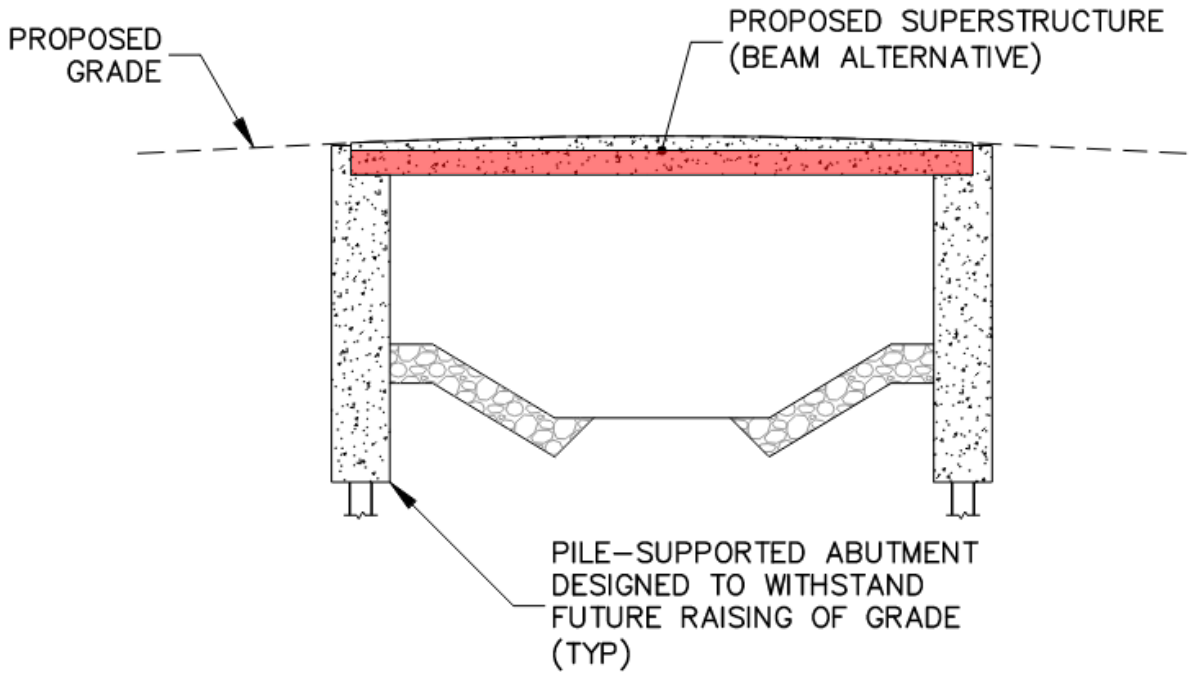
Proposed Bridge Superstructure and Span Alternative #1



Precast Concrete 3-Sided Frame

- Durable
- Low maintenance
- Fast and easy to install

Proposed Bridge Superstructure and Span Alternative #2



Precast Concrete Deck Beams

- Similar benefits to Alternative #1
- Cost analysis to be performed

Sea-Level-Rise (SLR)

Goals for Mitigating SLR at Drakes Island Bridge

- Exceed current MaineDOT bridge design standards
- Adopt Maine Climate Council SLR recommendations
- Tailor selected design guidelines for this site and community

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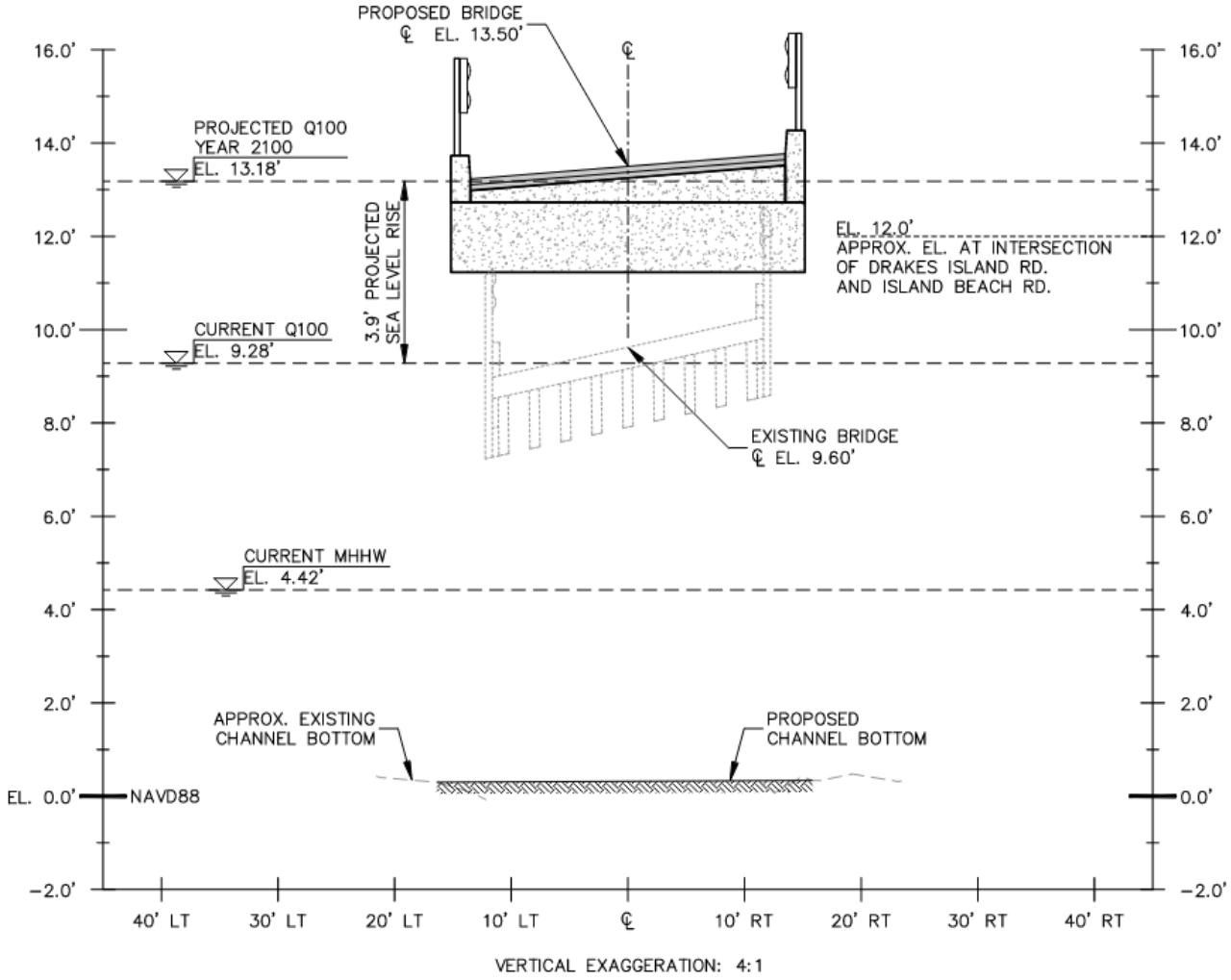
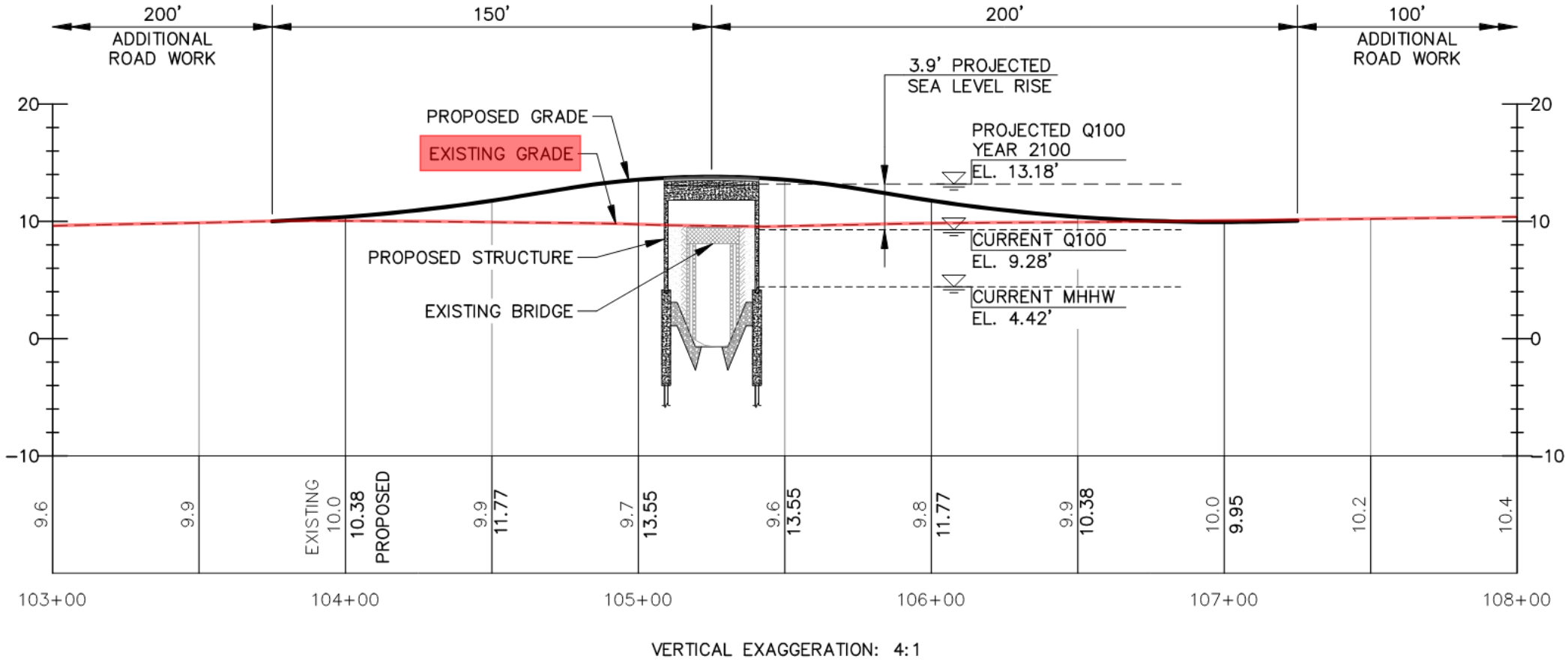
Sea-Level-Rise

- Increase functionality in the short-term
- Maintain current functionality in the long-term



Bridge Section – Sea Level Rise

Sea-Level-Rise



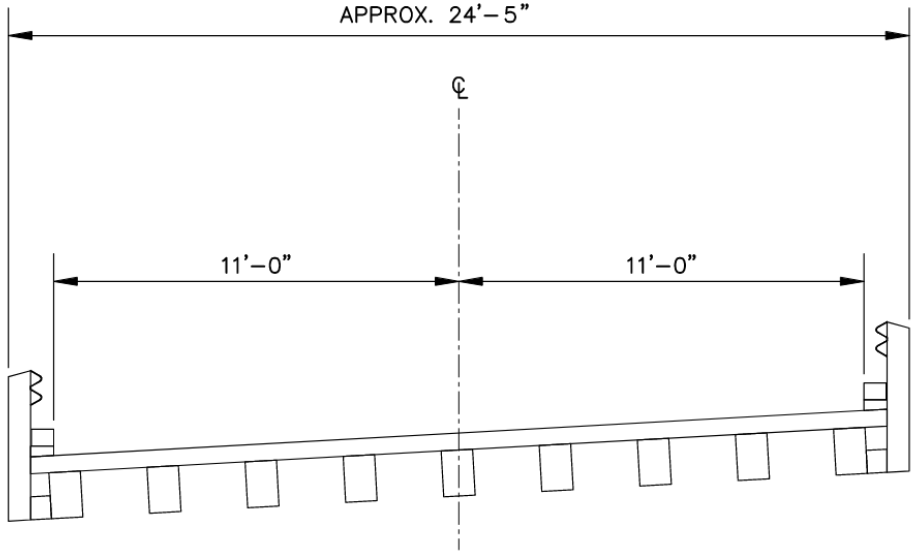
VERTICAL EXAGGERATION: 4:1

Existing and Proposed Roadway Profiles

Roadway Impacts

Roadway / Bridge Cross Section

Existing Roadway / Bridge Cross Section

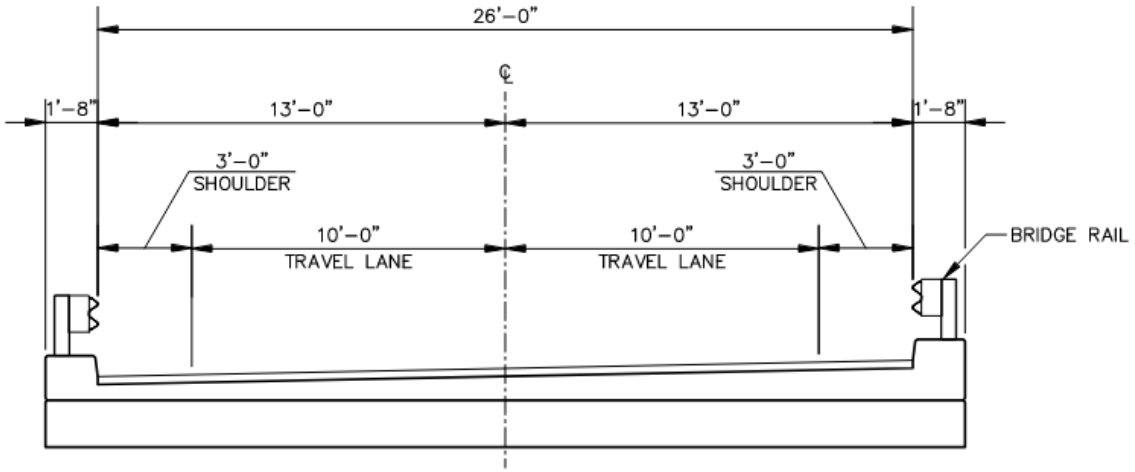


Existing Bridge Section

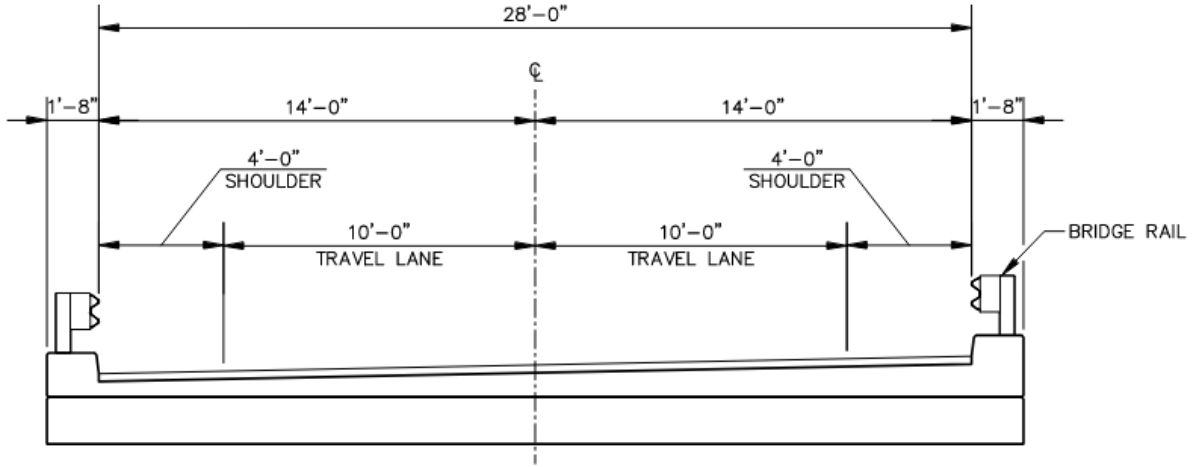
Roadway / Bridge Cross Section

Proposed Roadway / Bridge Cross Section

- Bridge: (2) 10’-0” lanes, with marked shoulders
- Roadway: Match bridge section, tapering to match existing at project limits



Bridge Section Option 1: 10’ Lanes with 3’ Shoulders



Bridge Section Option 2: 10’ Lanes with 4’ Shoulders

Island Access During Construction

Site Challenges

- Single point of vehicular access to the island
- Increasing number of full time / year-round residents

Critical Elements

- Continuous resident and emergency vehicle access to the island
- Avoiding peak summer traffic volumes
- Limiting constructability constraints and cost impacts

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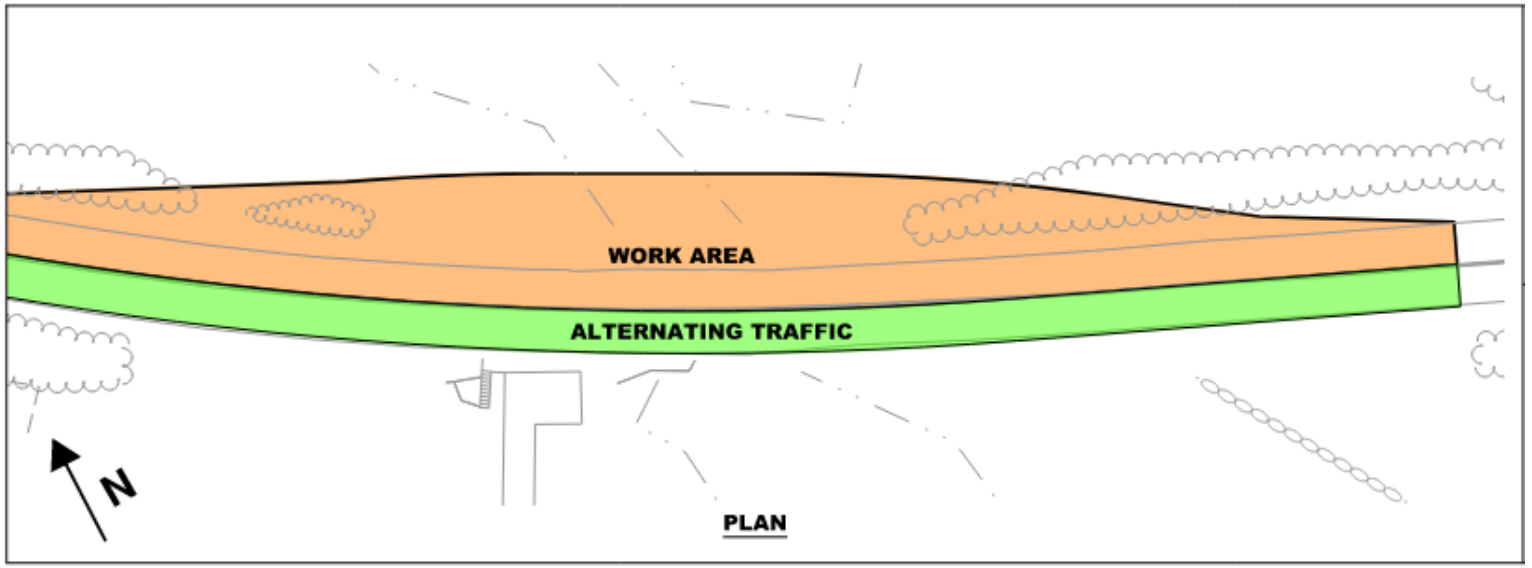
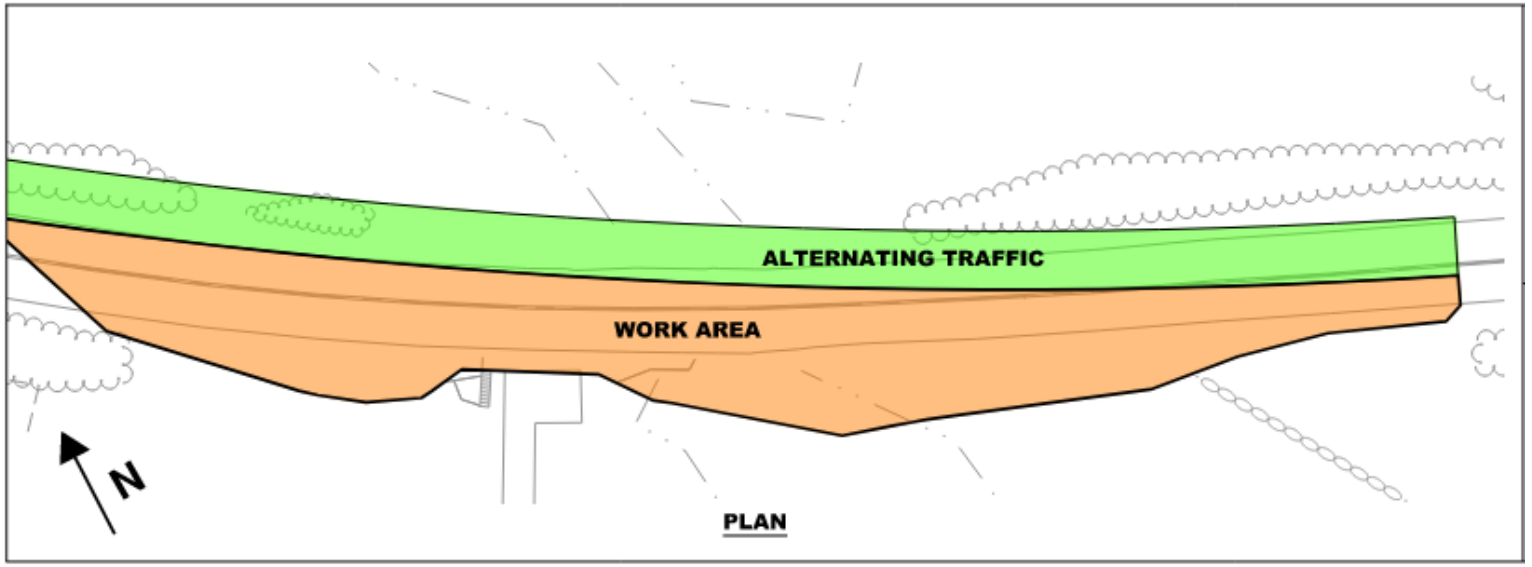
Phased Construction

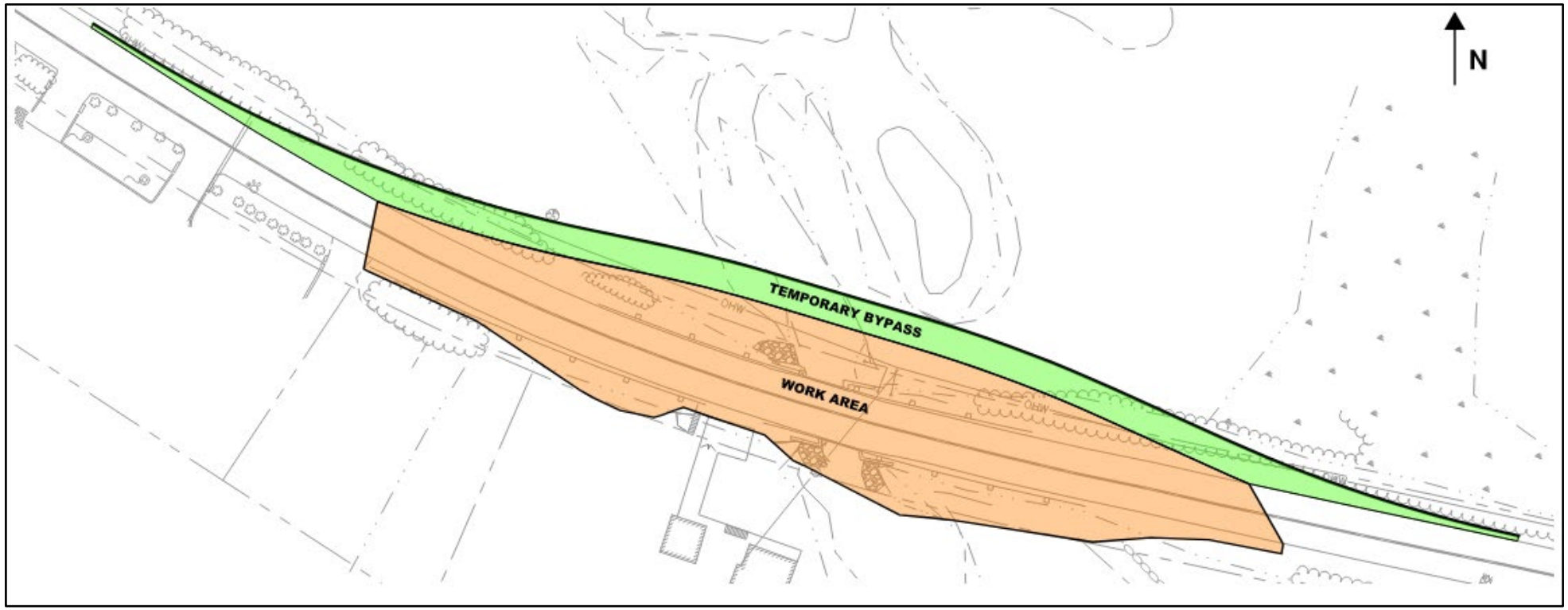
Phase I



Phase II



Temporary By-Pass

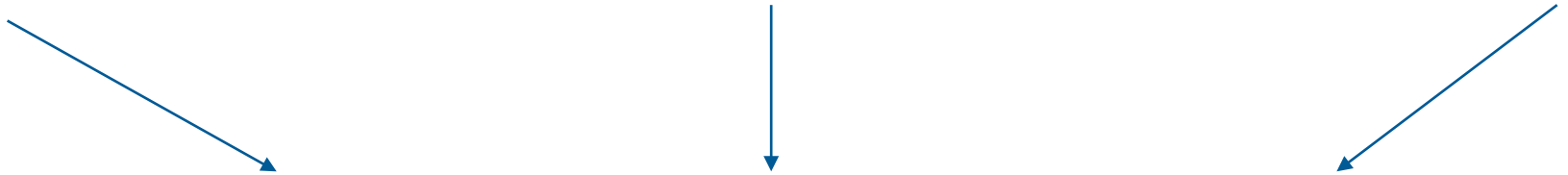


Path to a Recommended Alternative

Town Design Criteria

Conceptual Engineering

Public Input/Feedback



Preferred Alternative to Advance to Preliminary Design

Next Steps

Preliminary Design

- Develop engineering design
- Utility coordination
- Right-of-way / abutter coordination
- Progress environmental permit applications

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