



# Bradford BF 0113(89) Alternatives Meeting

US Route 5, Bridge 91 over Waits River  
October 24, 2024



# Introductions

**JB McCarthy, P.E.**

VTrans Design Project Manager

**Laura Stone, P.E.**

VTrans Scoping Project Manager

**Thomas French, P.E.**

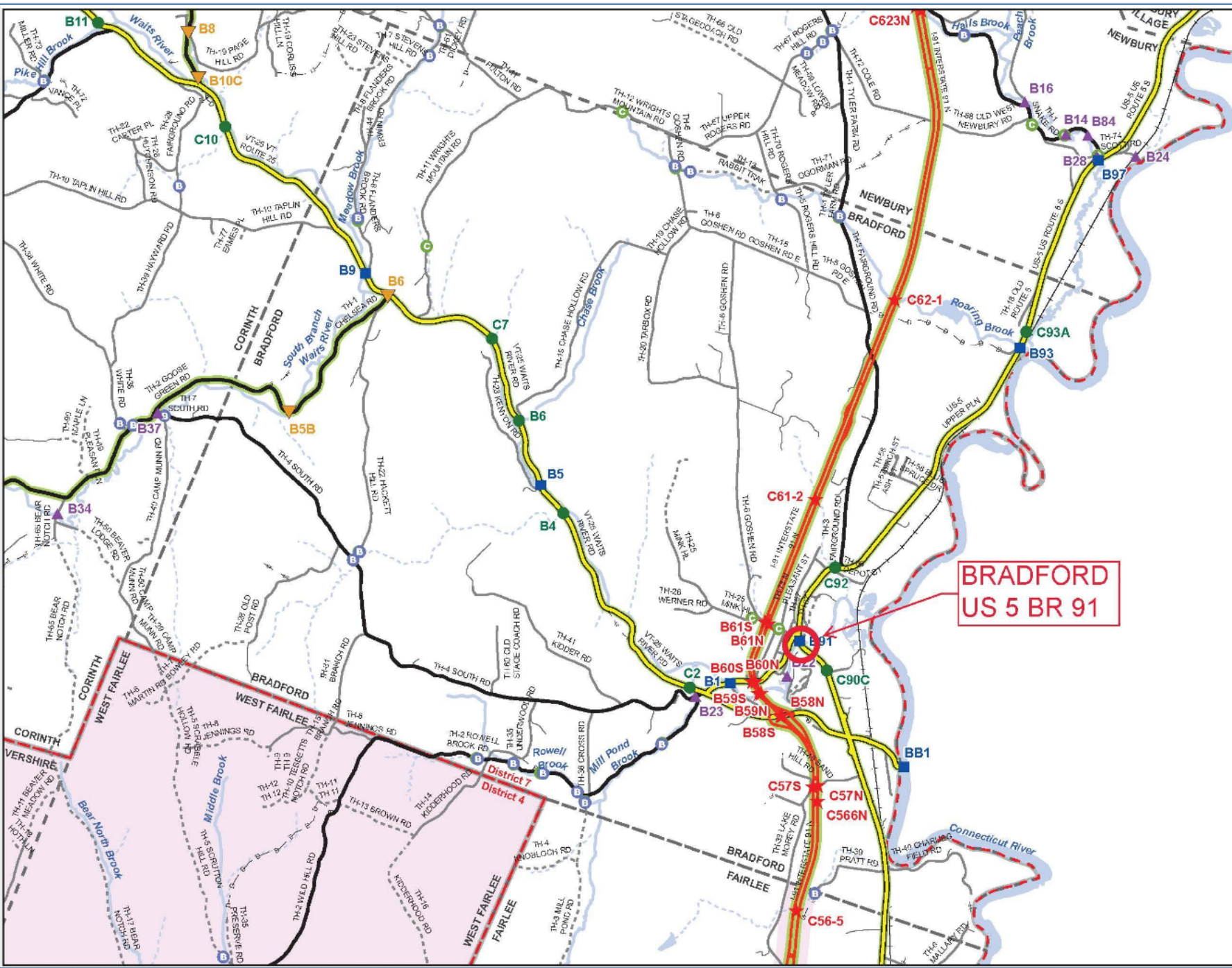
HDR Project Manager

**Paul Lefebvre, P.E.**

HDR Project Engineer

# Purpose of Meeting

- Provide an understanding of our approach to the project
- Provide an overview of project constraints
- Discuss alternatives that were considered
- Discuss our recommended alternative
- Provide an opportunity to ask questions and voice concerns



Scale: 1:46,800

★ INTERSTATE  
 ■ STATE LONG  
 ● STATE SHORT  
 ▲ TOWN LONG  
 ▼ FEDERAL  
 ◆ BIKE PATH  
 — INTERSTATE  
 — STATE HIGHWAY  
 — CLASS 1  
 — CLASS 2  
 — CLASS 3  
 - - - CLASS 4  
 - - - LEGAL TRAIL  
 — PRIVATE  
 - - - DISCONTINUED  
 ■ FEDERAL AID  
 ■ MAINTENANCE DISTRICT  
 ■ NEIGHBORING DISTRICT (WITH BUFFERED EXTENSION)  
 ■ 4 - White River Junction  
 ■ POLITICAL BOUNDARY  
 ■ VTRANS REGION BOUNDARY  
 ■ NAMED RIVER-STREAM  
 ■ UNNAMED RIVER-STREAM  
 ● Point from Local Bridge Data \*  
 ● Point from Culvert Data \*

\* Points are from local town bridge and culvert inventories. Some points may overlap where VTans has also conducted an inventory on the Town Highway.  
 Data source: VOB/CIT aka VTRCulverts

Produced by:  
 Mapping Section  
 Division of Policy, Planning and  
 Intermodal Development  
 Vermont Agency of Transportation  
 March 2022



**BRADFORD**  
 COUNTY-TOWN CODE: 0901-0  
 ORANGE COUNTY  
 DISTRICT # 7  
 District Long Name: St. Johnsbury District  
 VTrans Four Region: Northeast

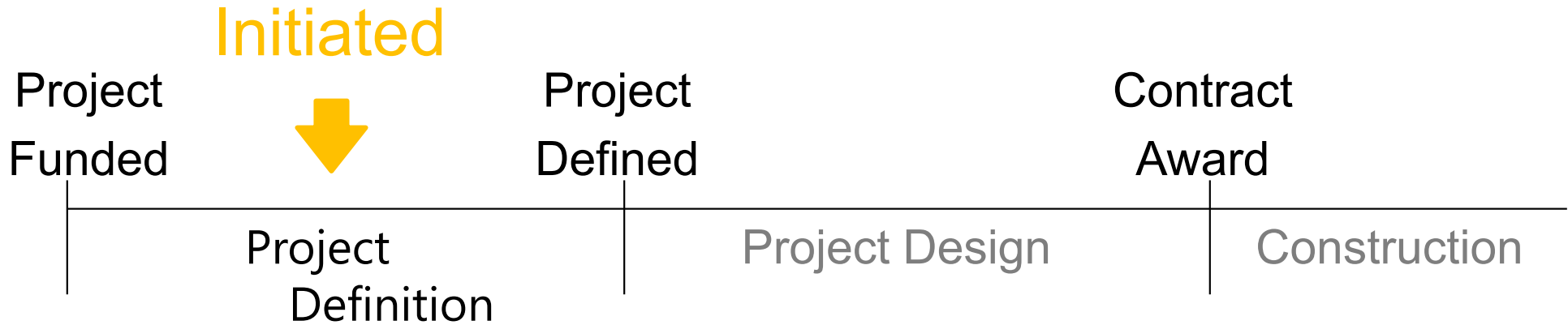
Location Map



**BRIDGE 91  
US ROUTE 5 OVER  
WAITS RIVER**



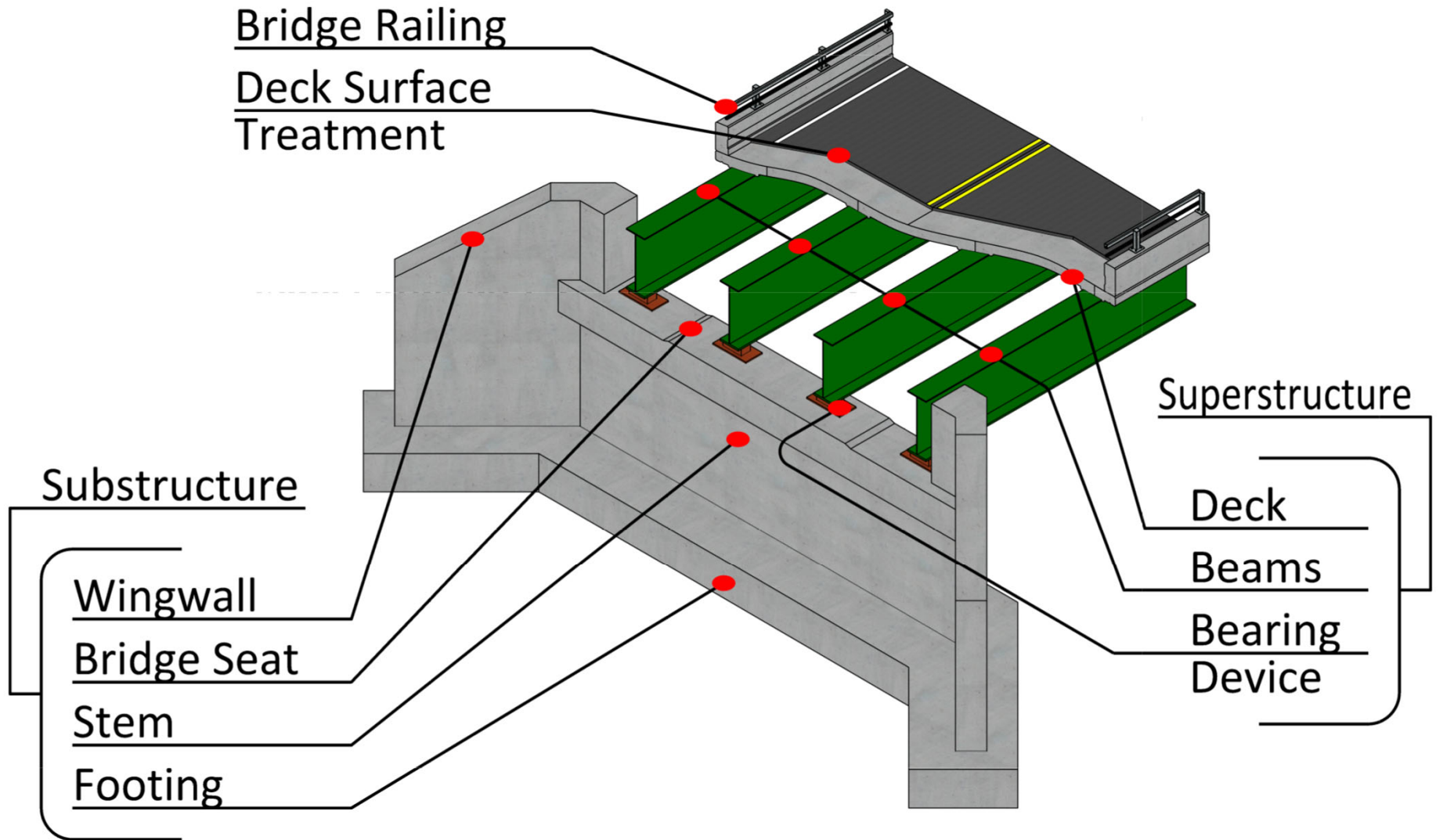
# VTrans Project Development Process



- Identify resources & constraints
- Evaluate alternatives
- Public participation
- Build Consensus

- Quantify areas of impact
- Environmental permits
- Develop plans, estimate and specifications
- Right-of-Way process if necessary

# Description of Terms Used



**Cross Section of Bridge**

## Looking North over Bridge 91



### Existing Conditions – Bridge 91

- Roadway Classification – Rural Major Collector
- Bridge Type – Single Span Two-Girder Bridge
- Ownership – State of Vermont
- Constructed in 1939
- Traffic - 5000 vpd, 10% trucks



## Looking South over Bridge 91



### Existing Conditions – Bridge 91

- Municipal Utilities –Water and Sewer.
- Public Utilities – Aerial: Green Mountain Power (Single Phase & Three Phase), Consolidated Communications EC Fiber
- Public Utilities – Underground: Consolidated Communications (carried by Bridge 91).

# Existing Conditions – Bridge 91

- Geometry
  - Narrow Bridge (32 ft)
  - Narrow Shoulders (1 ft)
- Posted Weight Limit
- Failing Bridge Railing
  - Capped with highway guardrail.
- Bridge 91 Inspection Ratings
  - Deck 4 Poor
  - Superstructure 6 Satisfactory
  - Substructure 5 Fair
  - Channel 8 Very Good



# Narrow Shoulders



Existing Conditions - Bridge 91

## Failing/Obsolete Bridge Rail



**Existing Conditions - Bridge 91**

Deck – Spalling Concrete



2024/06/24 11:13

Existing Conditions - Bridge 91

# Superstructure – Sidewalk Support Beam



2024/06/24 12:12

## Existing Conditions - Bridge 91

# North Abutment



2024/06/24 13:12

Existing Conditions - Bridge 91

# South Abutment



**Existing Conditions - Bridge 91**



View Looking West



Existing Conditions - Bridge 91

View Looking East



Existing Conditions - Bridge 91



## Environmental Resources

- Wildlife Habitat – Does not rank as high priority due to urban development
- Habitats of Special Concern – RTE Listed Plant Species
  - Provancher’s Dwarf Fleabane and Hyssop-Leaved Fleabane
- Historic Resources
  - Former Grist Mill, 48 Main St (US Route 5)
  - Boch Memorial Park (Town-Owned) – Section 4(f) Property (Not Historic).

# Former Grist Mill and Boch Memorial Park



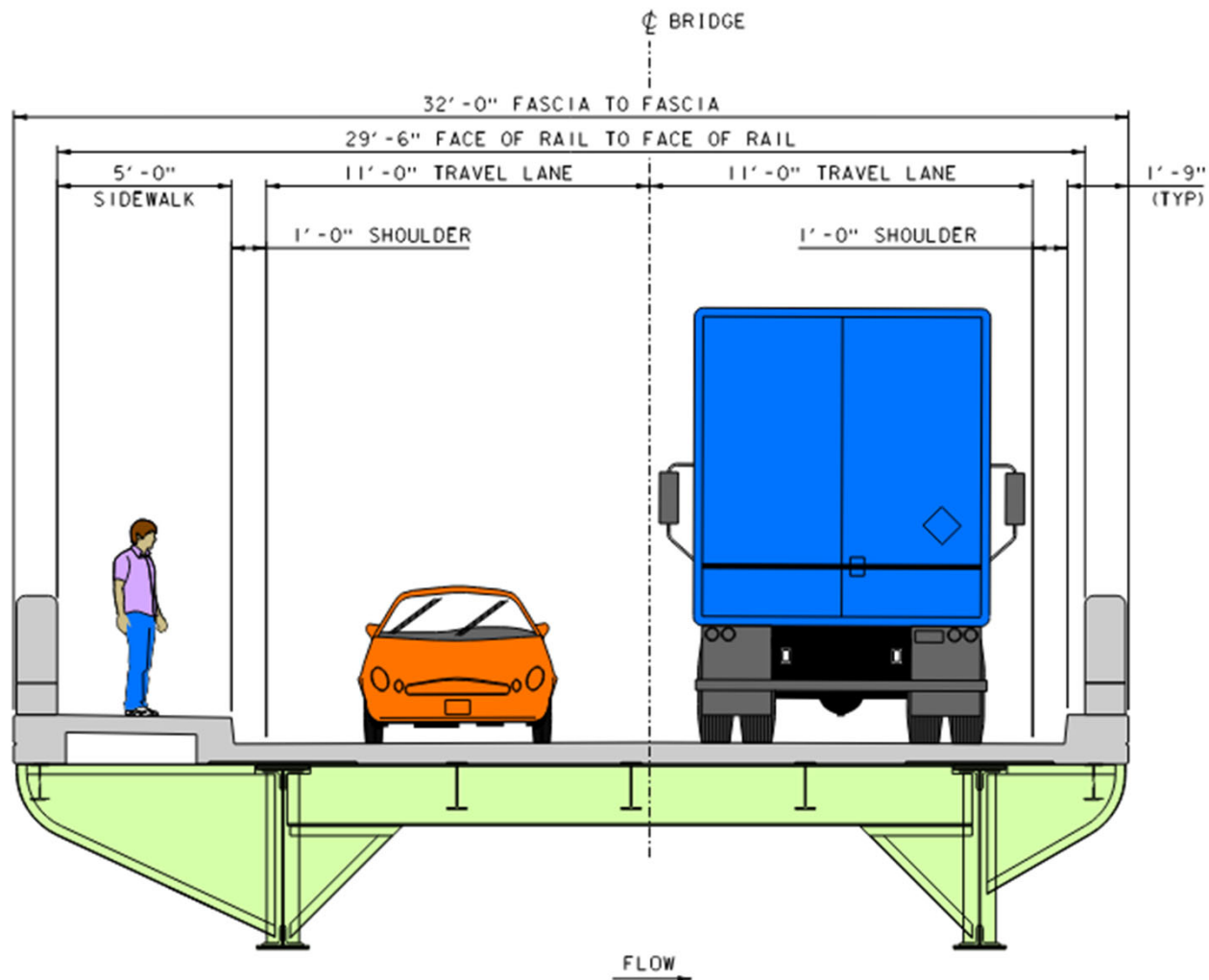
**Existing Conditions - Bridge 91**

# Alternatives Considered – Bridge 91

- Alternative #1 - No Action
- Alternative #2 – Rehabilitation (Superstructure Repair)
- Alternative #3 – Rehabilitation (Superstructure Replacement)
- Alternative #4 - Full Bridge Replacement (with sidewalk)
- Alternative #5 - Full Bridge Replacement (with separate pedestrian bridge)

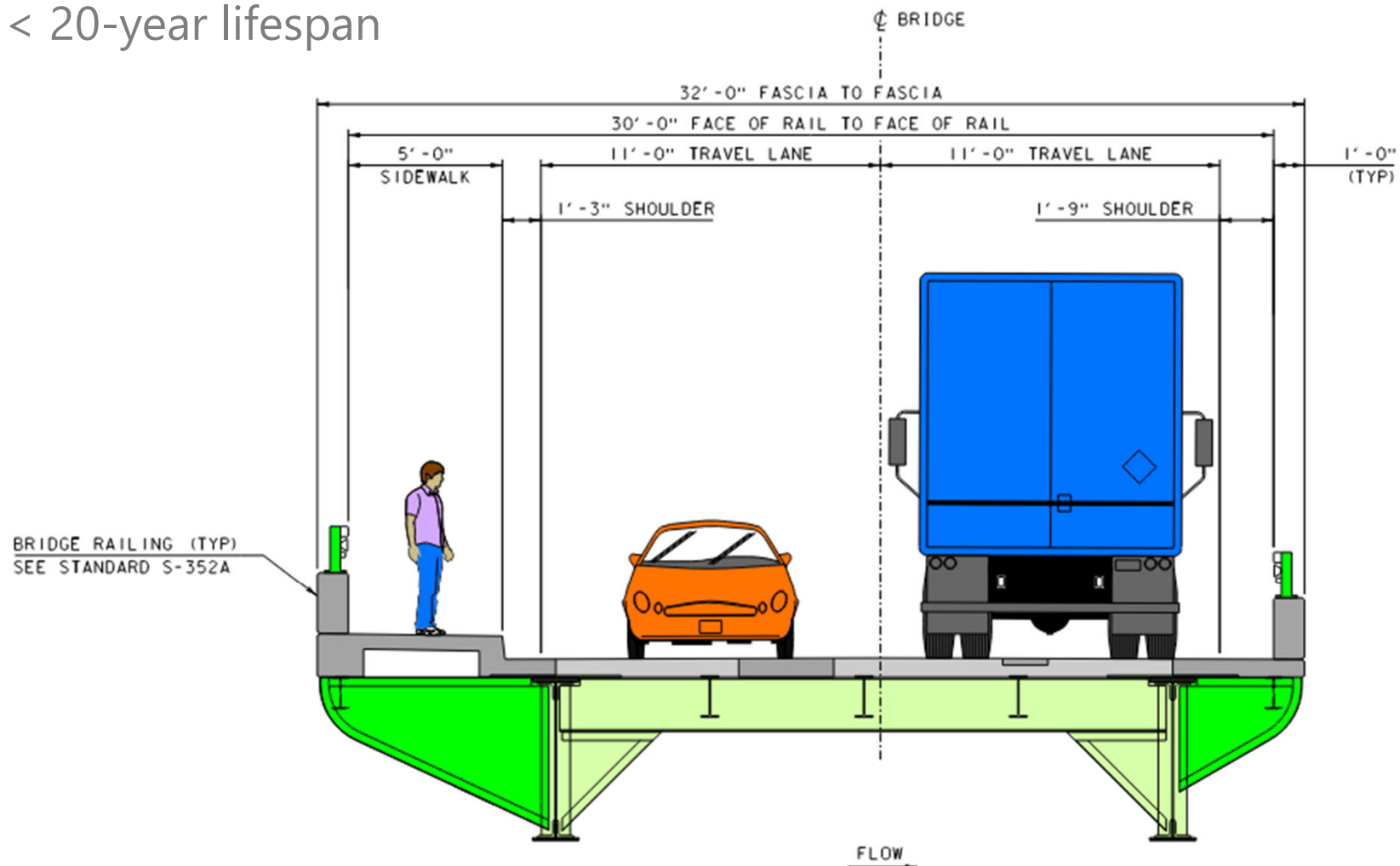
# Alternative 1 (No Action)

- Further deterioration resulting in unsafe conditions
- < 10 year lifespan
- Not recommended



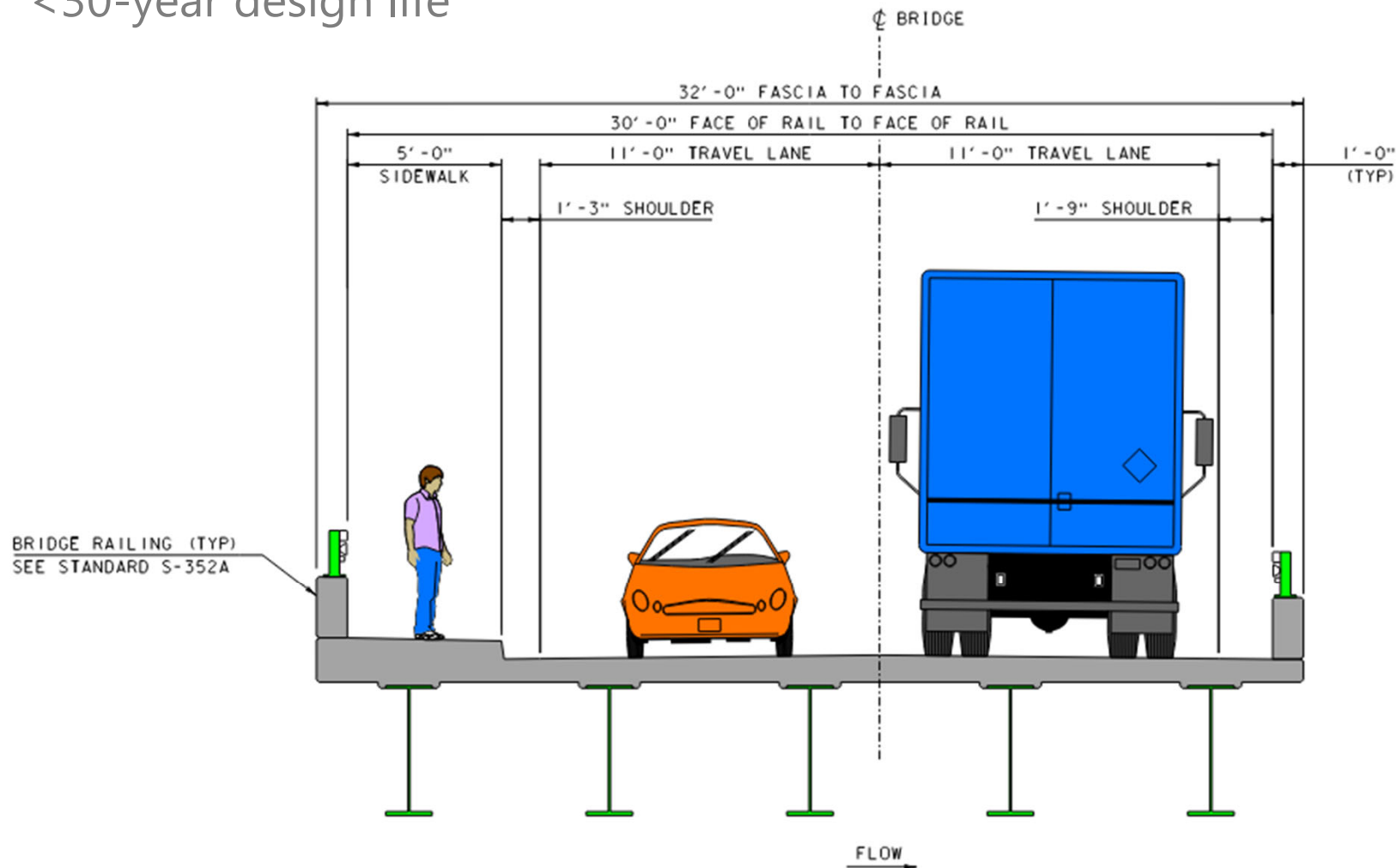
# Alternative 2 (Superstructure Repair)

- Replace bridge rail, sidewalk, curb, and support brackets.
- Repair spalling concrete deck and substructure
- Does not improve posted weight limit or shoulder width.
- No permanent impact to abutters and resources.
- < 20-year lifespan



# Alternative 3 (Superstructure Replacement)

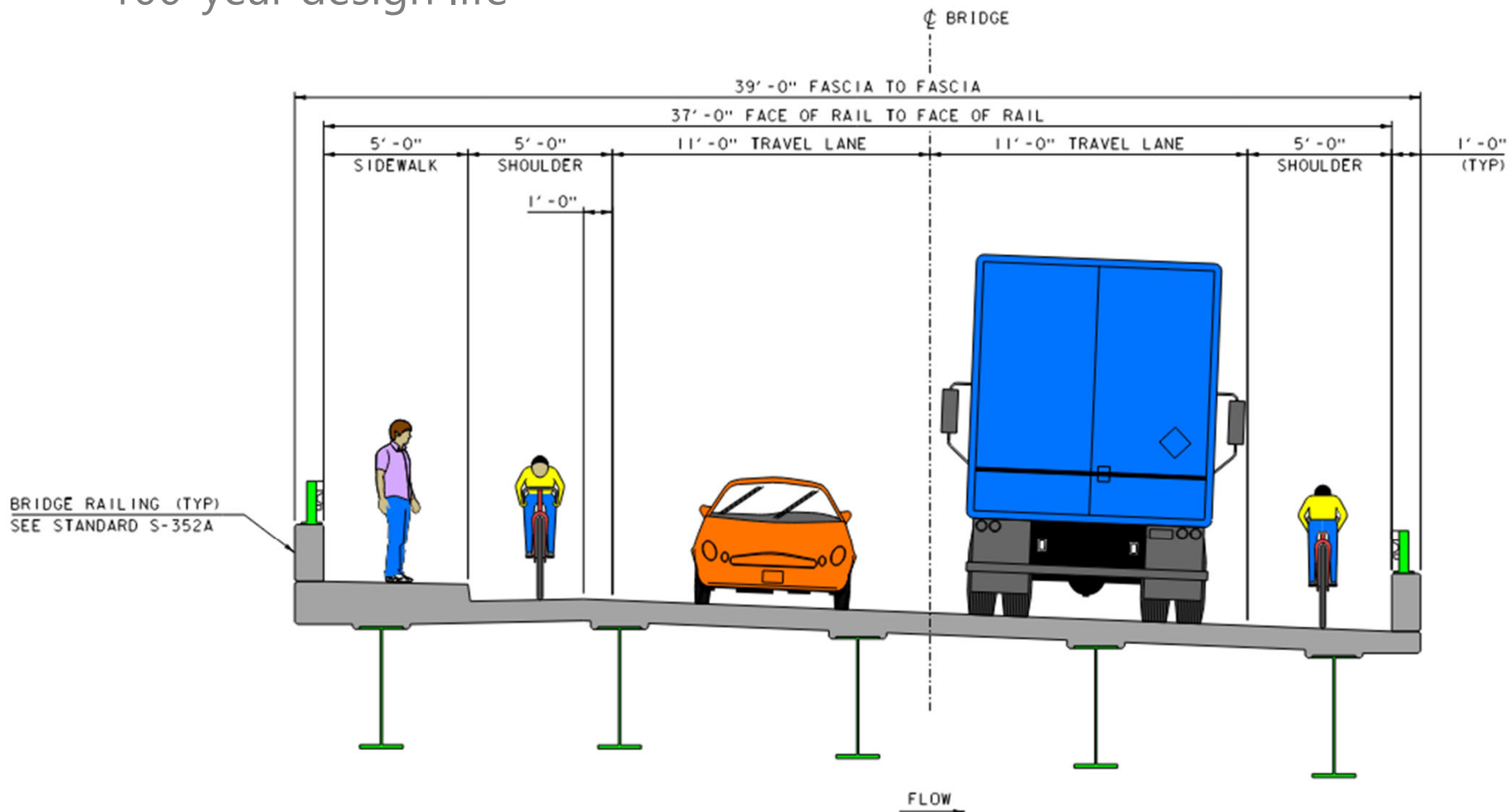
- New concrete deck and steel superstructure.
- Repair spalling concrete substructure.
- Improves Structural Capacity but does not improve shoulder width.
- No permanent impact to abutters and resources
- <30-year design life





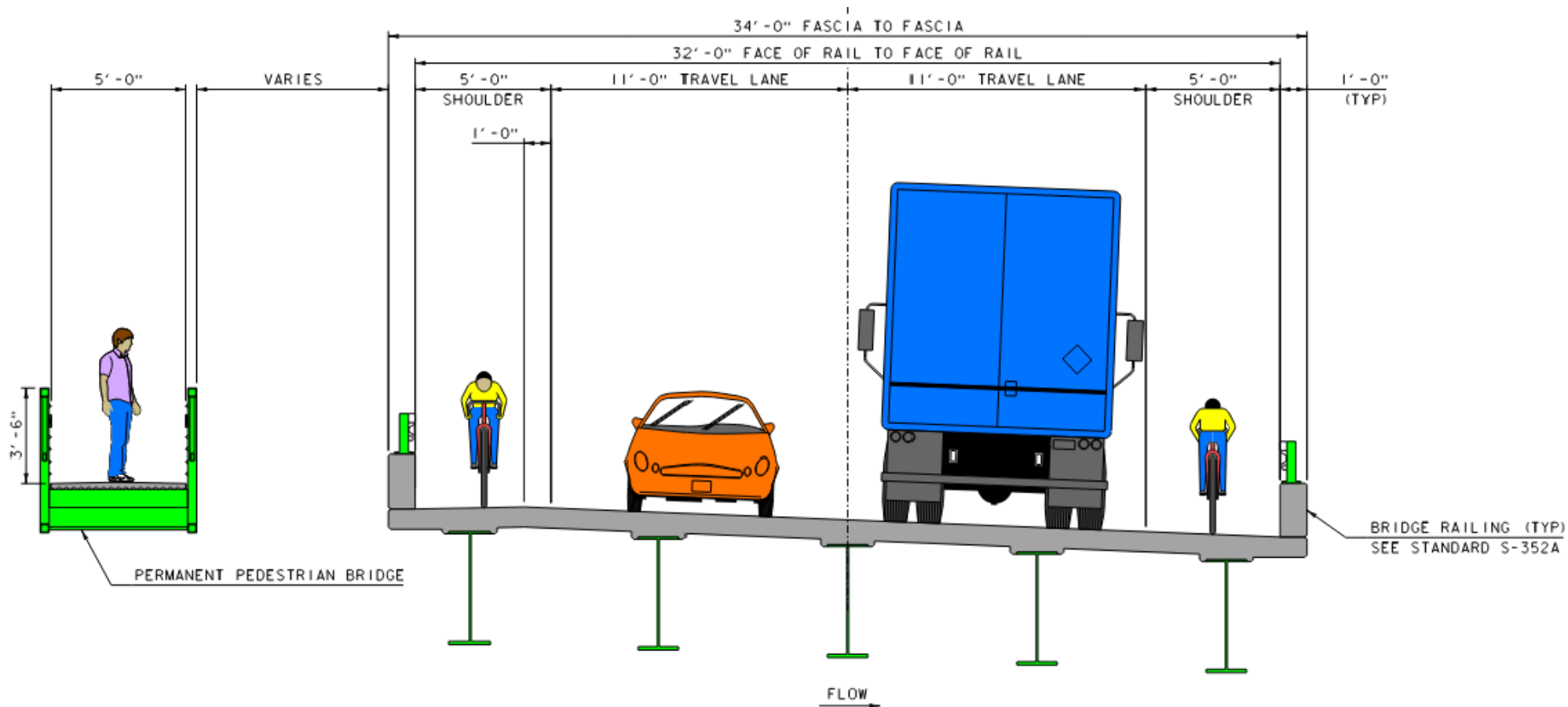
# Typical Section – Alternative 4 (Full Bridge Replacement with Sidewalk)

- Meets current standards for structural capacity.
- Provide shoulder widths that meets Vermont State Standards
- Remove all aged concrete.
- Minimal (mostly temporary) impacts to abutters and resources
- 100-year design life

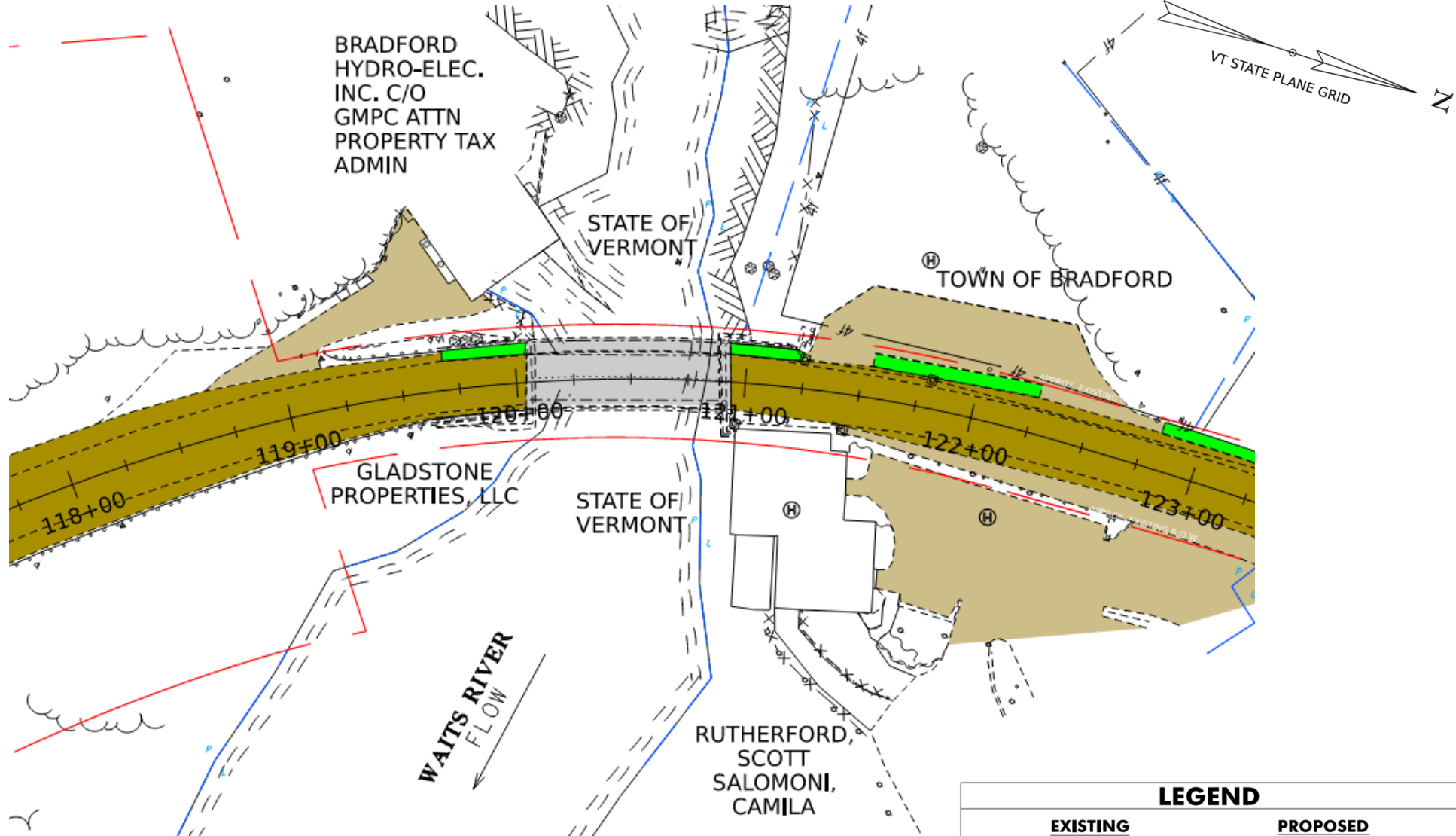


# Typical Section – Alternative 5 (Full Replacement w/ Ped Bridge)

- Meets current standards for structural capacity.
- Provide shoulder widths that meets Vermont State Standards
- Permanent Pedestrian Bridge
- Most permanent impacts to abutters and resources.
- Increased construction and life cycle costs (2 bridges)
- 100-year design life

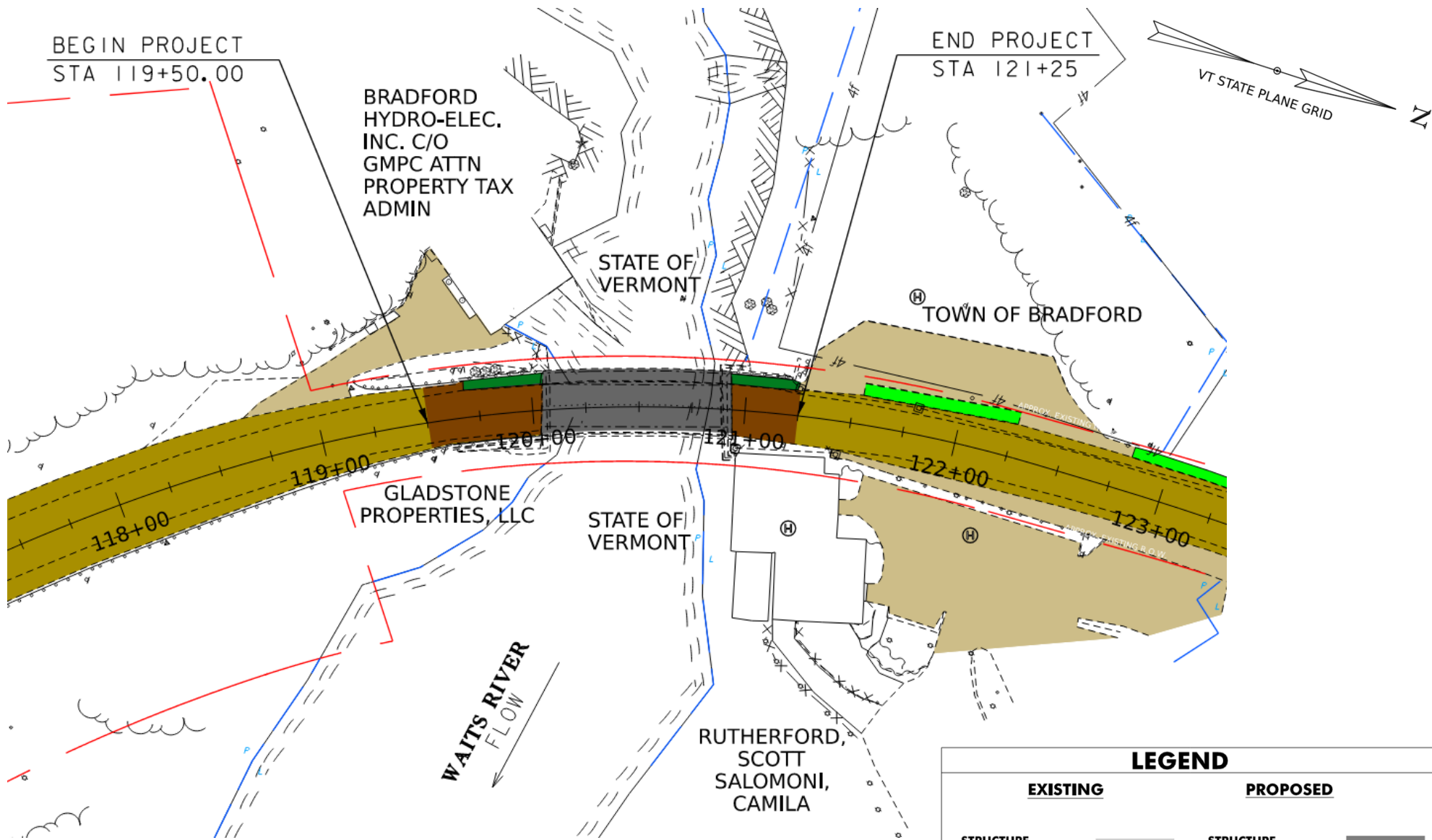


# Layout - Existing Conditions



LEGEND			
EXISTING		PROPOSED	
STRUCTURE		STRUCTURE	
DRIVES		DRIVES	
TOWN HIGHWAYS		TOWN HIGHWAYS	
RIGHT OF WAY		SIDEWALKS	
SIDEWALKS			

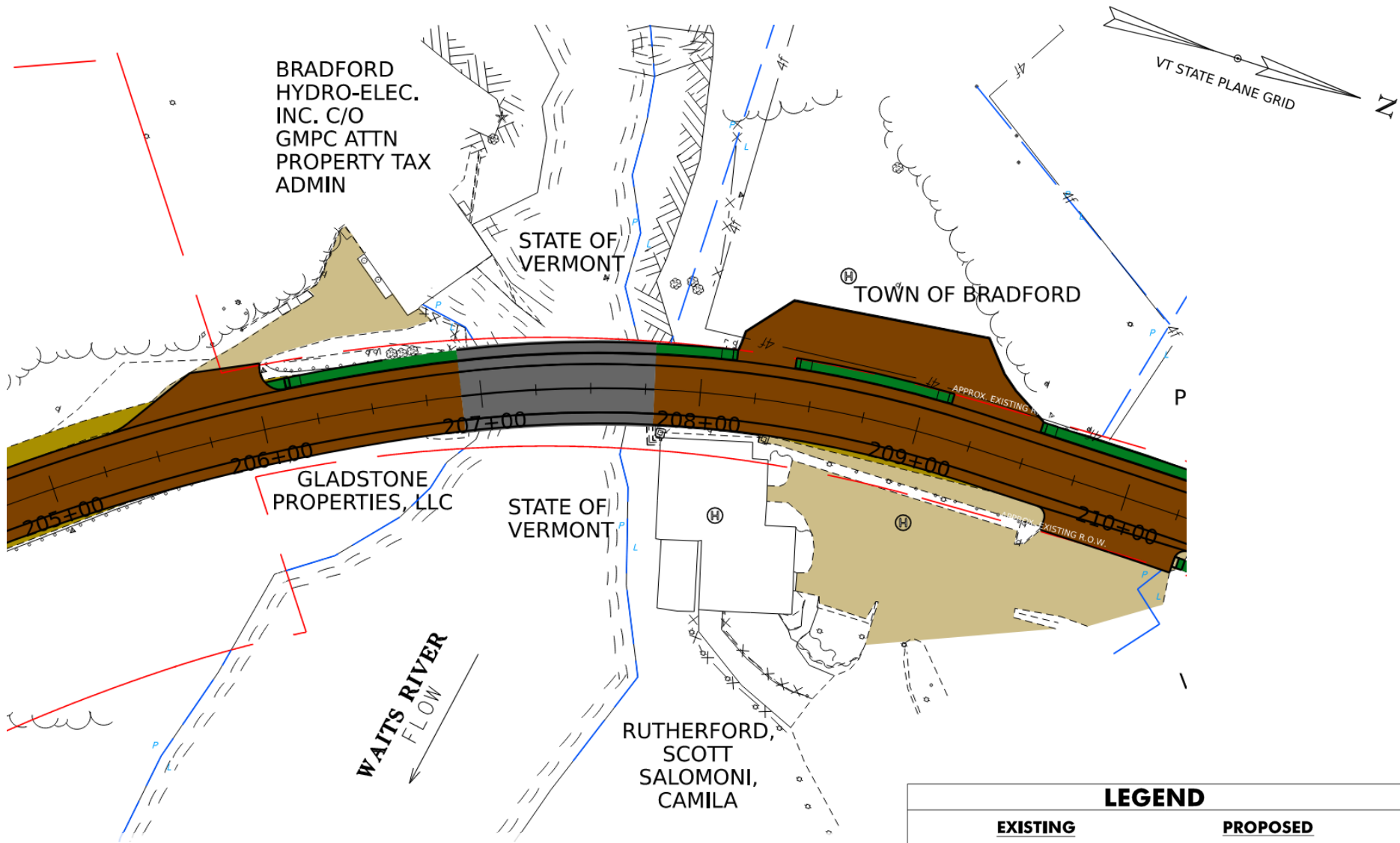
# Layout – Alternatives 2 and 3



- Match existing conditions
- No permanent impacts to abutters and resources

LEGEND			
EXISTING		PROPOSED	
STRUCTURE		STRUCTURE	
DRIVES		DRIVES	
TOWN HIGHWAYS		TOWN HIGHWAYS	
RIGHT OF WAY		SIDEWALKS	
SIDEWALKS			

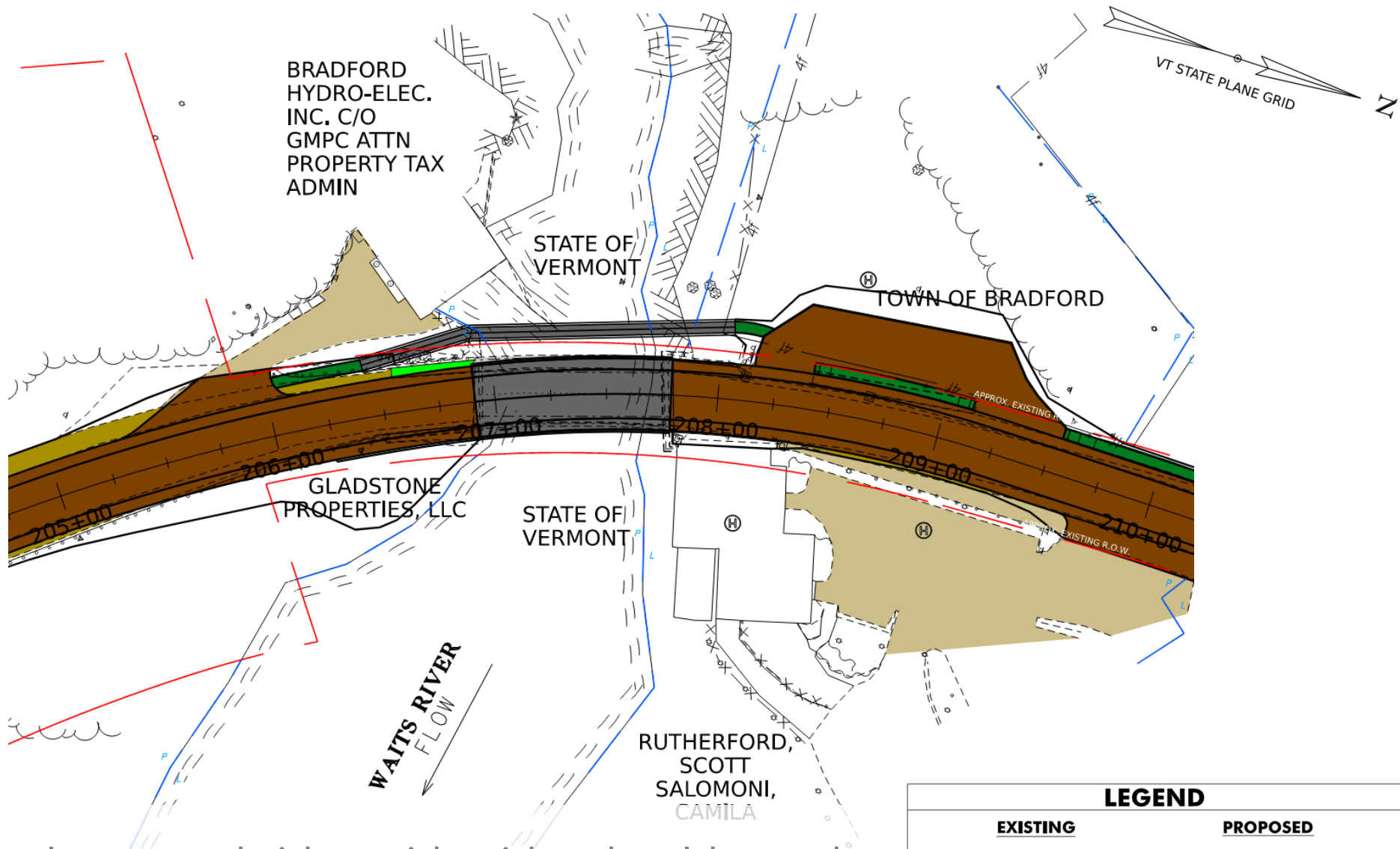
# Layout - Alternative 4



- Replacement bridge with wider shoulders.
- Minimizes permanent impacts to abutters and resources.

LEGEND			
EXISTING		PROPOSED	
STRUCTURE		STRUCTURE	
DRIVES		DRIVES	
TOWN HIGHWAYS		TOWN HIGHWAYS	
RIGHT OF WAY		SIDEWALKS	
SIDEWALKS			

# Layout – Alternative 5



- Replacement bridge with wider shoulder and separate pedestrian bridge.
- Most Permanent impacts to abutters and resources.

LEGEND			
EXISTING		PROPOSED	
STRUCTURE		STRUCTURE	
DRIVES		DRIVES	
TOWN HIGHWAYS		TOWN HIGHWAYS	
RIGHT OF WAY		SIDEWALKS	
SIDEWALKS			

# Bridge Treatment Selection

## Alternative #4 – Bridge Replacement

- Lowest construction and life cycle cost based on a 100-year design life.
- Meets current standards for bridge width, shoulder width, and structure capacity.
- Minimizes permanent impacts to abutters compared to Alternative #5

# Maintenance of Traffic

- Offsite Detour
  - Close road and reroute traffic onto an official, signed State detour
  - Safe option for construction workers and traveling public
  - Temporary pedestrian bridge during construction
  - Least expensive option
  - Shortest construction duration
- Phased Construction
  - Existing two-girder bridge would require strengthening.
  - Existing bridge is narrow - complicates safety and construction.
  - Expensive.
- Temporary Bridge
  - Greatest impact to adjacent properties.
  - Most expensive option.
  - Longest construction duration.



Selected Maintenance of Traffic

A photograph of a road closure barrier. The barrier consists of a concrete wall with a chain-link fence on top and several horizontal beams with red and white diagonal stripes. A white sign with a black border is mounted on the barrier. The sign has the words "ROAD" and "CLOSED" in large, bold, black capital letters. The background shows a paved road and some greenery.

**ROAD  
CLOSED**

## Road Closure

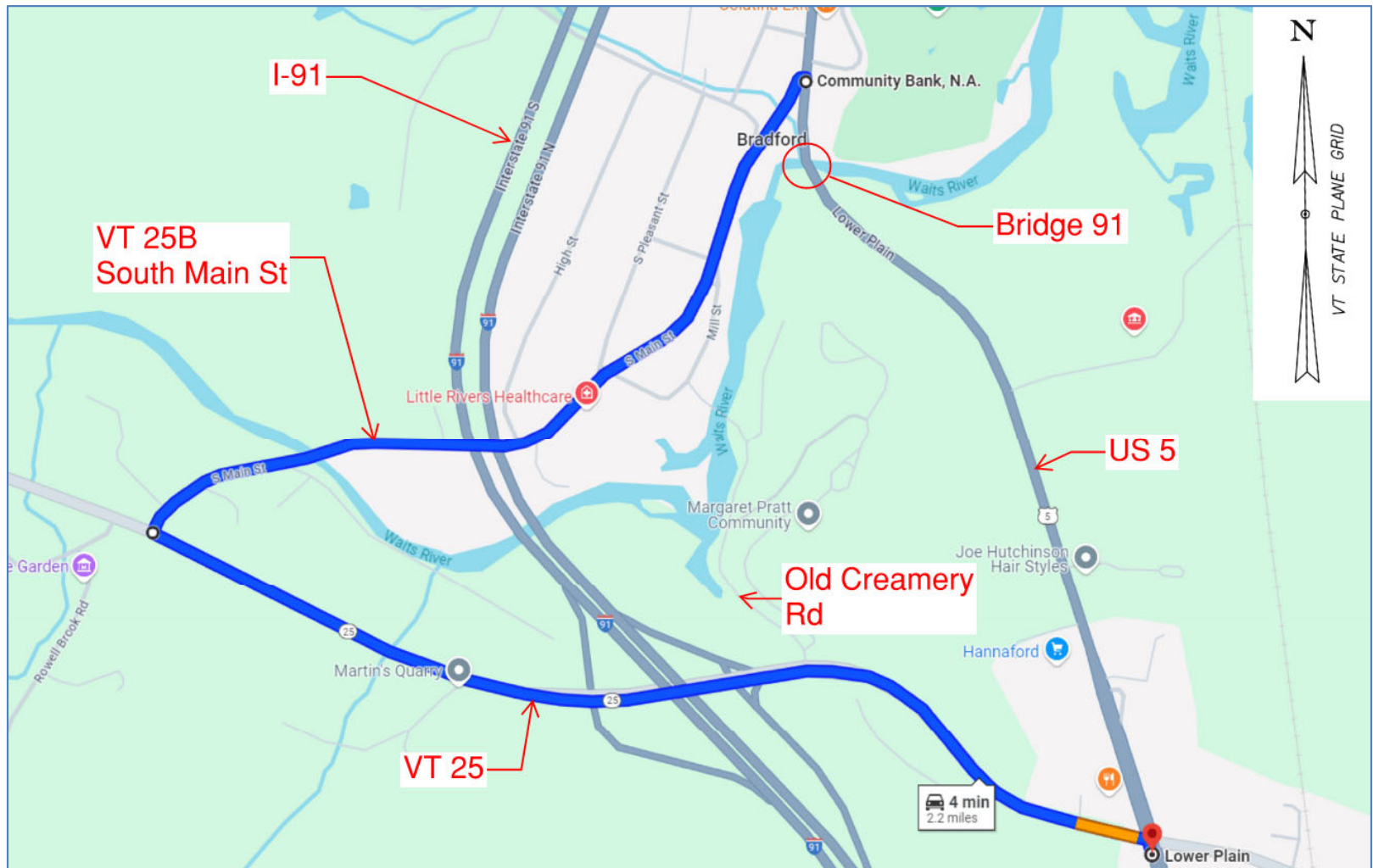
- Detour chosen and signed by State
- Shortest State Detour Route is 2.2 miles end-to-end

# Traffic Control – Detour

## ■ Detour Route:

From the intersection of VT 25 and US 5;  
VT Route 25 to VT 25B/South Main St;  
VT 25B to US 5.

Through Distance:	1.0 miles
Detour Distance:	2.2 miles
Added Distance:	1.2 miles



# Traffic Control – Detour

- Anticipated closure: 1 construction season
- Public Outreach to provide advance notice for planning
- Accelerated Bridge Construction (ABC) Techniques
  - Will be considered in design phase
- Contract incentives/dis-incentives to encourage contractor
- Temporary pedestrian bridge
  - Will be considered in design phase

# Conclusion and Recommendation

Alternative 4 - Bridge Replacement with Sidewalk  
Maintain traffic using a short-term closure and off-site detour

The primary reasons for this recommendation are:

- Addresses structural deficiencies
- Addresses shoulder width
- Long term (100 year) solution
- Minimizes abutter and resource impacts
- To minimize community impacts:
  - ABC techniques
  - Contractor incentive/disincentives
  - Temporary pedestrian bridge

# Preliminary Project Schedule

- Anticipated Construction Start – 2027
- Estimated Construction Cost: \$4,700,000
  - 80% Federal Funds
  - 20% State Funds
  - 0% Local Funds

# Next Steps

This is a list of a few important activities expected in the near future and is not a complete list of activities.

- Evaluate and consider comments received at this meeting
- Proceed with Recommended Alternative unless adequate justification for reconsidering alternatives
- Develop Conceptual Plans for NEPA and Town Approval
- Right-of-Way process (if needed)
- Updates on project plans and estimates at each submittal

# For more information:

- <https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/22B388>



**Bradford BF 0113 (89)**  
**Questions & Comments**  
**US Route 5, Bridge 91 over Waits River**

