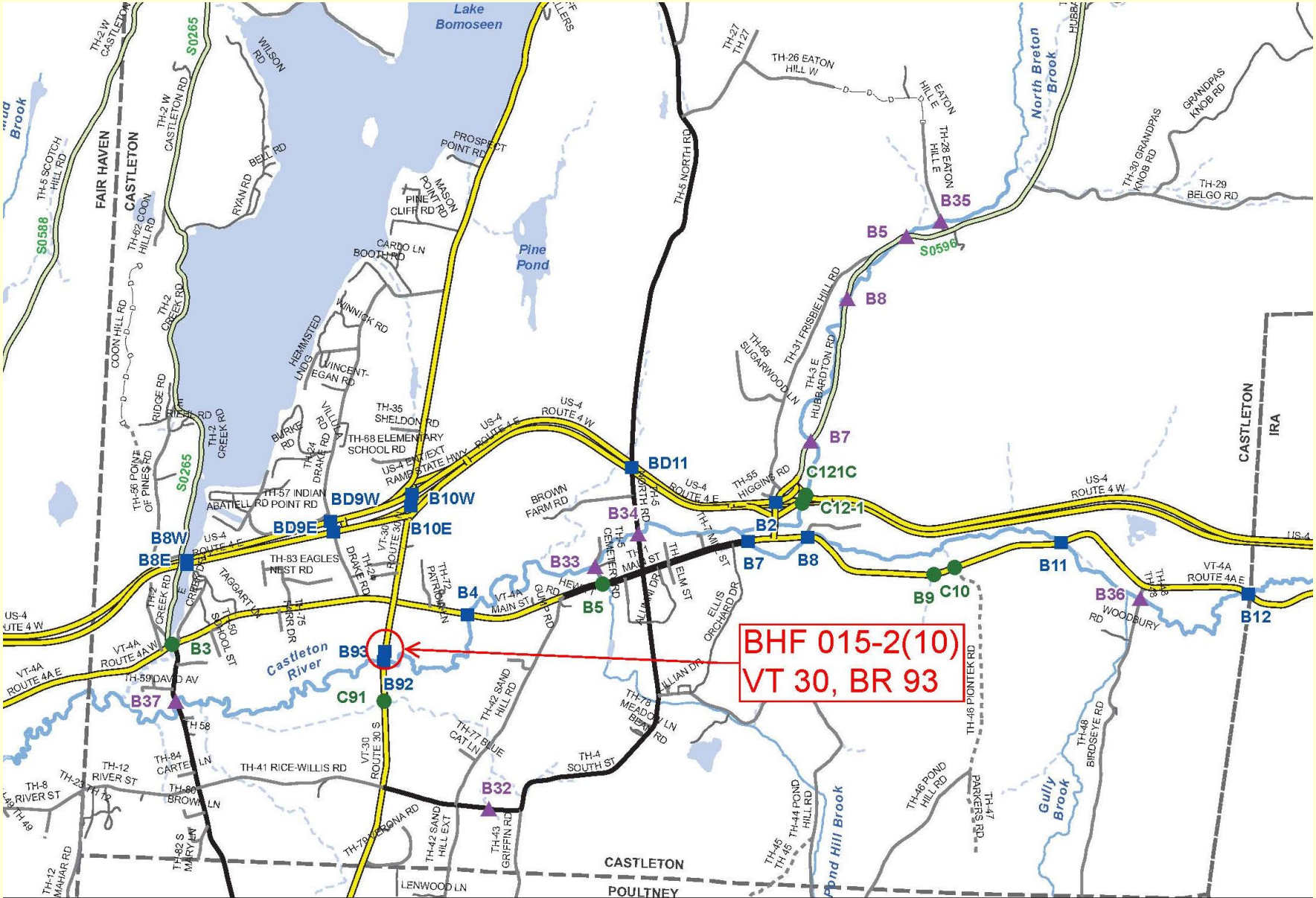
Castleton BRF 015-2(10)
Bridge 93 on VT 30
Over the Clarendon & Pittsford Railroad
Regional Concerns Meeting

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 -

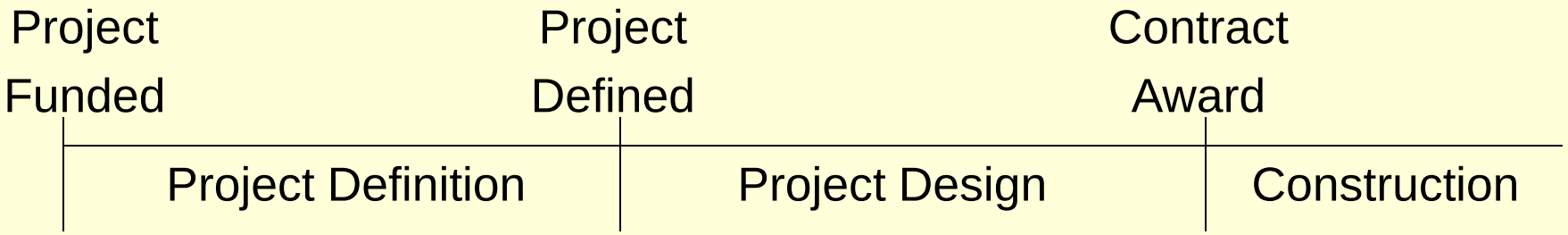
Accelerated Bridge Program

- 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 (APD) is the focus
- 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



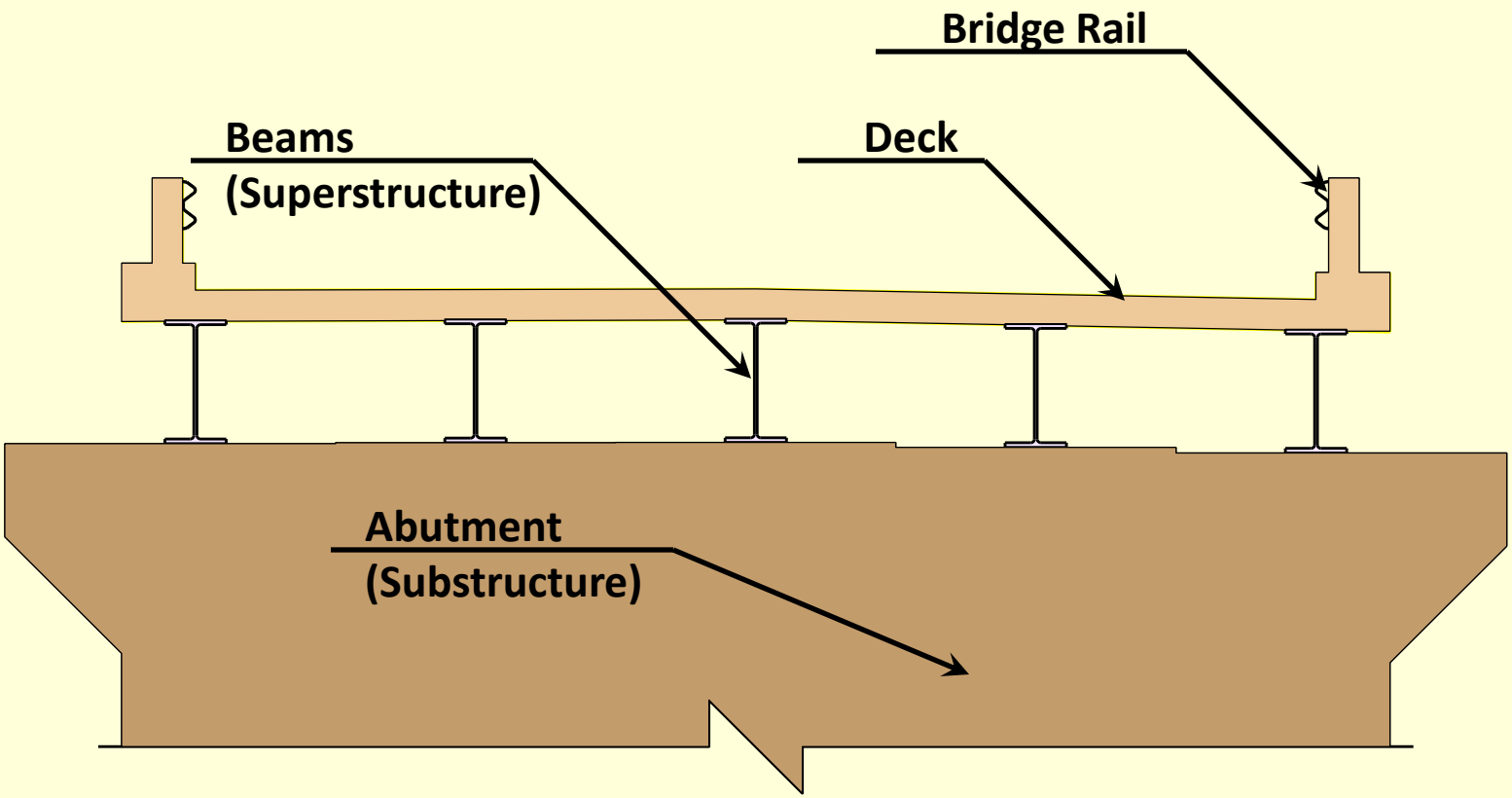
Identify resources & constraints

Evaluate alternatives

Public Participation

- Quantify areas of impact
- Environmental permits
- Develop plans, estimate and specifications

Description of Terms Used



Project Background

- **Priority 33** in the State Bridge Program
- The structure is owned and maintained by the State (no local funds)
- VT 30 has a functional classification of **Rural Minor Arterial**.
- Existing bridge is a 3 span steel beam bridge with a concrete deck
- Span lengths are 33’-38’-38’ (109’ overall)
- Bridge width = 25.5’ between railings
- Built in **1938 (74 years old)**
- Bridge is structurally deficient and has a Federal sufficiency rating of **38.5 (out of 100) -**

Project Background (Cont)

- Traffic Data

TRAFFIC DATA	2015	2035
AADT	4,000	4,200
DHV	450	470
ADTT	250	410
%T	5.8	8.9

EXISTING BRIDGE DEFICIENCIES

Deficiencies

Structural Capacity/Condition of the Bridge Deck

Bridge Width

Substandard Bridge Rail

Vertical Clearance under Bridge

Vertical Alignment (K Value or “hump” in road over bridge)

Inspection Report Information (Based on a scale of 9)

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

Bridge Looking North

Bridge Looking South

Bridge Railing

Deck Surface

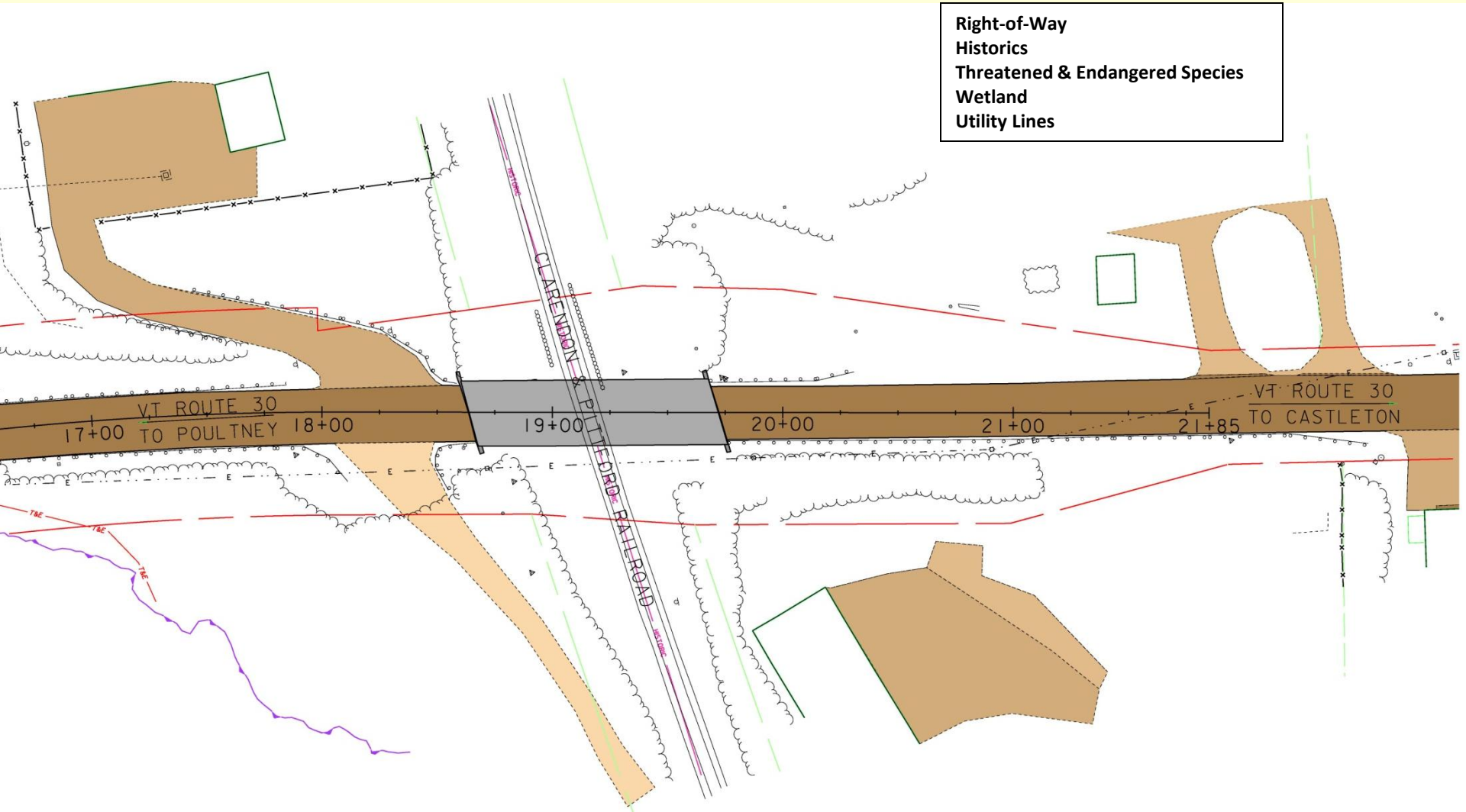
Underside of Deck

South Pier

Existing Site Conditions

- Bridge Width (Face-Face Rail) = 25.5’
- Posted Speed Limit = 40 mph
- No Postings for Weight Restriction
- Overhead Utilities present along east side-

Layout Showing Constraints



Alternatives Considered

Note that several alternatives were considered in the Scoping Report that did not warrant future consideration so are not included in this presentation

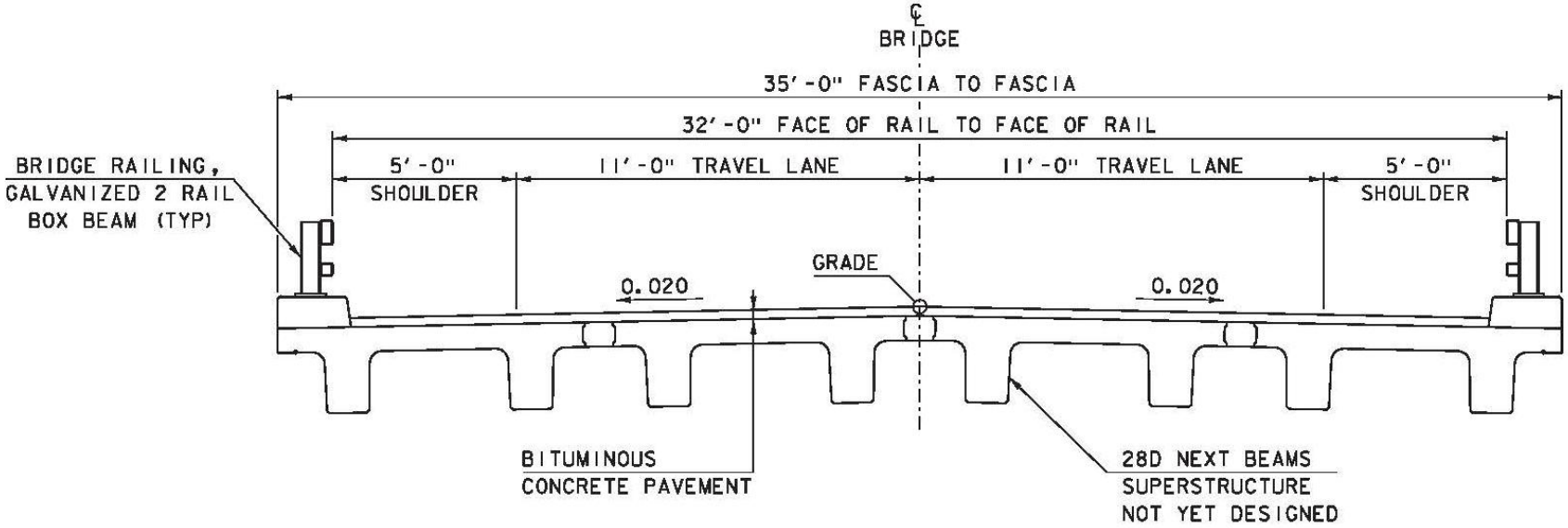
- Bridge Replacement using ABC w/ Off-site Detour
- Bridge Replacement w/ Two-way Temporary Bridge

Note the proposed bridge will be the same for both options

Proposed Project

- Complete bridge replacement needed
- Use 11’ lanes and 5’ shoulders (32’ rail-rail width)
- Use approx. 65’ single span bridge
- Maintain existing centerline of road
- Maintain vertical grade while maintaining or improving existing vertical clearance under bridge-

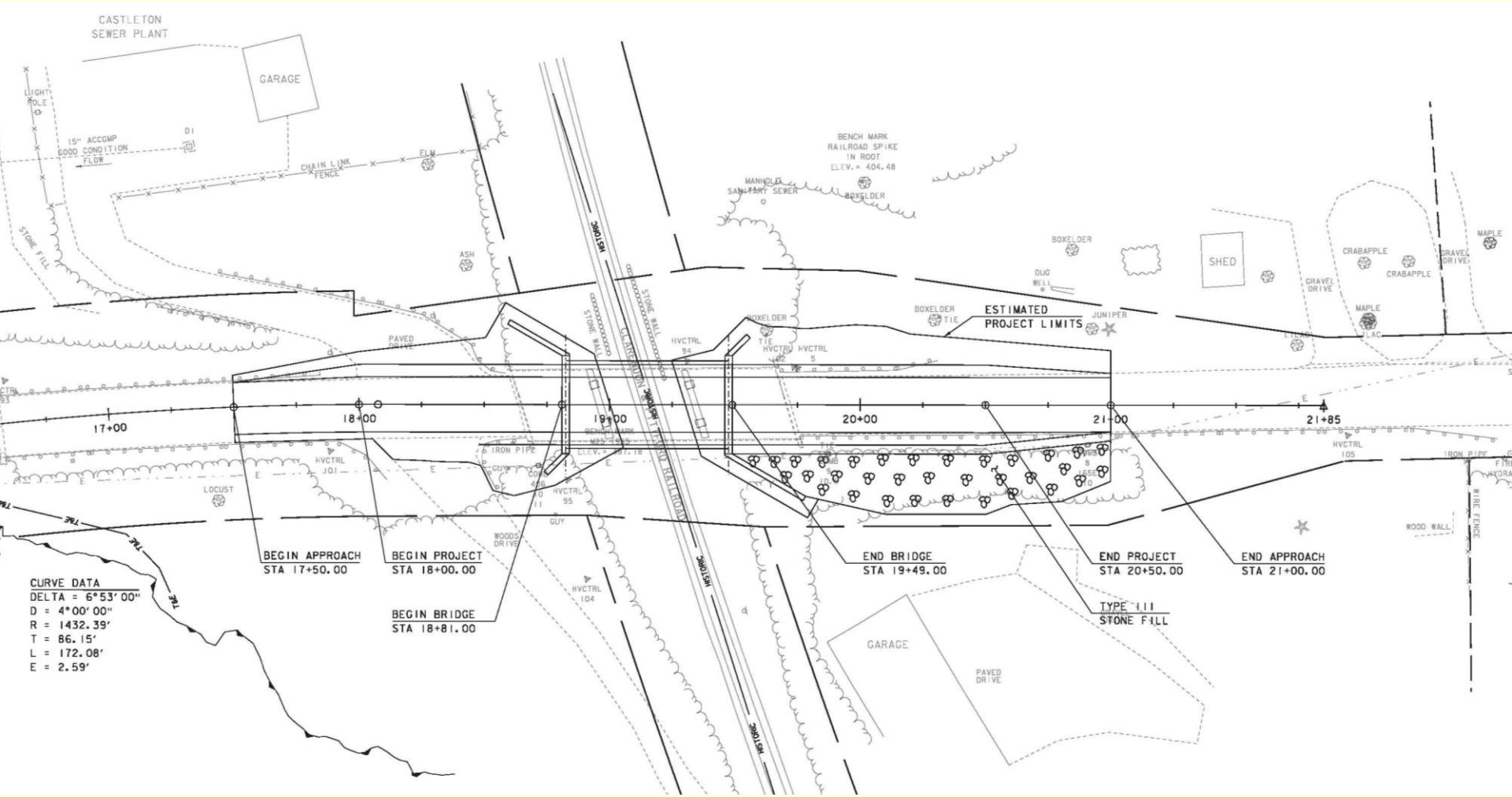
Proposed Bridge Typical



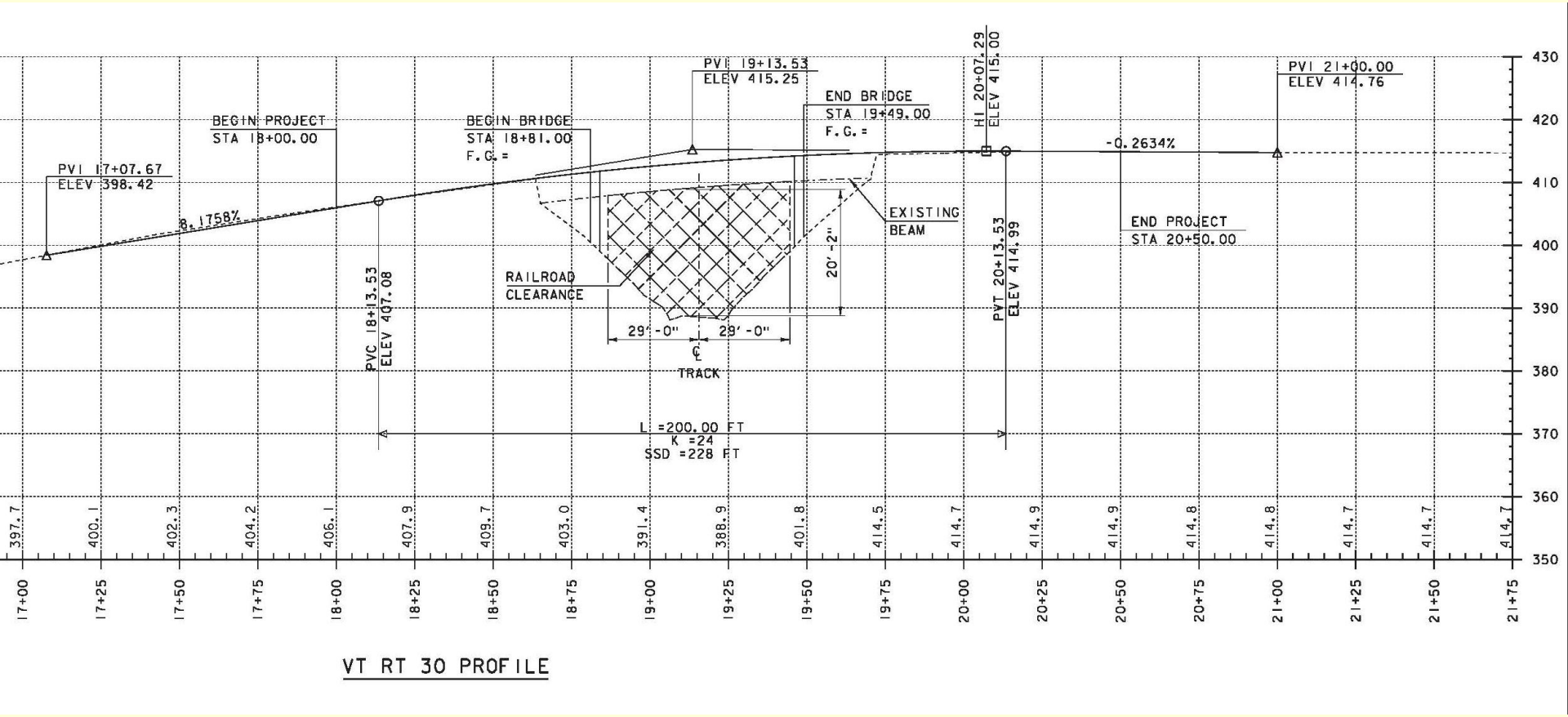
PROPOSED BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"

Layout of Proposed Bridge



Profile of Proposed Bridge

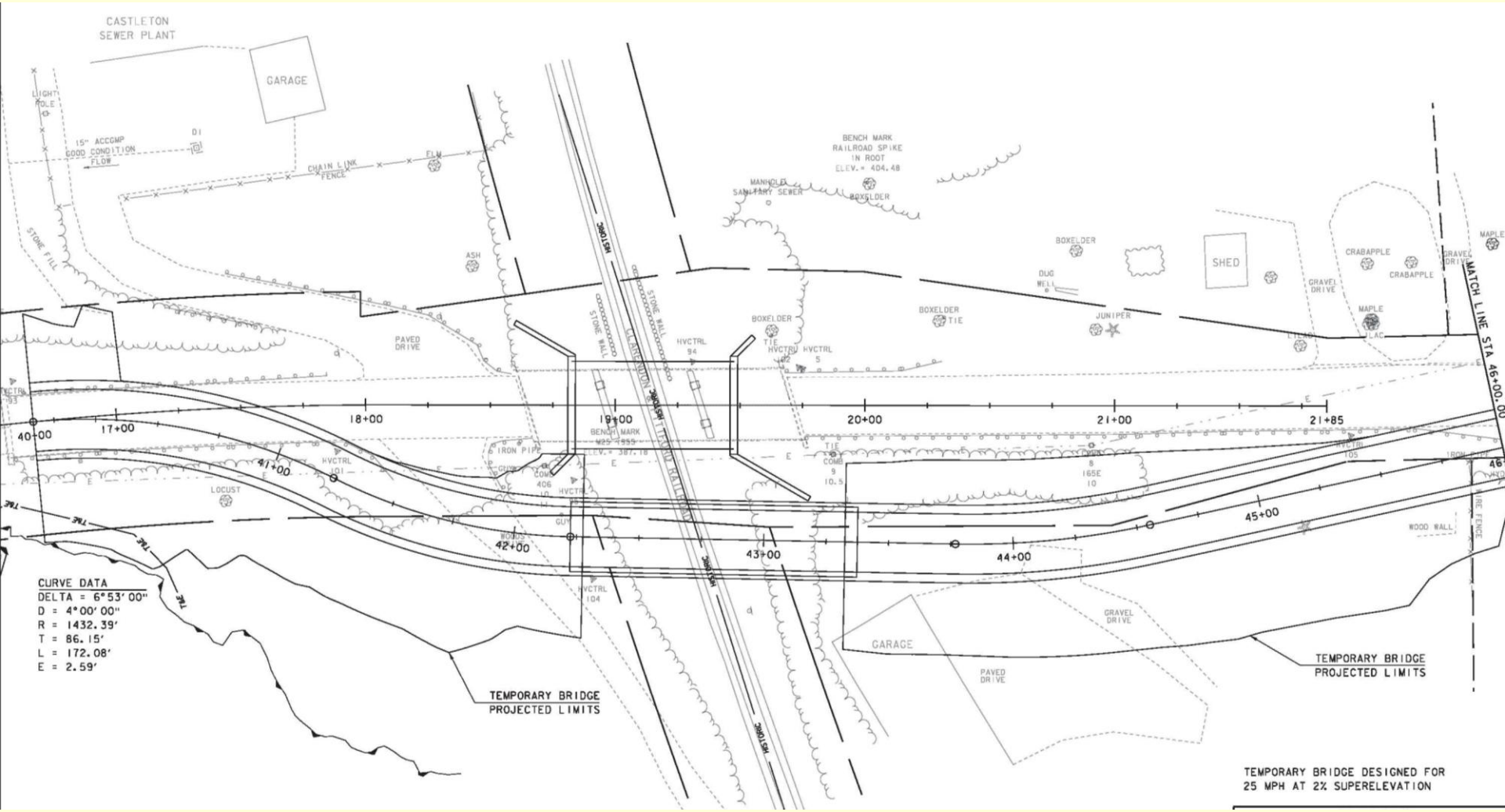


VT RT 30 PROFILE

Methods to Maintain Traffic

- Temporary Bridge on east side of VT 30
- Short-term bridge closure with detour

Temporary Bridge Option



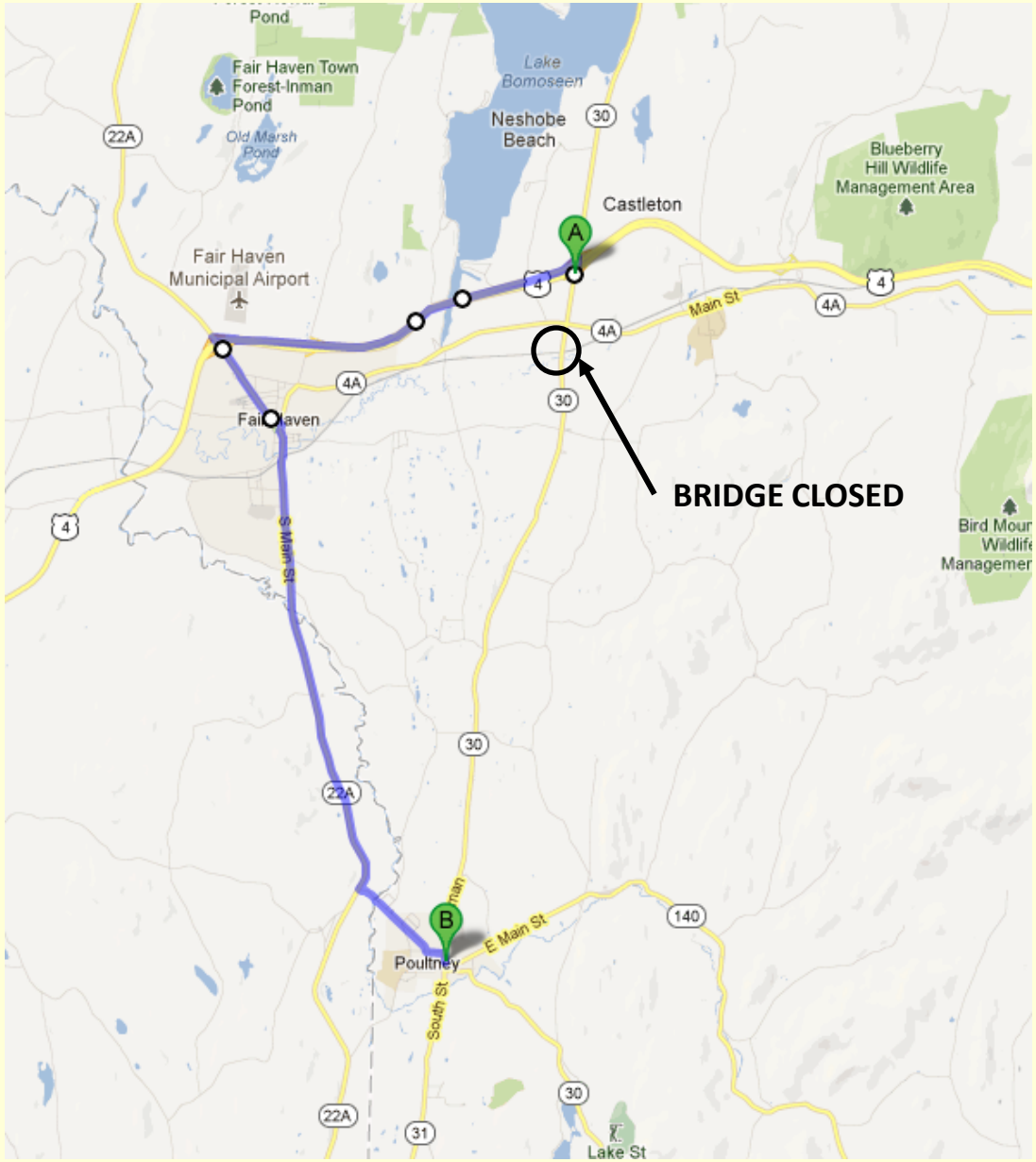
ABC with Bridge Closure Option

- Bridge 93 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)
- Detour would be on State highways
- Public Outreach to provide advance notice for planning
- Local bypass routes would not be considered detour route -

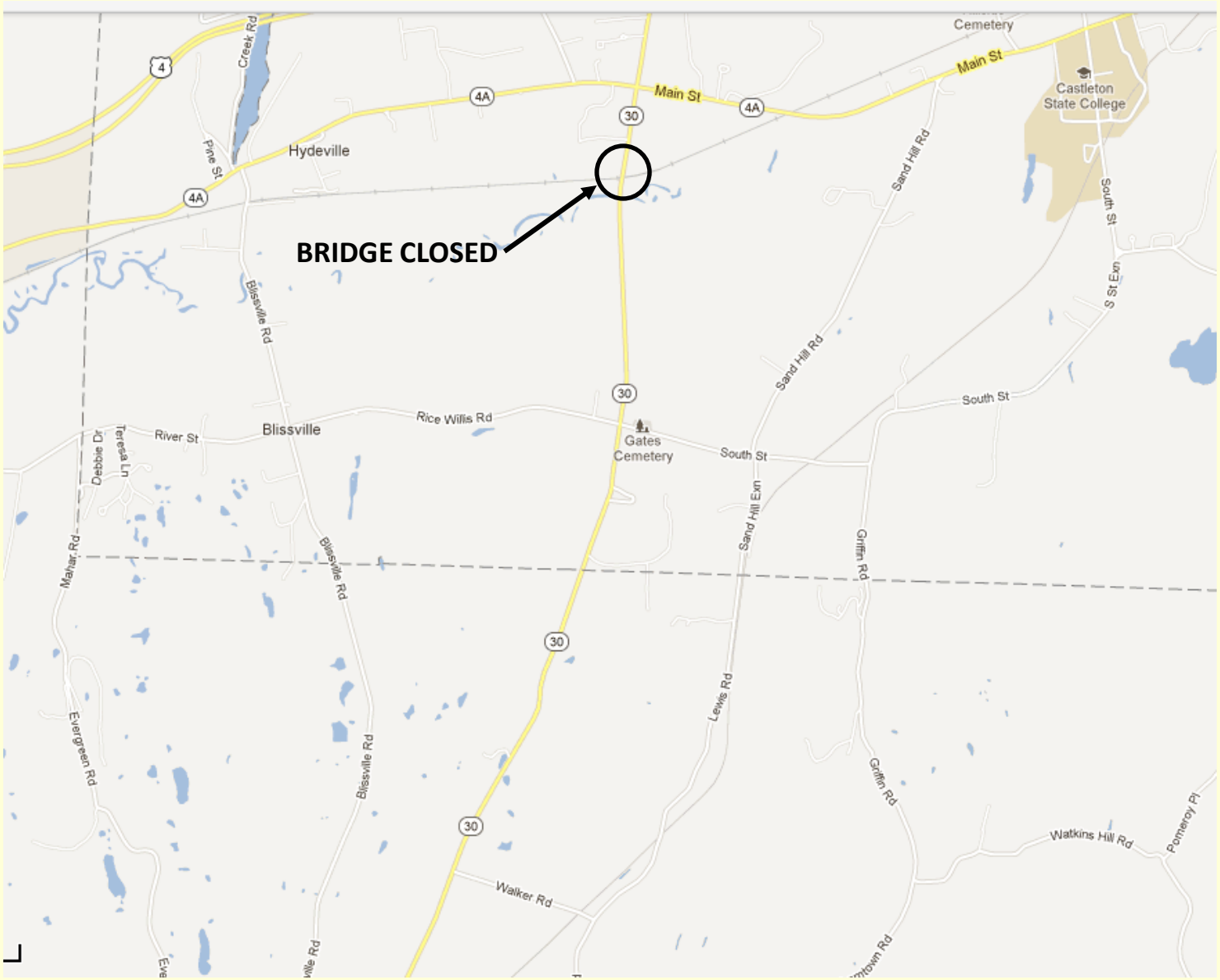
Possible State Detour

Summary:

- **A-B Thru = 7 miles**
- **A-B Detour = 12 miles**
- **Added = 5 miles**



Local Bypass Routes



Local Bypass Details

- Local bypass route would not be considered detour route
- State would not add signing on local roads
- Could be used for emergency response as appropriate
- When and where appropriate, we can mitigate Town for impacts due to increased traffic by:
  - Providing police presence to deter speeding
  - Providing DMV presence to enforce weight limits
  - Contract work to rebuild road to previous condition
  - OR Compensating Town(s) a predetermined amount -

Accelerated Bridge Construction Examples

- We have been using ABC methods to build bridges since 2007 on approximately 20 projects.
- The following slides show some examples of past projects

Accelerated Bridge Construction

Driven steel piles with precast concrete cap for abutment

Accelerated Bridge Construction

The first of three Precast Concrete Caps being placed

Accelerated Bridge Construction

Precast concrete Abutment in place and ready for Superstructure

Accelerated Bridge Construction

Precast Concrete NEXT Beam lifted into place

Accelerated Bridge Construction

The second NEXT Beam being placed

Accelerated Bridge Construction

Three NEXT Beams in place with the final unit ready

Accelerated Bridge Construction

Precast Bridge Unit (PBU) delivered to site

Accelerated Bridge Construction

Precast Bridge Unit (PBU) lifted onto abutments

Accelerated Bridge Construction

Precast Bridge Units (PBUs) connected together

Alternatives Matrix

	Replacement w/ ABC and off-site detour	Replacement w/ Temporary Bridge
Temporary Bridge	$0	$250,000
Construction w/ CE + Contingencies	$1,315,000	$1,665,000
Preliminary Engineering	$280,000	$330,000
Right of Way	$0	$150,000
Total Cost	**$1,595,000**	**$2,145,000**
		34%
Project Development Duration	2 years	4 years
Construction Duration	4-6 months	18 months
Closure Duration	28 days	None
Mobility Impact Duration	28 days	8 months

Conclusion and Recommendation

- Full bridge replacement using ABC & 28 day closure

The benefits of this approach are:

- Project delivery expedited (saving several years)
- Could prevent future emergency bridge closure
- Saves future costs to maintain existing bridge
- Lower direct costs (Design, ROW and Construction)
- Minimal environmental impacts
- Minimal impact to adjacent property owners
- Improved safety for public and construction workers -

Questions