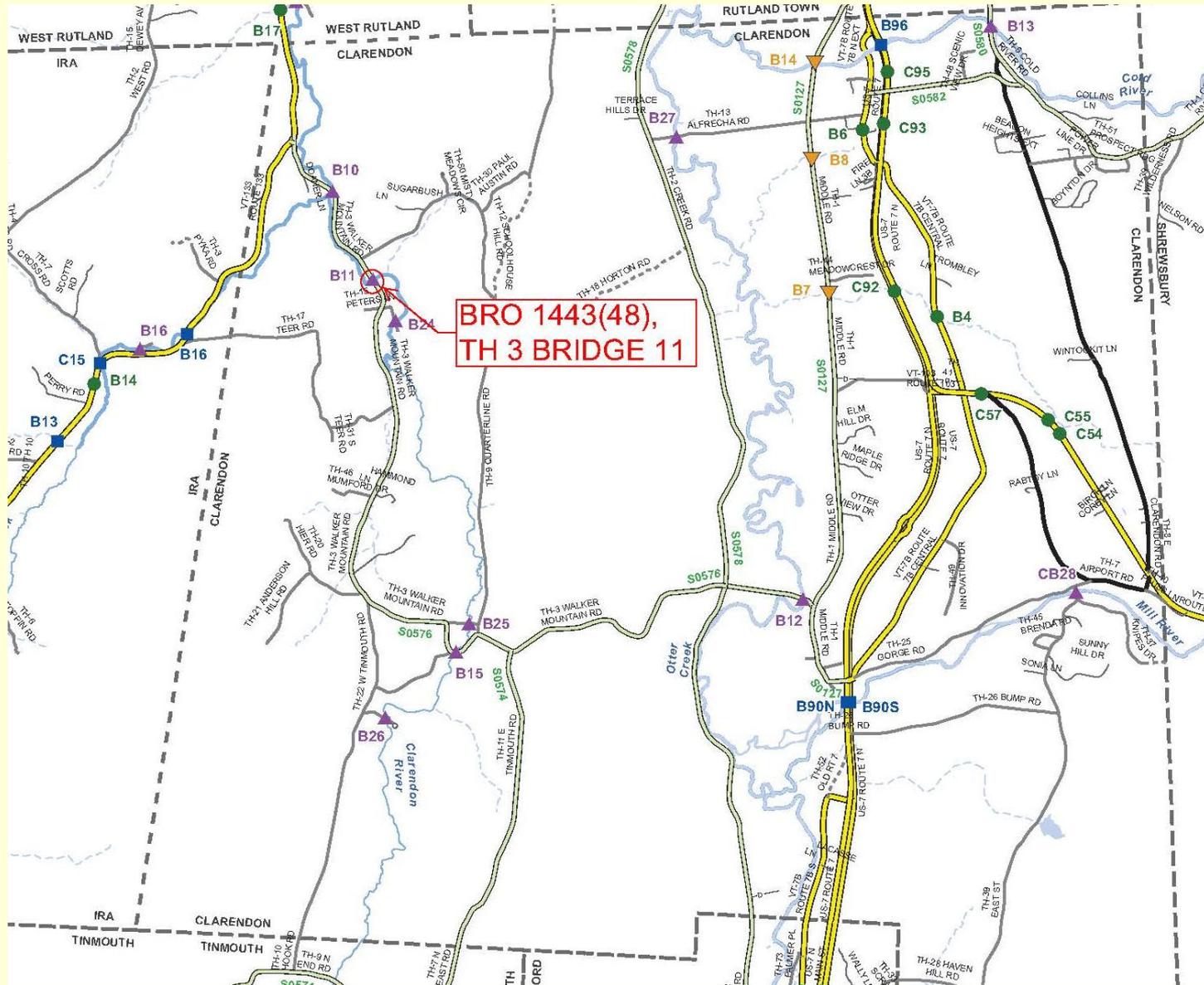


**Clarendon BRO 1443(48)  
Bridge 11 on TH 3 (Walker Mtn. Rd)  
Over Clarendon River  
Alternatives Presentation**



# PROJECT LOCATION



# Meeting Outline

- Purpose of the Meeting
- Structures Section Re-organization
- Existing bridge deficiencies
- Alternatives considered
- Summary and recommendation

# Purpose of Meeting

- Present the alternatives that we have considered
- Explain the constraints to the project
- Help you understand our approach to the project
- Provide you with the chance to ask questions.
- Provide you with the chance to voice concerns
- Build consensus for the recommended alternative-

# Accelerated Bridge Program

- Began in January 2012
- Bridges are deteriorating faster than we can fix them
- Accelerated Bridge Construction (ABC) is key
- Impacts to property and resources is minimized
- Standard details repeated on many projects
- Shift from individual projects to programmatic approach
- Accelerated Project Delivery
- Goal of 2 year design phase for ABP (5 years conventional)
- Goal of 25% of projects into Accelerated Bridge Program

# Project Initiation & Innovation Team

- Part of re-organization in January 2012
- Currently team of 5
- All projects will begin in the PIIT
- Very efficient process
- Look for innovative solutions whenever possible
- Involved until Project Scope is defined
- Hand off to PM to continue Project Design phase

# Phases of Development

Project  
Funded

Project  
Defined

Contract  
Award

Project Definition

Project Design

Construction

Identify resources &  
constraints

Evaluate alternatives

Public Participation

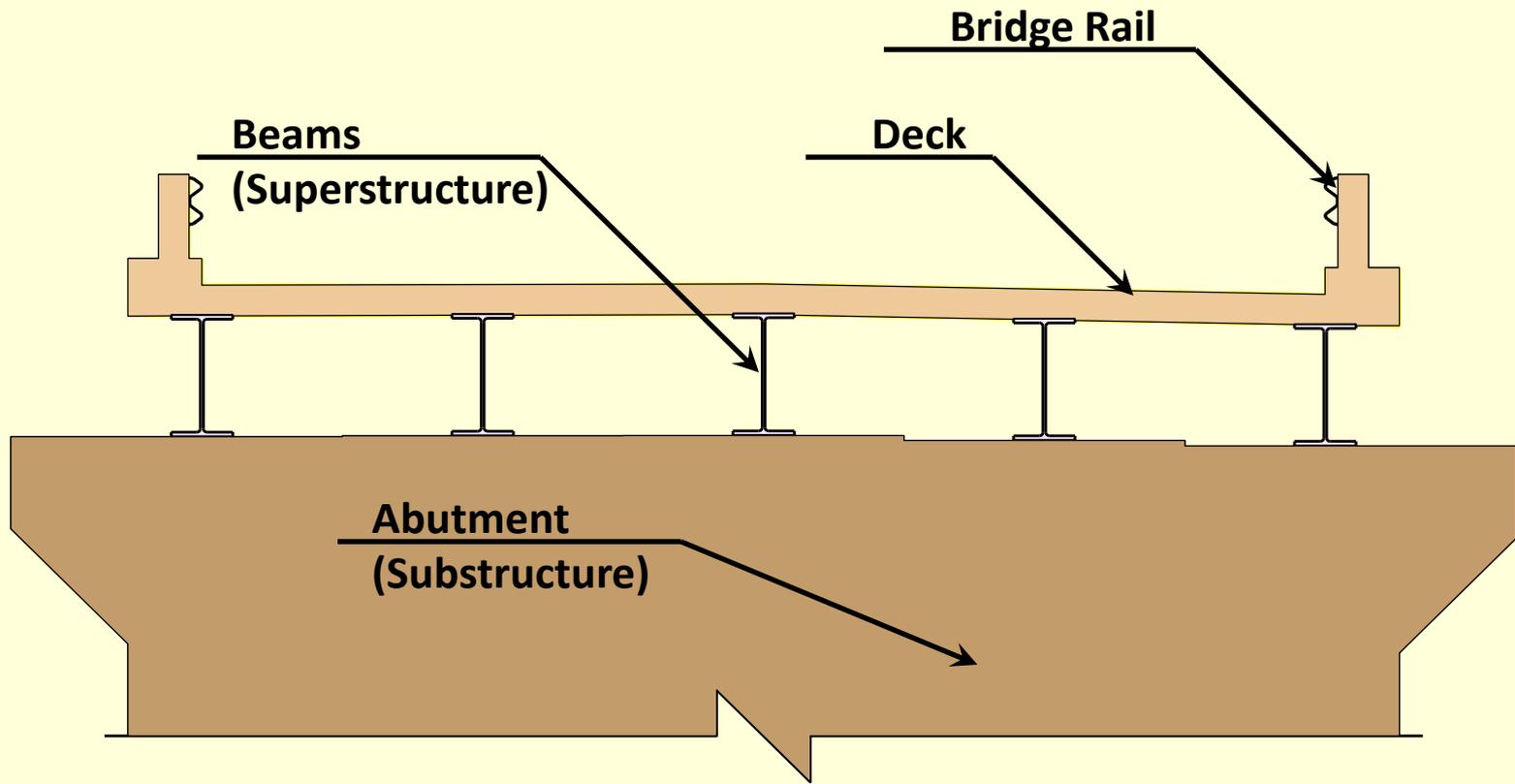
Build Consensus

- Quantify areas of impact

- Environmental permits

- Develop plans, estimate and specifications

# Description of Terms Used



# Project Background

- **Priority 34** in the Town Highway Bridge Program
- The structure is owned and maintained by the Town
- TH 3 (Walker Mtn. Road) is a Class 2 Town Highway
- Existing bridge is a single-span concrete T-Beam bridge
- Span of 30 feet and width of 20.2 feet
- The structure was built in 1927 (85 years old)
- Bridge is structurally deficient and has a Federal sufficiency rating of **45.7 (out of 100) -**

# Project Background (Cont)

- Traffic Data

<b>TRAFFIC DATA</b>	<b>2015</b>	<b>2035</b>
<b>ADT</b>	<b>700</b>	<b>750</b>
<b>DHV</b>	<b>100</b>	<b>110</b>
<b>ADTT</b>	<b>40</b>	<b>50</b>
<b>%T</b>	<b>5.3</b>	<b>6.1</b>

# EXISTING BRIDGE DEFICIENCIES

## Deficiencies

- The bridge does not have adequate hydraulic capacity
- The bridge has scour issues
- The bridge width is substandard
- The deck and superstructure are in poor condition
- The bridge rail is questionable

## Inspection Report Information (Based on a scale of 9)

Deck Rating	4 Poor
Superstructure Rating	4 Poor
Substructure Rating	5 Fair

# Bridge Looking South



# Bridge Fascia



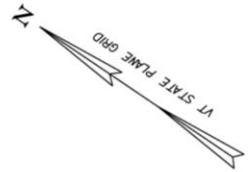
# Underside of Deck



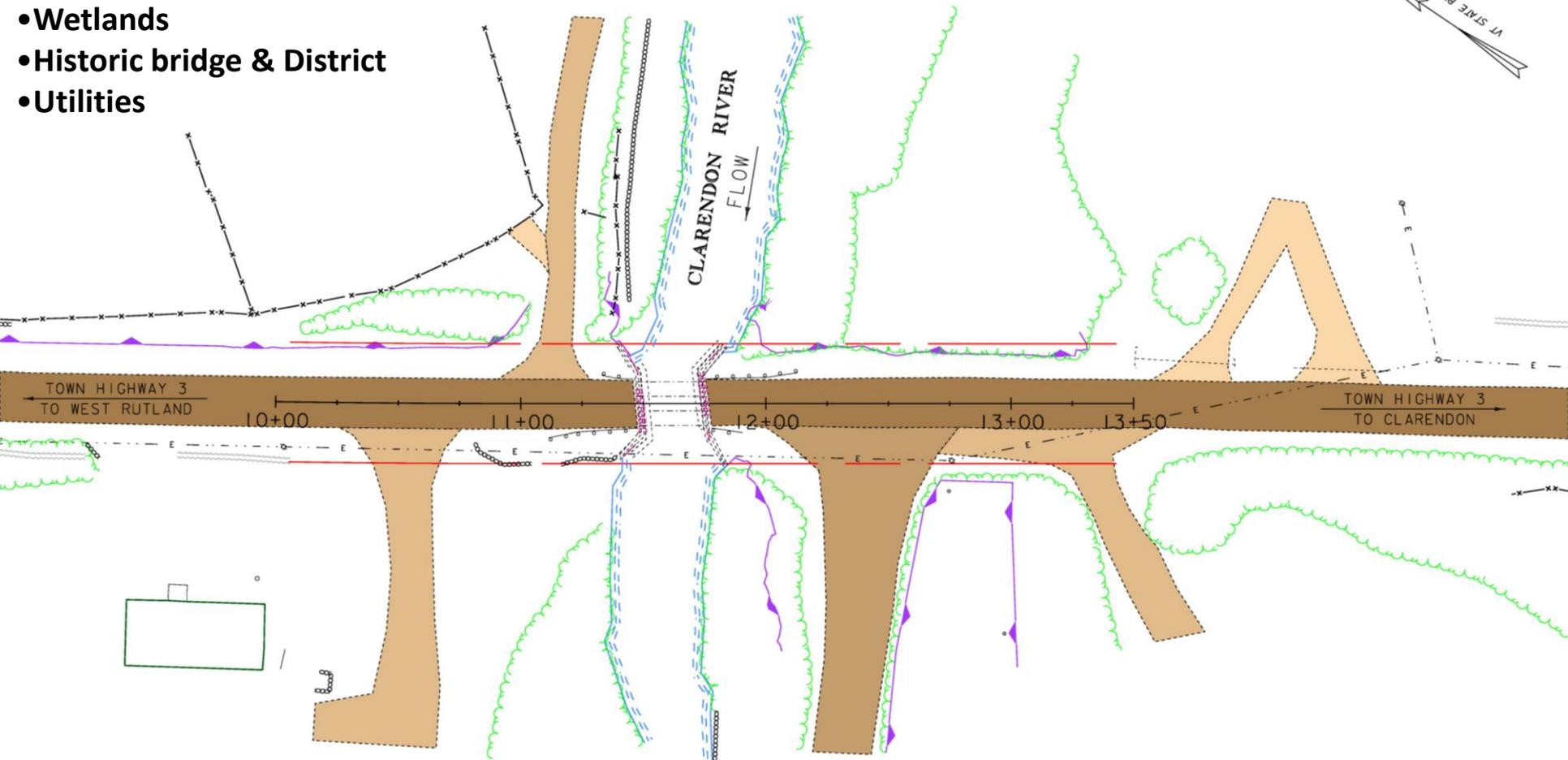
## **Existing Site Conditions**

- Bridge Width (Face-Face Rail) = 20.2'
- Design Speed Limit = 35 mph (Posted speed)
- No Postings for Weight Restriction
- Overhead Utilities present over western wingwalls

# Layout Showing Constraints



- Right of Way
- Wetlands
- Historic bridge & District
- Utilities



# Alternatives

1. Superstructure Rehabilitation w/ Scour Plan of Action
2. Superstructure & Substructure Rehabilitation w/ Scour Plan of Action
3. Superstructure Replacement & Substructure Rehabilitation w/ Scour Plan of Action
4. Full replacement (with short-term closure)
5. Full replacement (with temporary bridge)

# Superstructure Rehabilitation w/ Scour Plan of Action

- Concrete repairs to deck and T-Beams
- Takes advantage of remaining life of structure
- Scour Plan of Action would be required
- Project can be developed quickly
- Extends life approximately 15 years
- Other substandard features will not be addressed

# Superstructure and Substructure Rehabilitation w/ Scour Plan of Action

- Concrete repairs to deck and T-Beams
- Minor concrete repairs to substructure
- Takes advantage of remaining life of structure
- Scour Plan of Action would be required
- Project can be developed quickly
- Extends life approximately 20 years
- Other substandard features will not be addressed

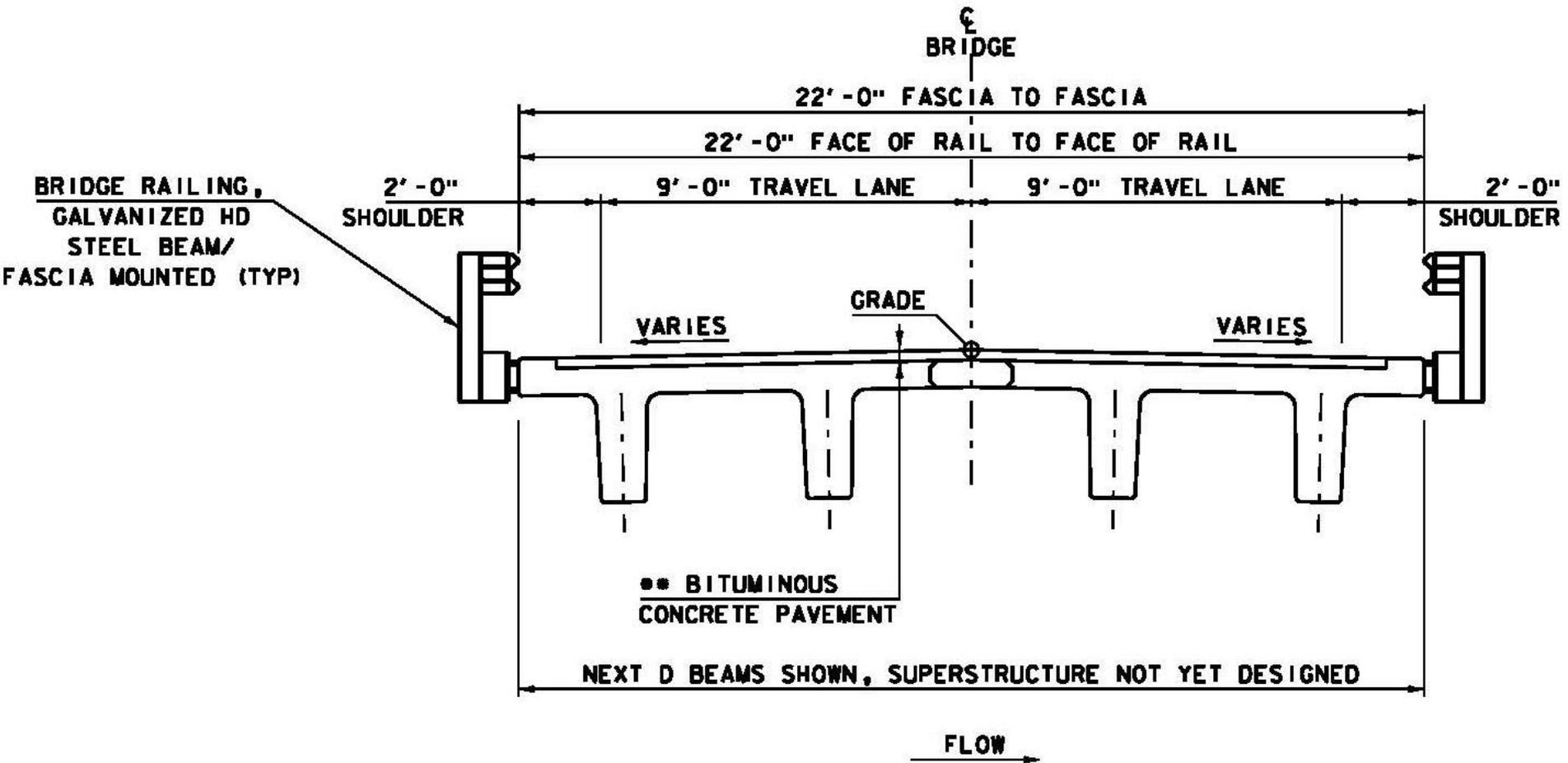
# Superstructure Replacement & Substructure Rehabilitation w/ Scour Plan of Action

- New Superstructure built to proper width
- Minor concrete repairs to substructure
- Takes advantage of remaining life of substructure
- Scour Plan of Action would be required
- Extends life approximately 30 years
- Other substandard features will not be addressed

# Full Bridge Replacement

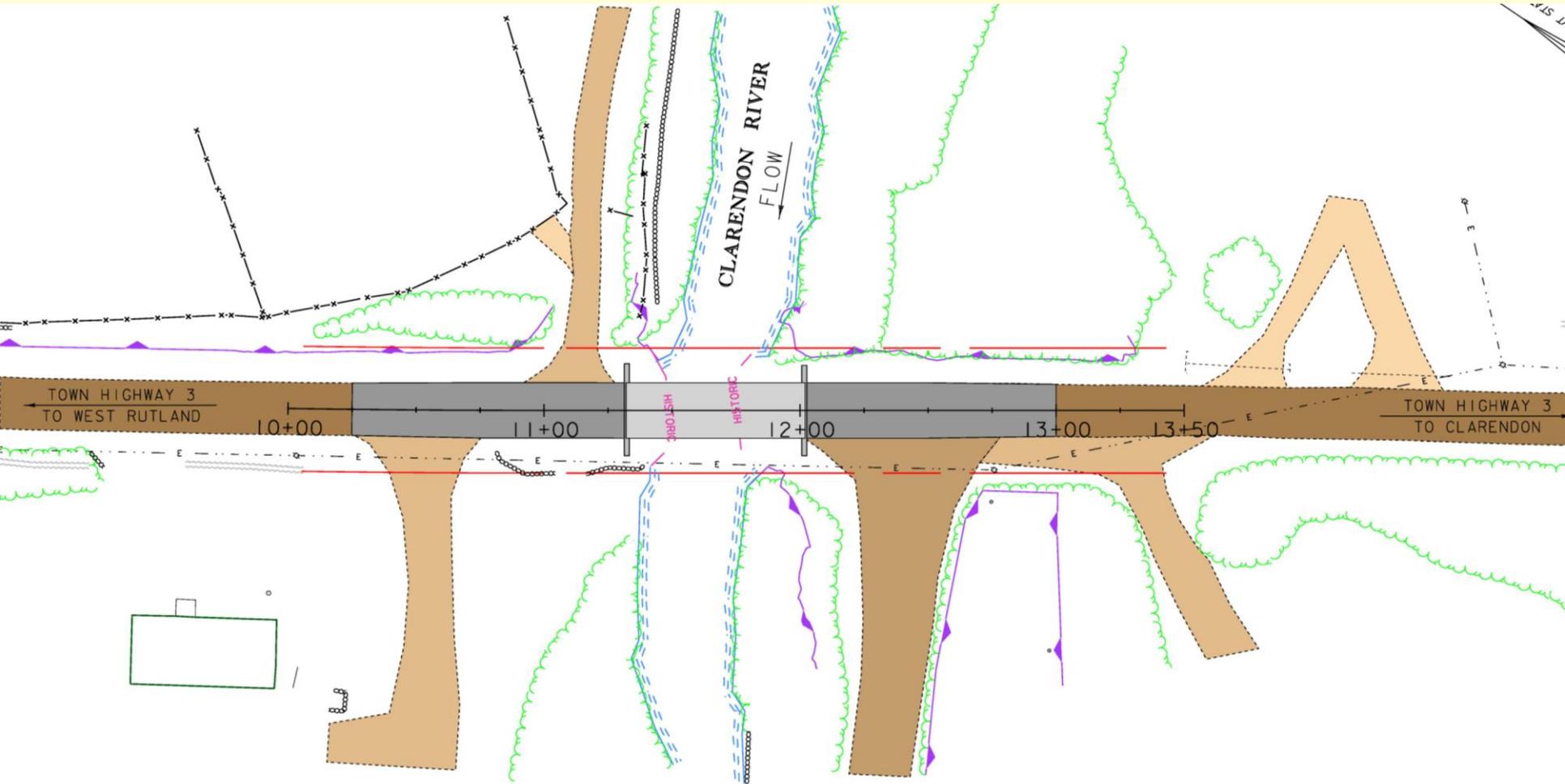
- Complete Bridge replacement
- 70' span w/ substructure on steel H piles
- 22' width between face of rail
- Maintain existing centerline of bridge
- Maintain approximate vertical grade of bridge
- Long term (80 year) solution

# Bridge Typical Full Replacement

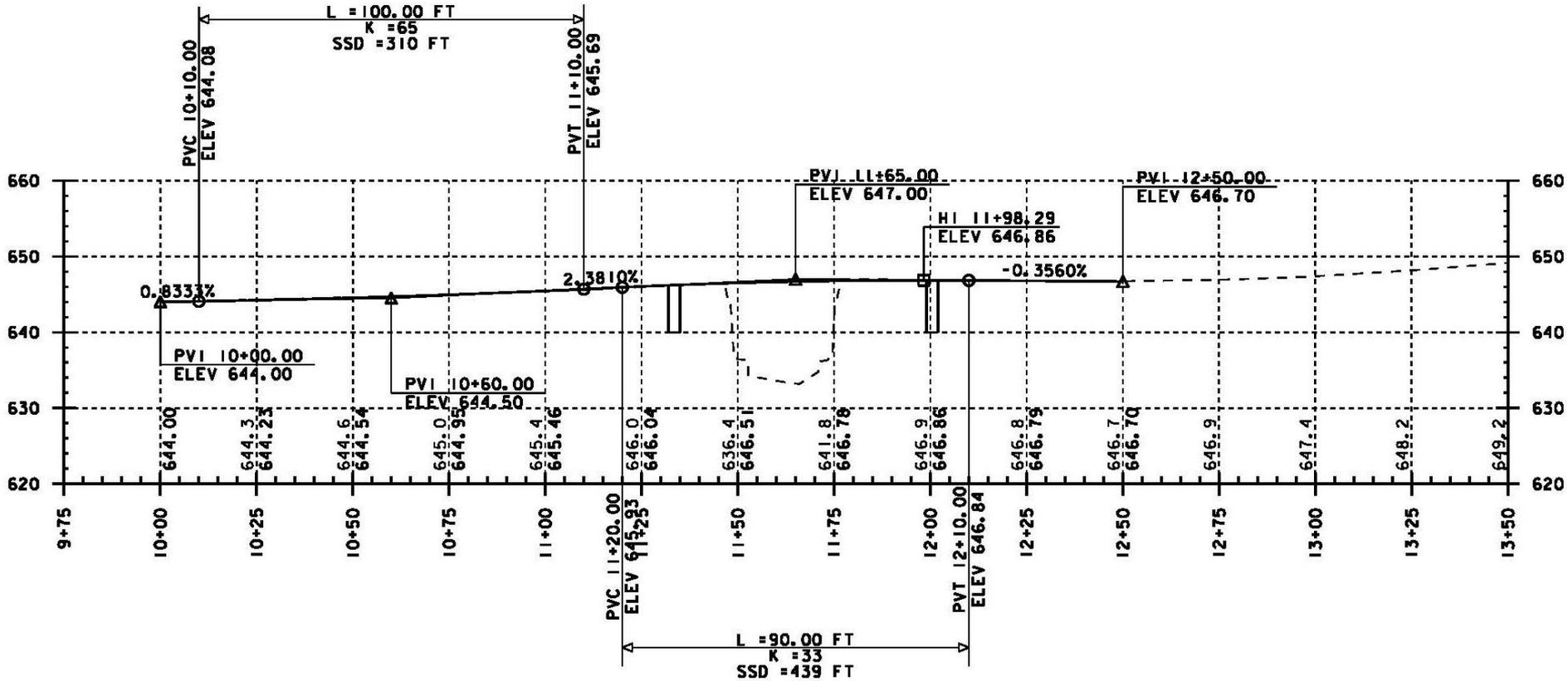


**PROPOSED BRIDGE TYPICAL SECTION**

# Full Replacement - Layout



# Full Replacement - Profile

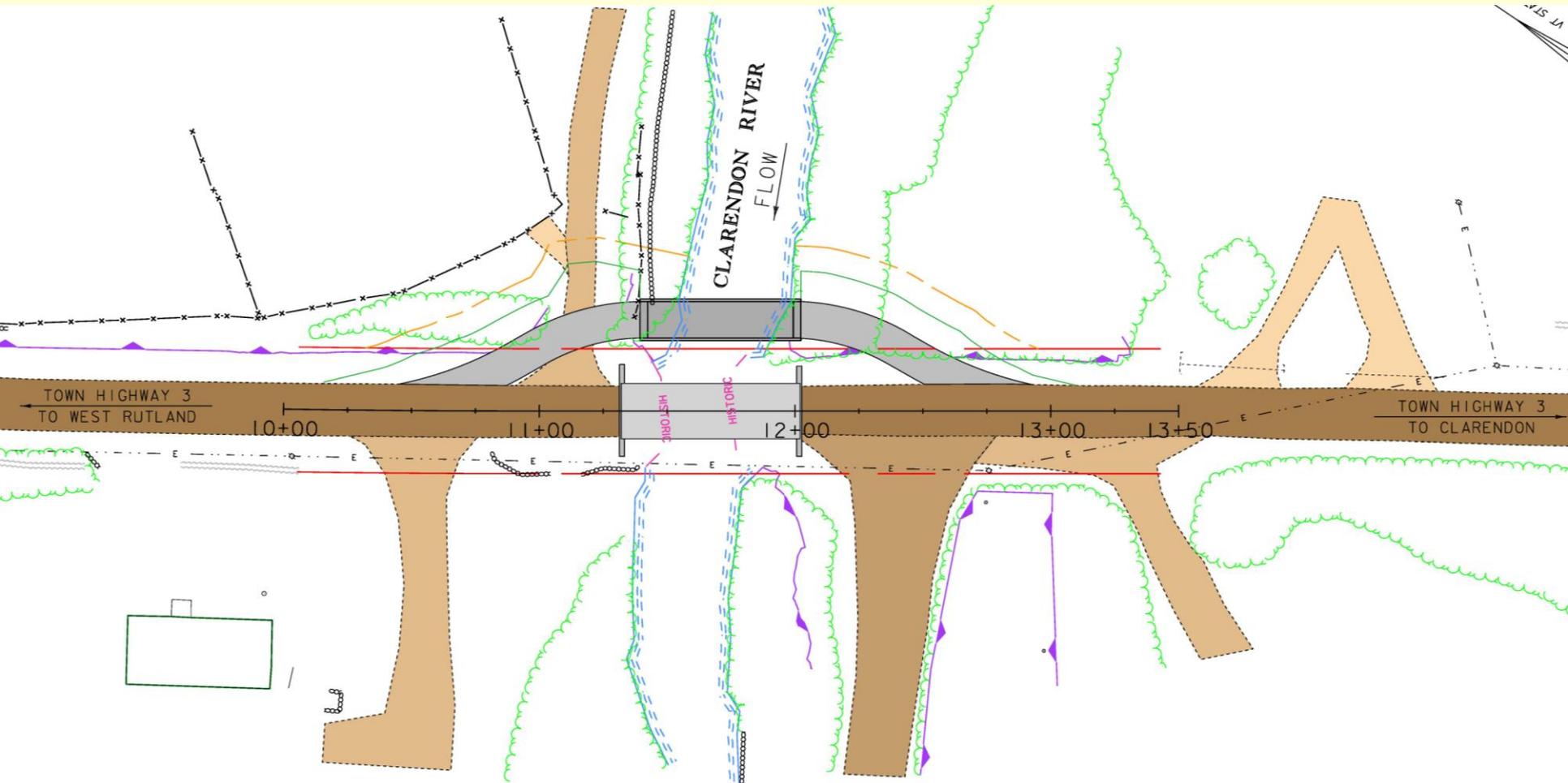


TH 47 PROFILE

# Methods to Maintain Traffic

- Temporary Bridge on east side
- Short-term bridge closure with detour

# Temporary Bridge Option



# ABC with Bridge Closure Option

- Bridge 11 to be closed for 28 days (maximum)
- Allow 24/7 construction during bridge closure
- Contract incentives/dis-incentives to encourage contractor
- Community would have input on time of closure (between June 1 and September 1)
- Town will be responsible for detour route (location, signing, installing, maintaining)
- Several possible routes to consider
- Public Outreach to provide advance notice for planning-
- Local share will be cut in half (10% reduced to 5%)

# Alternatives Matrix Note

- The “Do Nothing” and several rehabilitation alternatives were considered in the Scoping Report that are not shown in the following matrix. Refer to the Scoping Report for that information.
- A small amount of Right-of-Way acquisition will be required to allow removal of the existing structure that extends outside the existing ROW limits.

# Alternatives Matrix

	New Superstructure w/ Short term closure	New Superstructure w/ Temporary Bridge		New Structure w/ Short term closure	New Structure w/ Temporary Bridge
Temporary Bridge	\$0	\$150,000		\$0	\$150,000
Scour Plan of Action	\$50,000	\$50,000		\$0	\$0
Construction w/ CE and Contingencies	\$383,500	\$578,500		\$812,500	\$1,007,500
Preliminary Engineering	\$73,750	\$111,250		\$156,250	\$193,750
Right of Way	\$25,000	\$50,000		\$25,000	\$50,000
<b>Total Cost</b>	<b>\$532,250</b>	<b>\$789,750</b>		<b>\$993,750</b>	<b>\$1,251,250</b>
<b>Town Share</b>	<b>\$13,306 (2.5%)</b>	<b>\$39,488 (5%)</b>		<b>\$49,688 (5%)</b>	<b>\$125,125 (10%)</b>
Design Life (years)	30	30		80	80
Project Development Duration	3 years	4 years		3 years	4 years
Construction Duration	3 months	6 months		3 months	15 months
Closure Duration	1 weeks	None		4 weeks	None
Mobility Impact Duration	1 weeks	8 weeks		4 weeks	36 weeks

## Conclusion and Recommendation

- Full Bridge Replacement using ABC & short-term closure
- Long term (80 year) fix
- Addresses all sub-standard features
- Project Development time minimized
- Minimal mobility impacts
- Minimal impact to environmental resources
- Minimal impact to adjacent property owners
- Takes advantage of reduced local share for closure--

# Questions

