Clothespin Bridge – Public Informational Meeting

Town of Webster

vhb

Town of Webster New Hampshire Inc 1860

September 23, 2019

Meeting Agenda

- Introductions and Meeting Purpose
- Review of State Aid Bridge (SAB) Process
- Project Background and Status
- Engineering Study and Design Considerations
- Town Discussion and Input
- Next Steps, Questions, and Wrap-up

Your Project Team

Greg Goodrich, PE
Project Manager

Julie Whitmore, PE
Lead Project Engineer

Peter J. Walker
Permitting Task Lead

Michael Chervincky, PE
Technical QC Engineer

Abbigail Morgan, EIT
Bridge Engineer

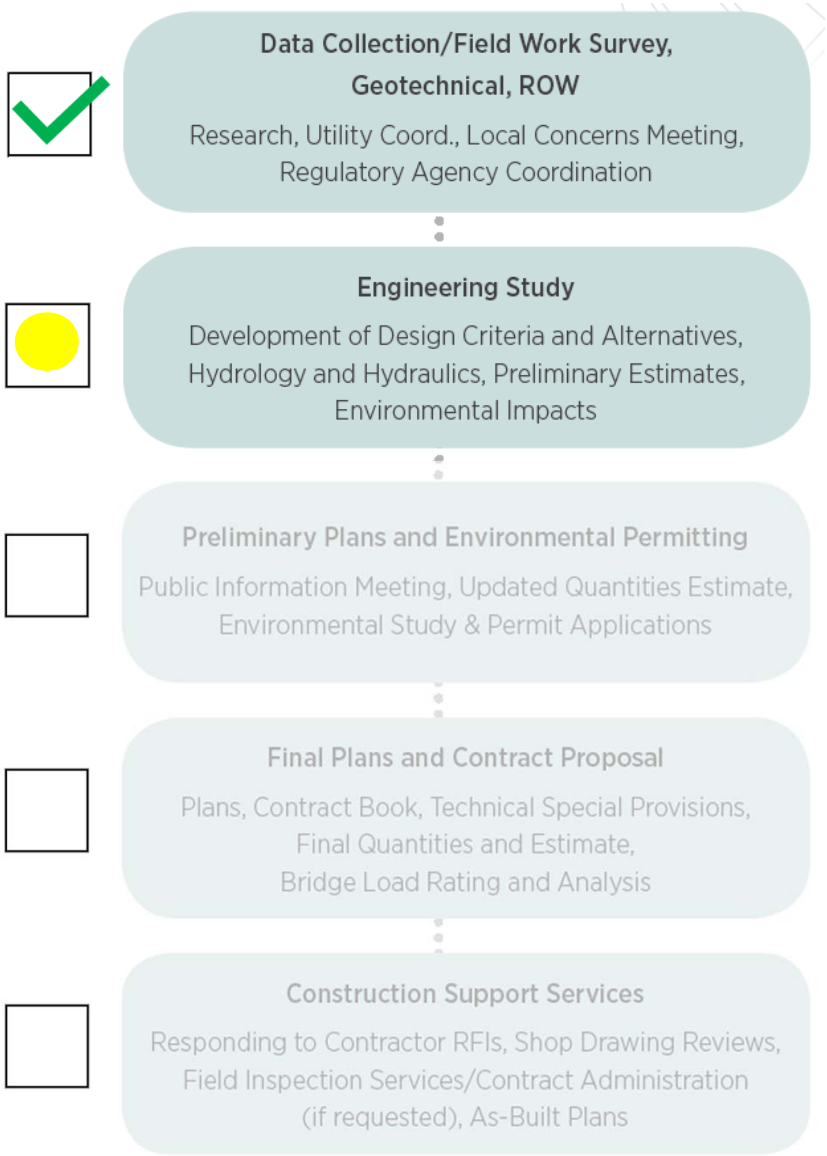
Kyle D'Urso, PE
Project Engineer

Meeting Purpose

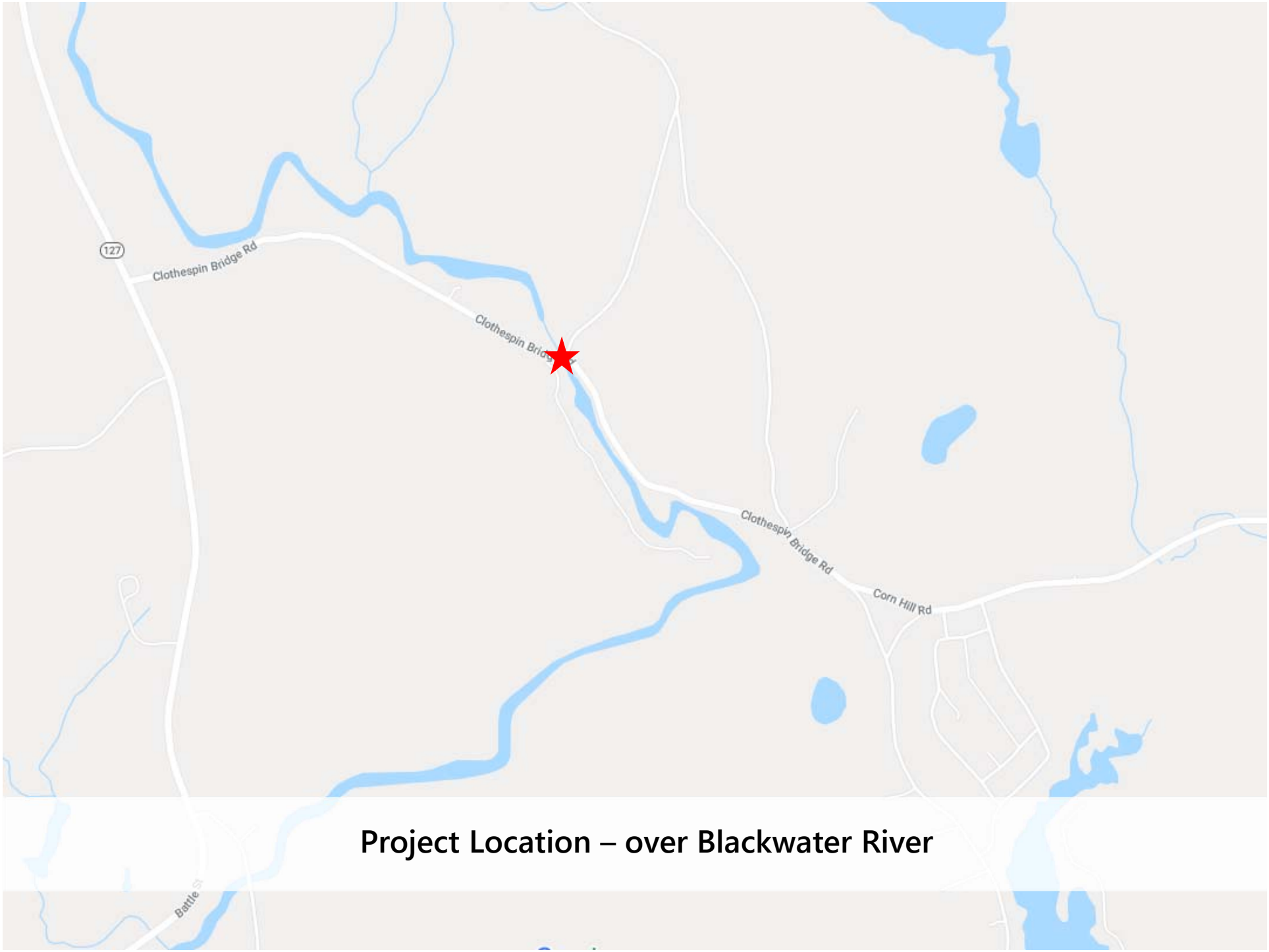
INTRODUCE PROJECT TO COMMUNITY

SEEK PUBLIC INPUT

The State Aid Bridge Process



Project Background and Status



Project Location – over Blackwater River

Clothespin Road Bridge – Site Aerial

Project Background – Clothespin Bridge

- Bridge No. 121/103
- Rehabilitated in 1939
- 65-foot long, single span, steel beam bridge with concrete deck
- Condition ratings:
  - Deck = 3 (serious)
  - Superstructure = 5 (fair)
  - Substructure = 4 (poor)
- Currently posted for load (E-2)

Project Background – Clothespin Bridge

- Two-lane Class V road:
  - Approach roadway width = 20-feet
  - Existing bridge width = 18-feet (one lane)
  - Aerial utilities along south side of road
- ADT = 550 VPD (2015)
- **Project Purpose:** To replace this structurally deficient red-list bridge

Project Status

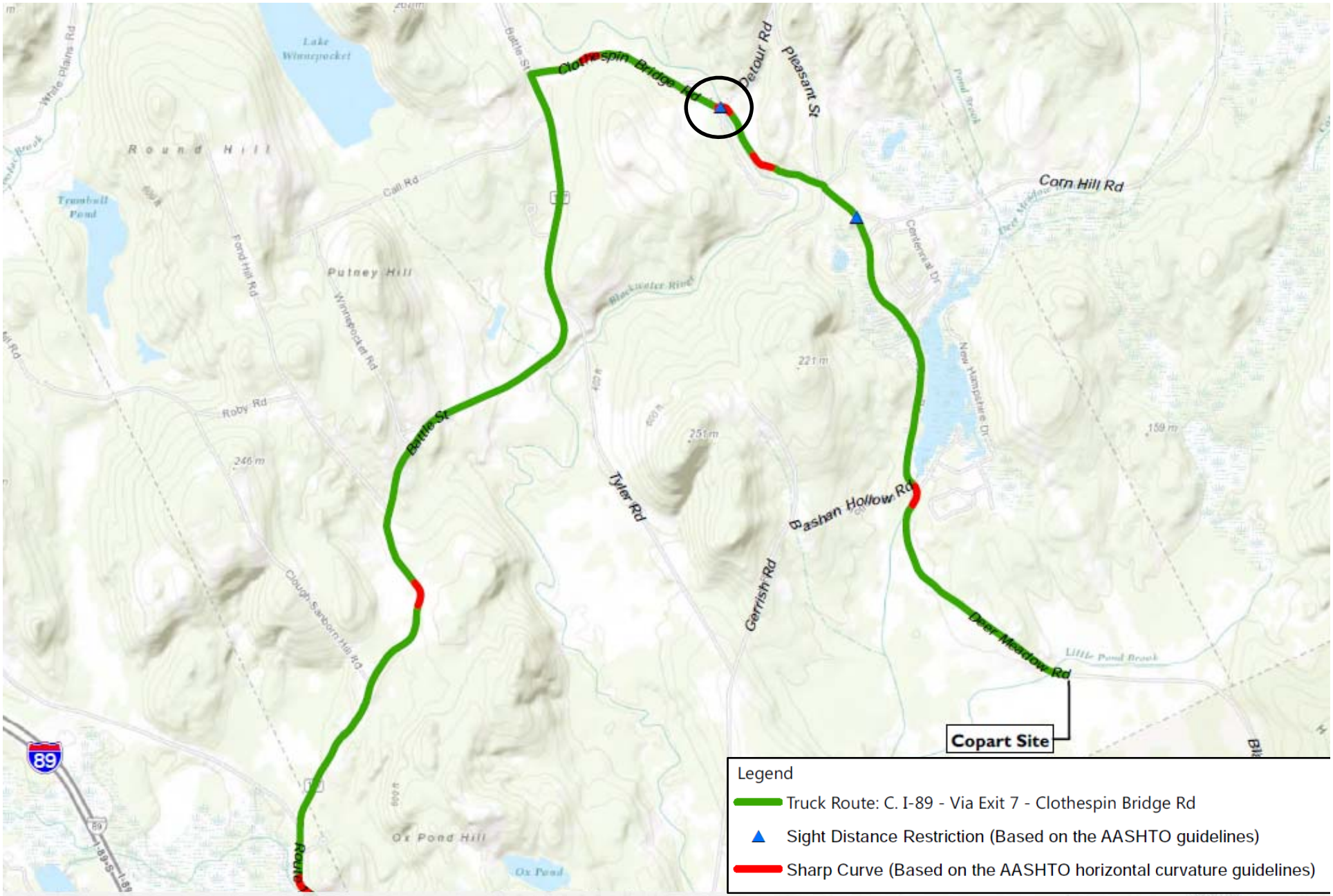
- Environmental Data Collection – Completed
- Topographical Survey – Completed
- Geotechnical Borings – Completed
  - Preliminary Geotechnical Report – Pending
- Engineering Study Phase – Beginning

Engineering Study

- Alternatives Evaluation
  - Roadway Considerations
  - Bridge Considerations
  - Geomorphic Assessment
  - Hydrology and Hydraulics
  - Cost Comparison
  - Local Concerns
- Preferred/Recommended Alternative

Design Considerations – Roadway

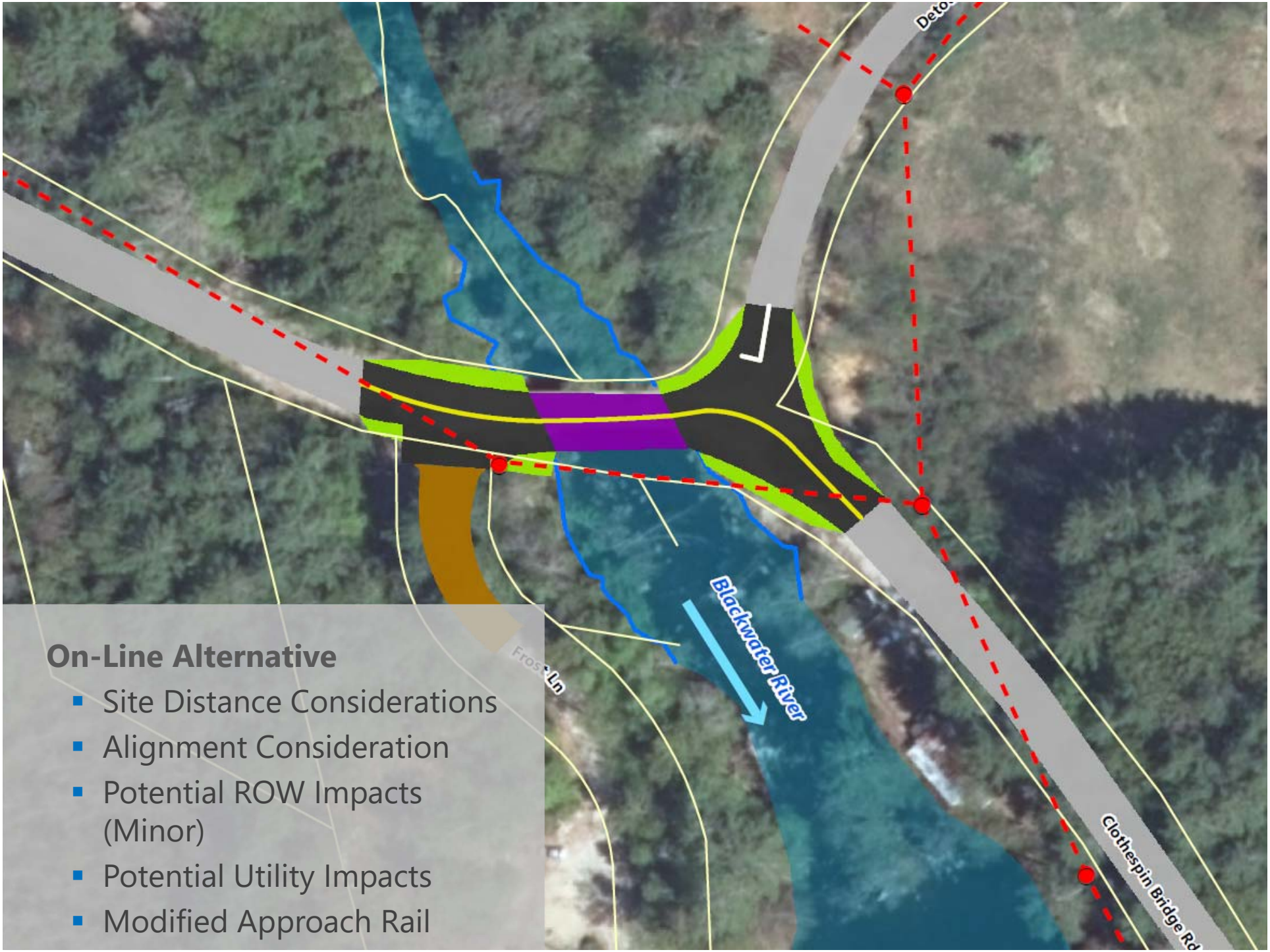
- **2015 Truck Routing Study:** highlighted sight distance and horizontal curvature deficiencies at the bridge
- **Profile modifications** anticipated to accommodate:
  - Structural depth of bridge
  - Required hydraulic opening
  - Permitting requirements
- **Roadway Alignment** Alternative Analysis
  - **On-alignment:** minimize overall impacts and bridge length
  - **Off-alignment:** improvements to sight distance and horizontal curvature



Truck Routing Study - 2015

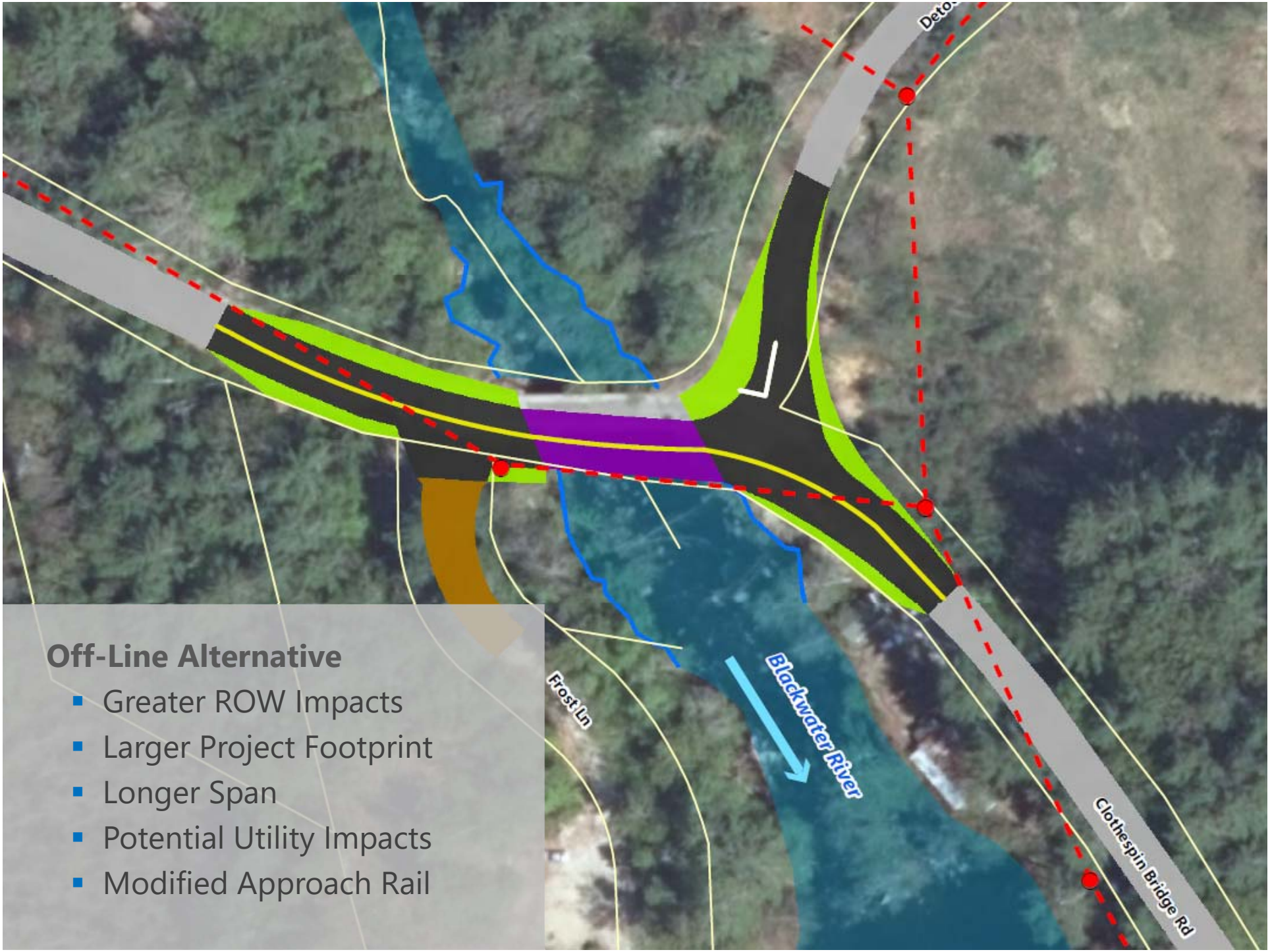
Design Considerations - Roadway

- **Roadway width:**
  - Proposed width to match existing roadway approaches, transitioning to 24-foot bridge section



On-Line Alternative

- Site Distance Considerations
- Alignment Consideration
- Potential ROW Impacts (Minor)
- Potential Utility Impacts
- Modified Approach Rail



Off-Line Alternative

- Greater ROW Impacts
- Larger Project Footprint
- Longer Span
- Potential Utility Impacts
- Modified Approach Rail

Clothespin Bridge Road – Alignment, Looking East

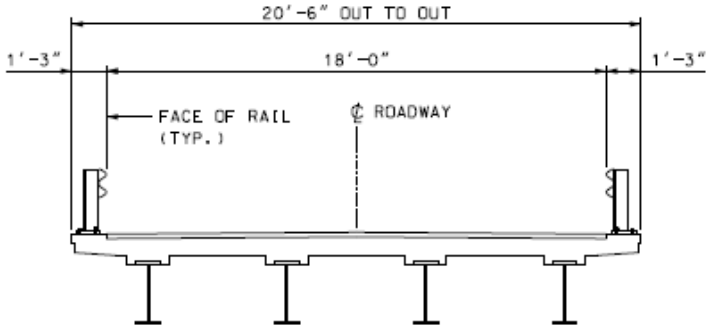
On-Line Alternative Simulation

Off-Line Alternative Simulation

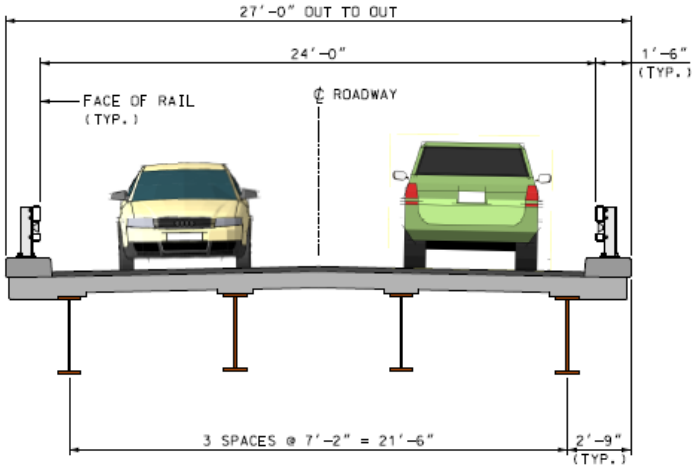
Design Considerations – Bridge

- Superstructure types:
  - Steel stringers
  - Precast Concrete Beams (depending on final span length):
    - Butted or spread box beams
    - NEXT Beams
    - Precast NEBT beams
- Substructure Types:
  - Spread footing on rock (west abut.)
  - Stub abutment on piles (east abut.)
  - Integral vs. conventional abutments

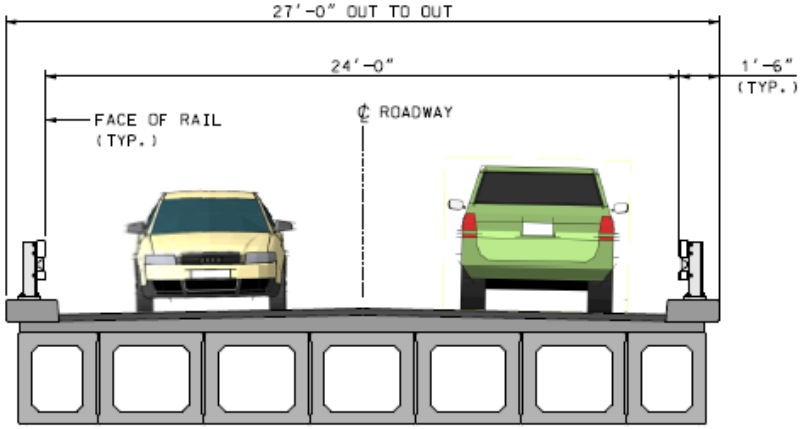
Design Considerations – Bridge



Existing Bridge Section



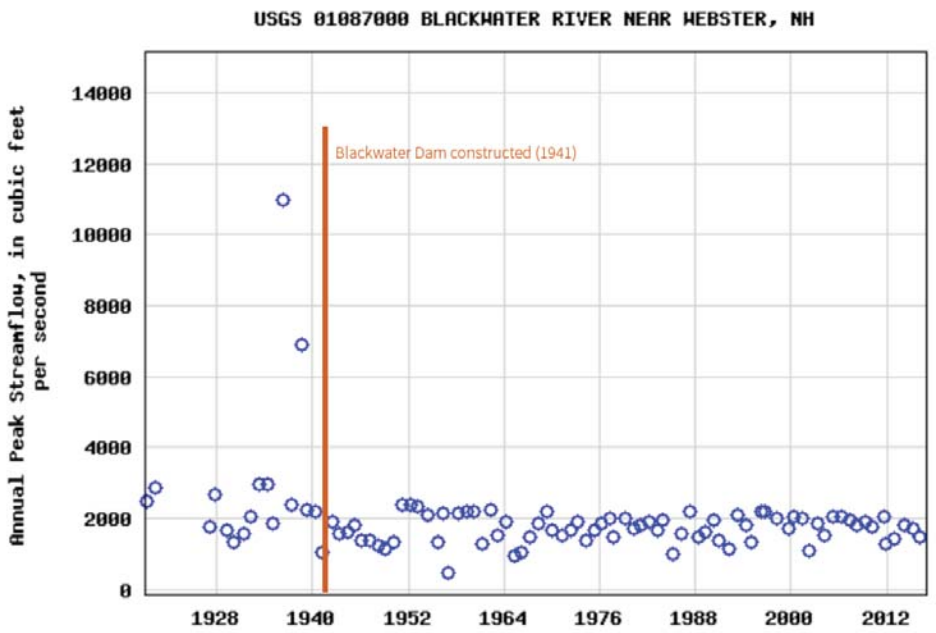
Conceptual Steel Section



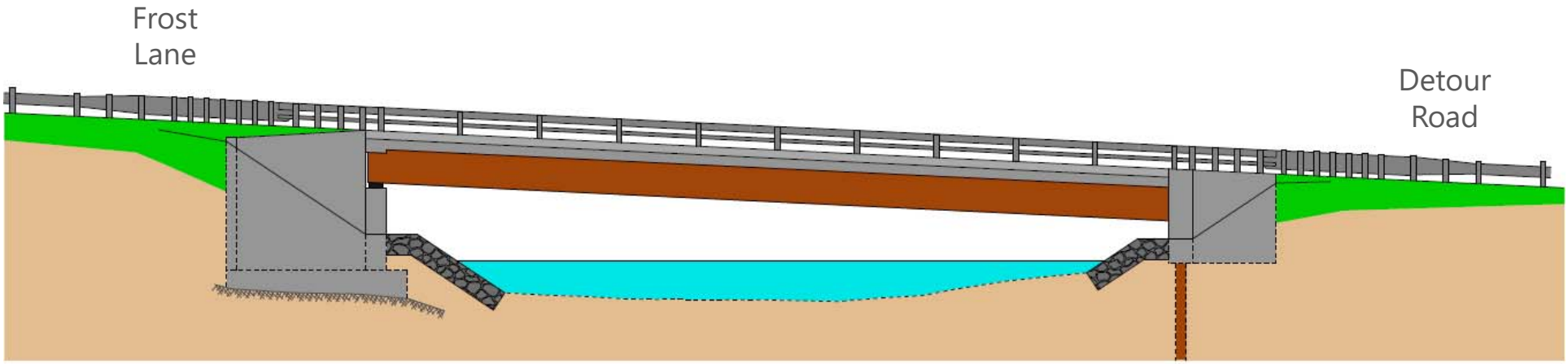
Conceptual Concrete Section

Design Considerations – Bridge

- Hydraulic study considerations:
  - HEC-RAS analysis
  - 1-foot of freeboard to Q50 storm
  - Evaluation of Q100 storm to maintain WS elevs.
- FEMA study (by detailed methods)
- Scour analysis for Q100 and Q500
- Stream crossing rules will also influence span length



Design Considerations – Bridge



Conceptual Bridge Elevation

Traffic Management During Construction – Detour (4.6 mi)

Design Considerations – Bridge

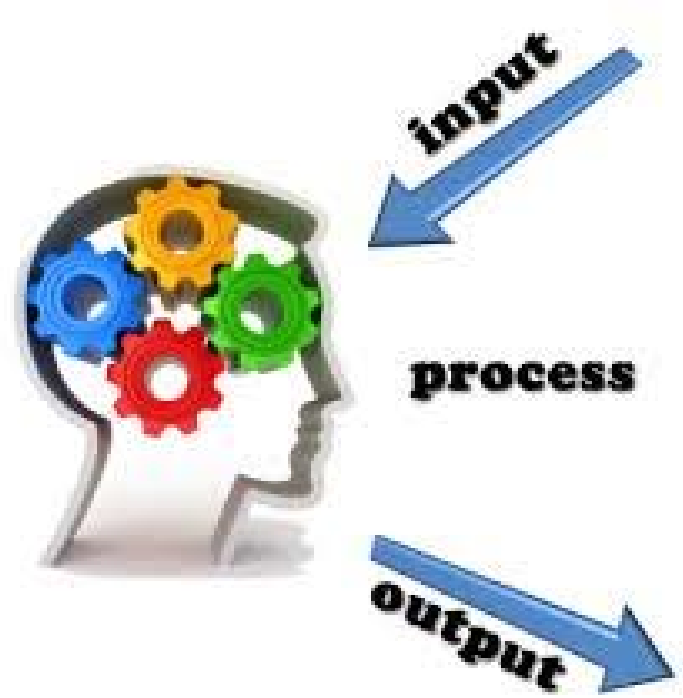
- Accelerated Bridge Construction (ABC) considerations
  - Full ABC not recommended:
    - Short detour
    - Low ADT
    - Cost considerations
  - Select details can be used to:
    - Reduce construction duration
    - Minimize impacts to residents

Design Considerations – Bridge

- ABC component considerations:
  - Prefabricated elements (i.e. precast, etc.)
  - Limit closure activities
  - Schedule requirements

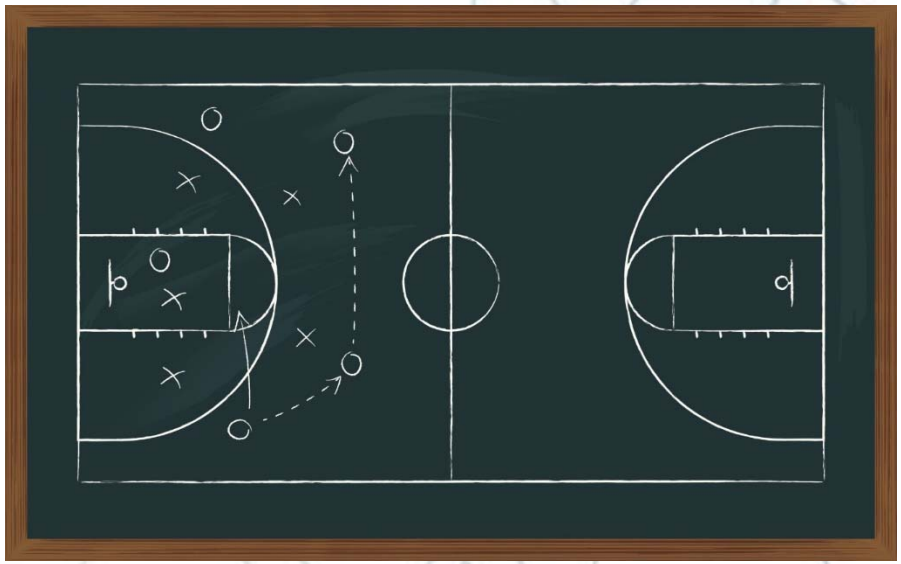
Town Input

- Local Concerns?
  - Emergency Routes
  - School Bus Routes
  - Flooding
  - Events
  - Construction start/end
- Bridge Committee



Next Steps

- Develop Engineering Study (first deliverable)
- 2nd Public Informational Meeting – date TBD
- Permitting and Final Design
- Construction - 2024



Questions/Comments??