

East Montpelier – Bridge 68 Public Informational Meeting

June 2, 2014



A new concept for construction traffic management to reduce the project duration and construction delays.



Staff Introductions

- Steve Gladczuk – Central Vermont Regional Planning Commission
- Mark Sargent – VTrans Project Manager
- & Wayne B. Symonds, PE – VTrans Structures Engineer
- Tom Knight and Greg Goyette - Stantec Consulting

Agenda



1 Current Project Overview

2 Analysis of Construction Traffic Management Options

3 Accelerated Construction

4 Summary of Traffic Management Plan

5 Next Steps and Questions, Comments and Feedback.

1 Current Project Overview

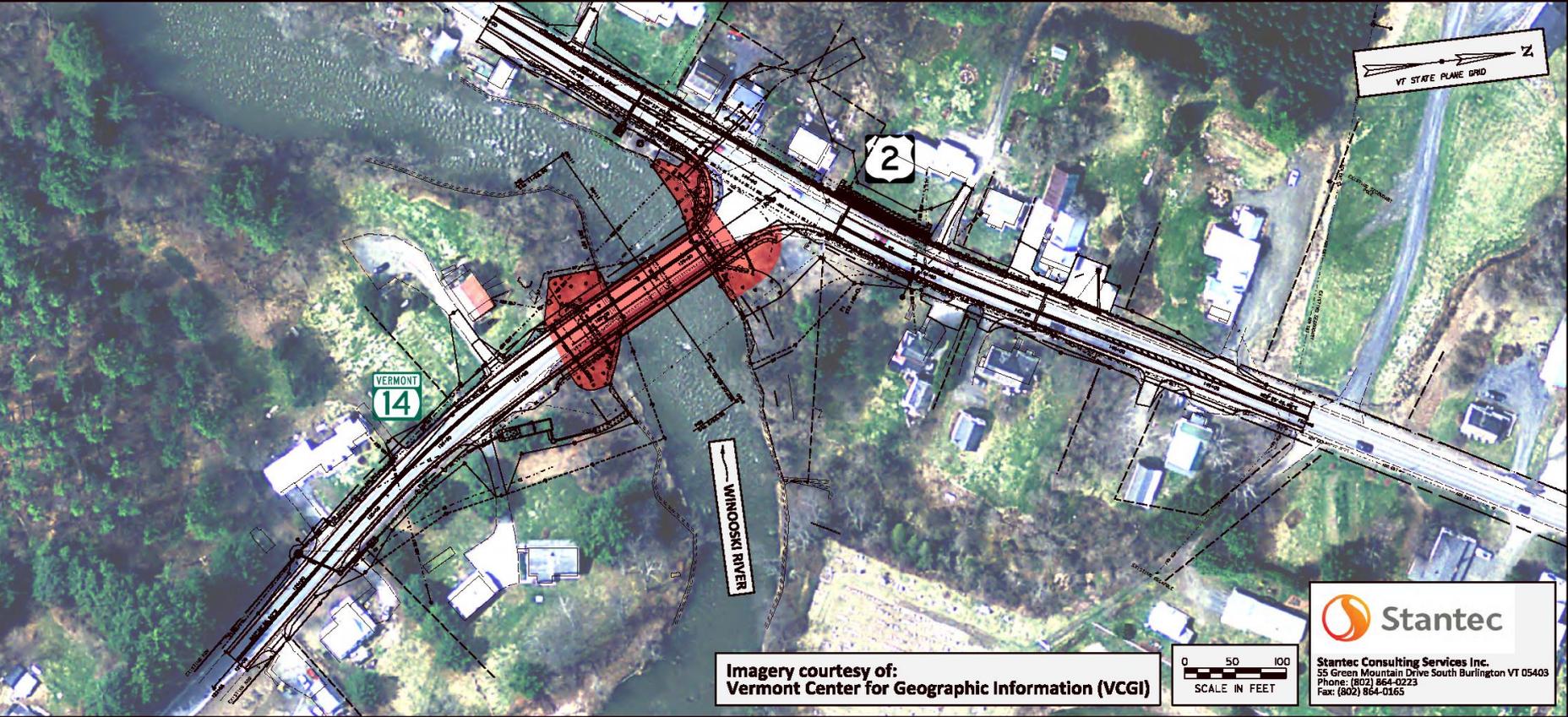
The need for a bridge replacement is evident and pressing...

The project is more than just a bridge replacement.





East Montpelier - Bridge 68

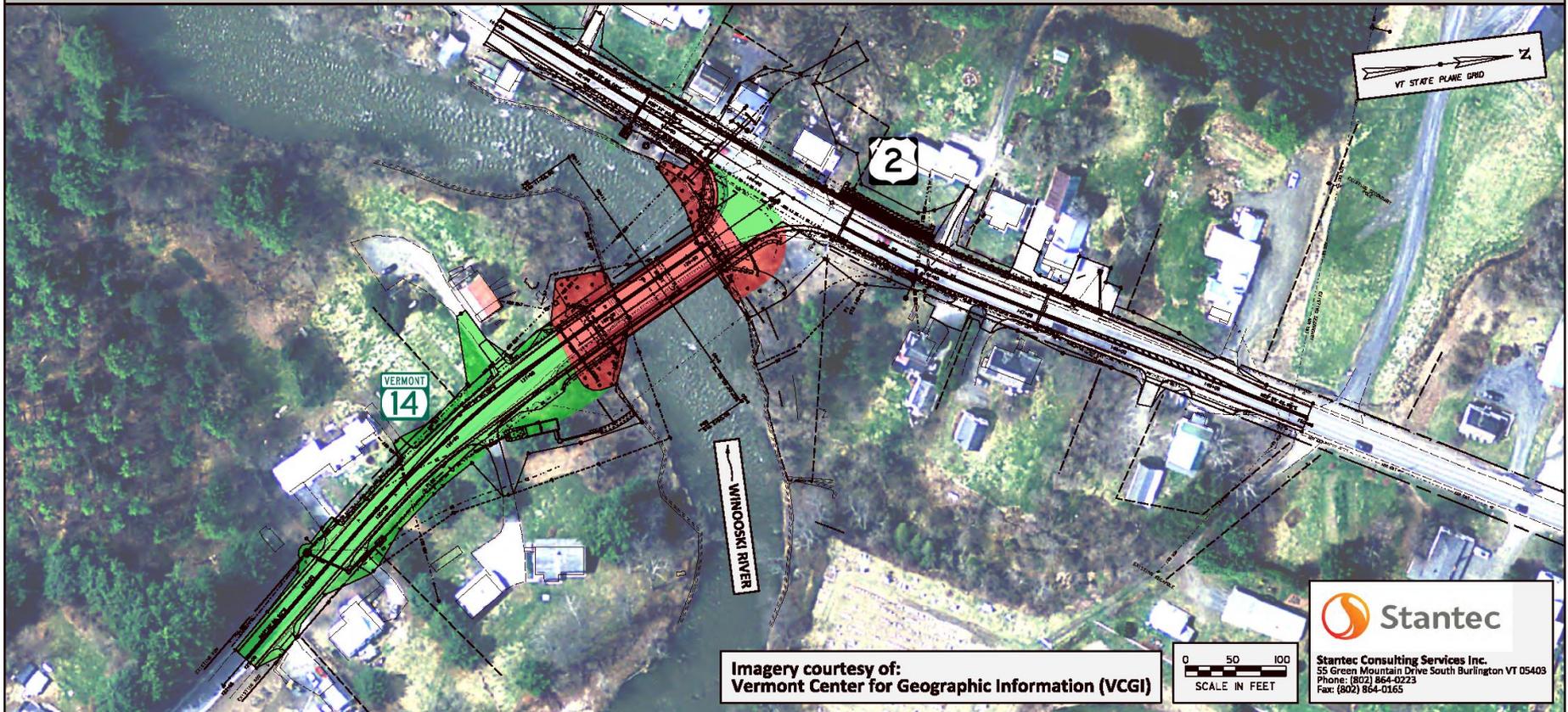


Currently - 2 Lanes on VT 14





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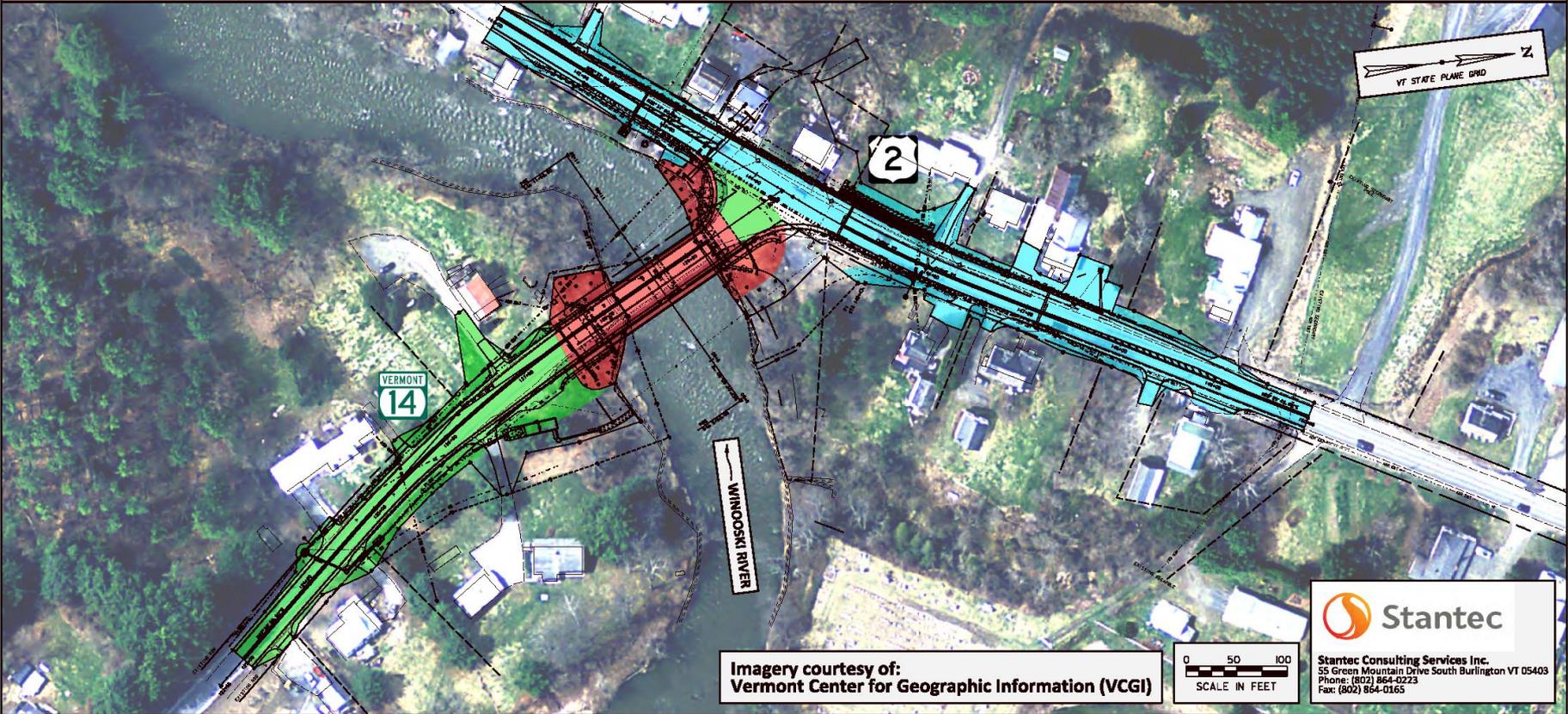


Currently - 2 Lanes on US2

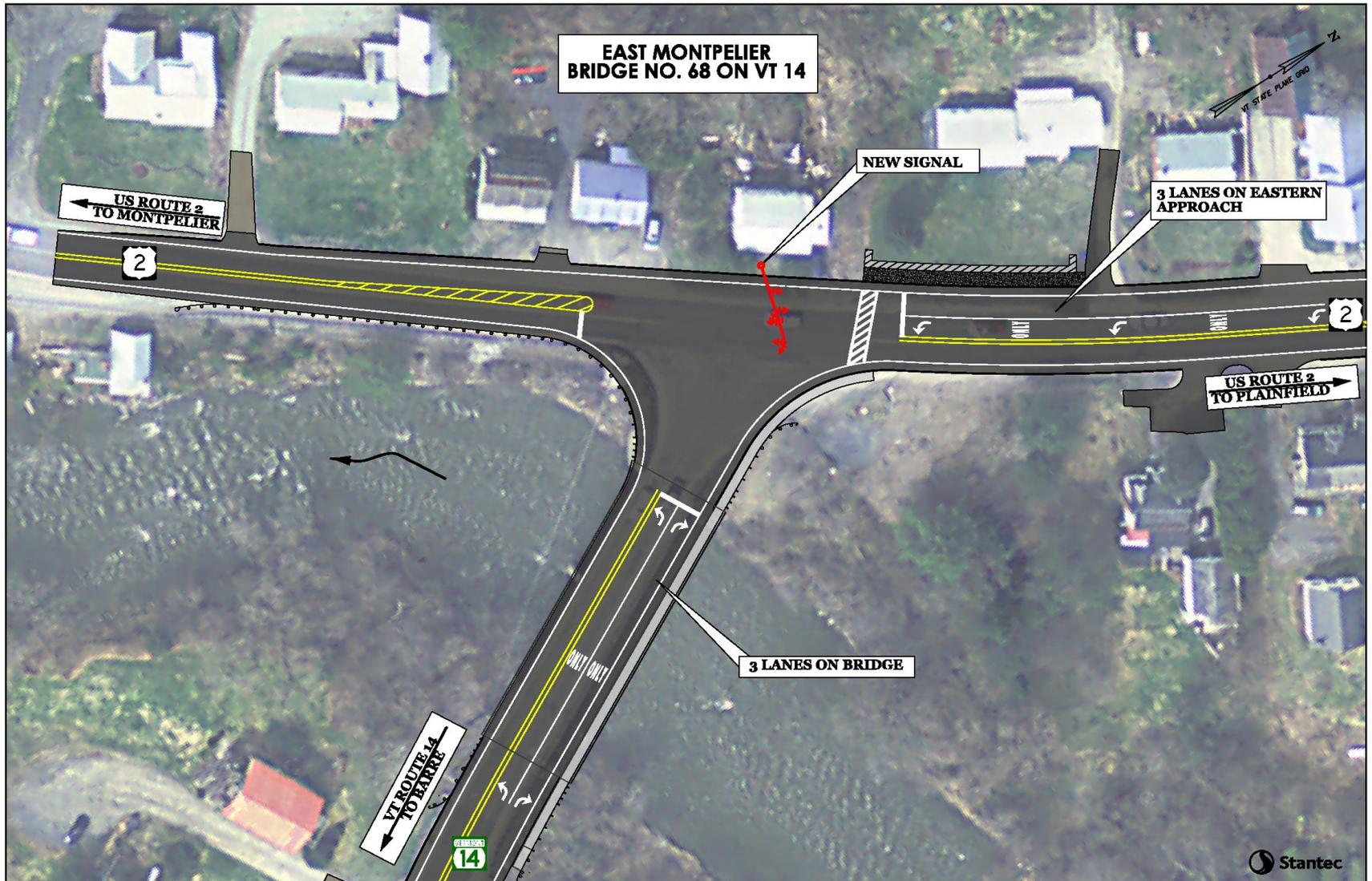




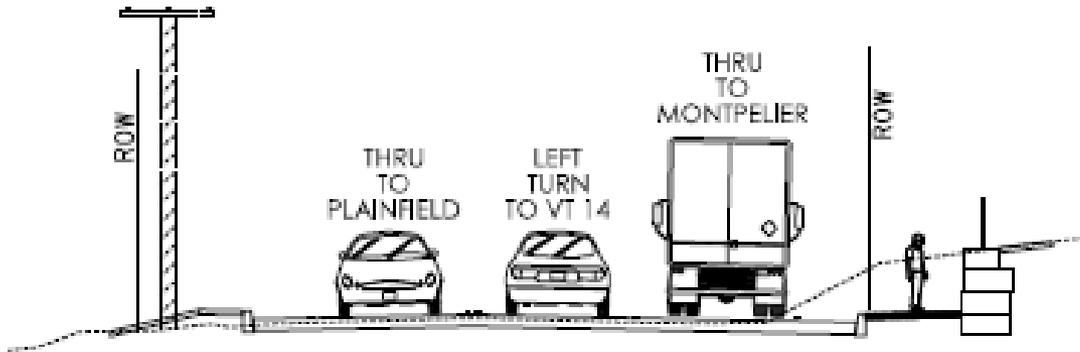
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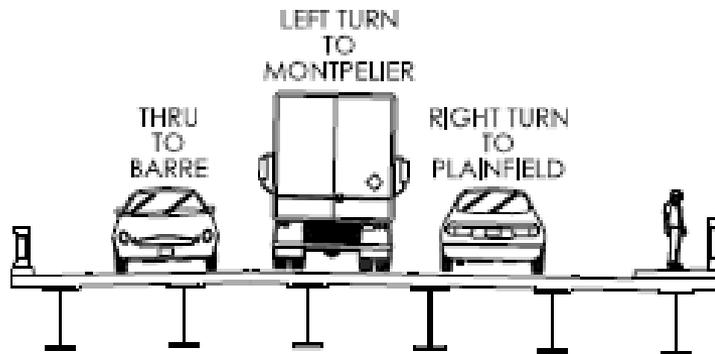
Intersection with Signal and Turn Lanes



US 2 and VT 14 Typical



US ROUTE 2
LOOKING SOUTHWEST
NOT TO SCALE



VT ROUTE 14
LOOKING NORTH
NOT TO SCALE

Project Overview - Summary

Summary of Improvements and Cost:

- Bridge Replacement
- Widening for Left Turn Lanes VT 14 and US Route 2
- Overall Construction Duration 2 Years
- Cost Estimate \$6.3 M

Two Interrelated Questions:

1. How do we manage construction traffic?

&

2. Is there a new approach that allows us to make the same improvements over a shorter duration, with improved safety and with less impacts to the traveling public and the community?

2 Analysis of Construction Traffic

US Route 2 Traffic Volume

8,700 – 10,800 Vehicles Per Day

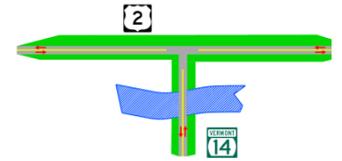
Design (DHSV) = 1400 veh. / hour

VT Route 14 Traffic Volumes

4,400 Vehicles Per Day

Design (DHSV) = 580 veh. / hour

Analysis of Construction Traffic Management Options



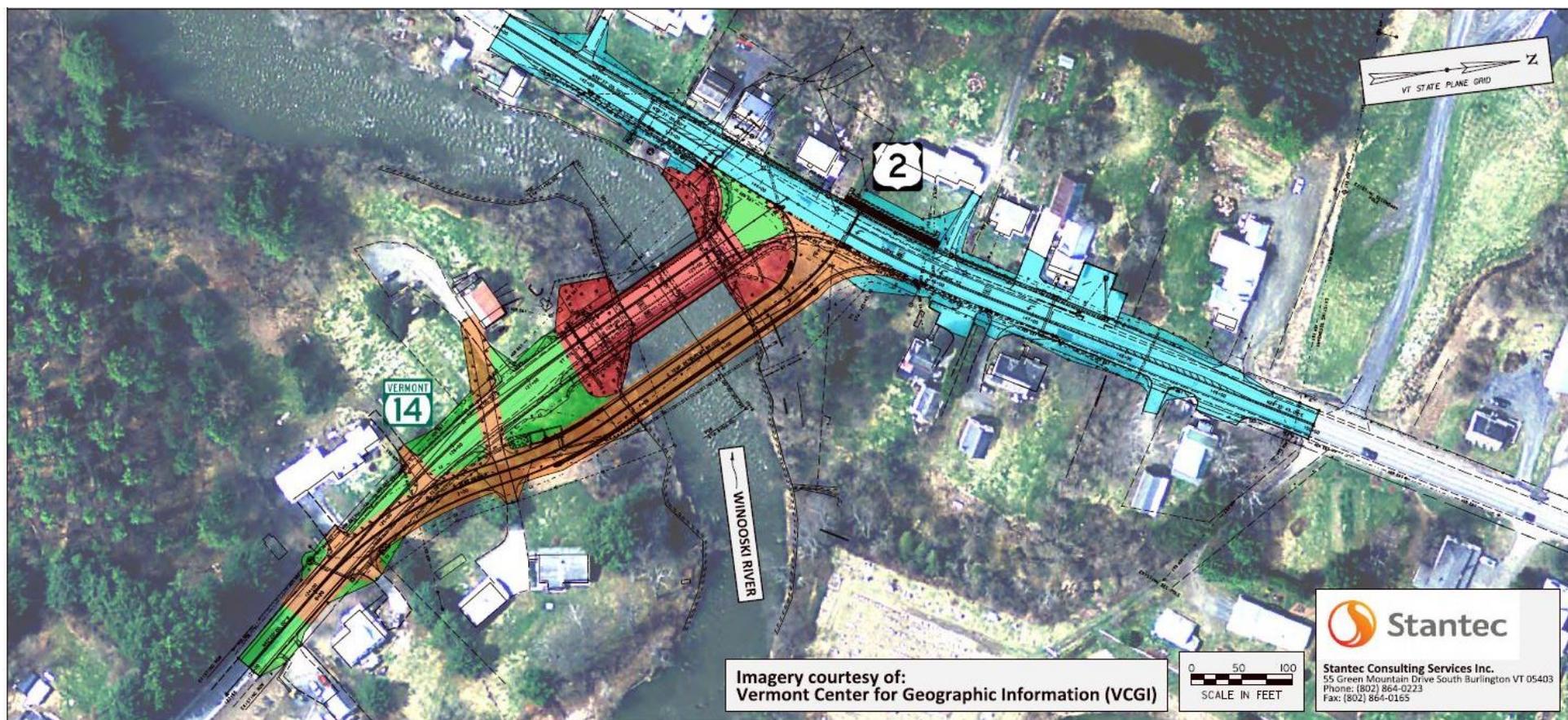
Options Considered

- Maintain 2 Lanes on US Route 2
- Utilize Single Lane Alternating Traffic.
- Off Peak / Night Construction
- Temp Bridge vs. Closure on VT 14

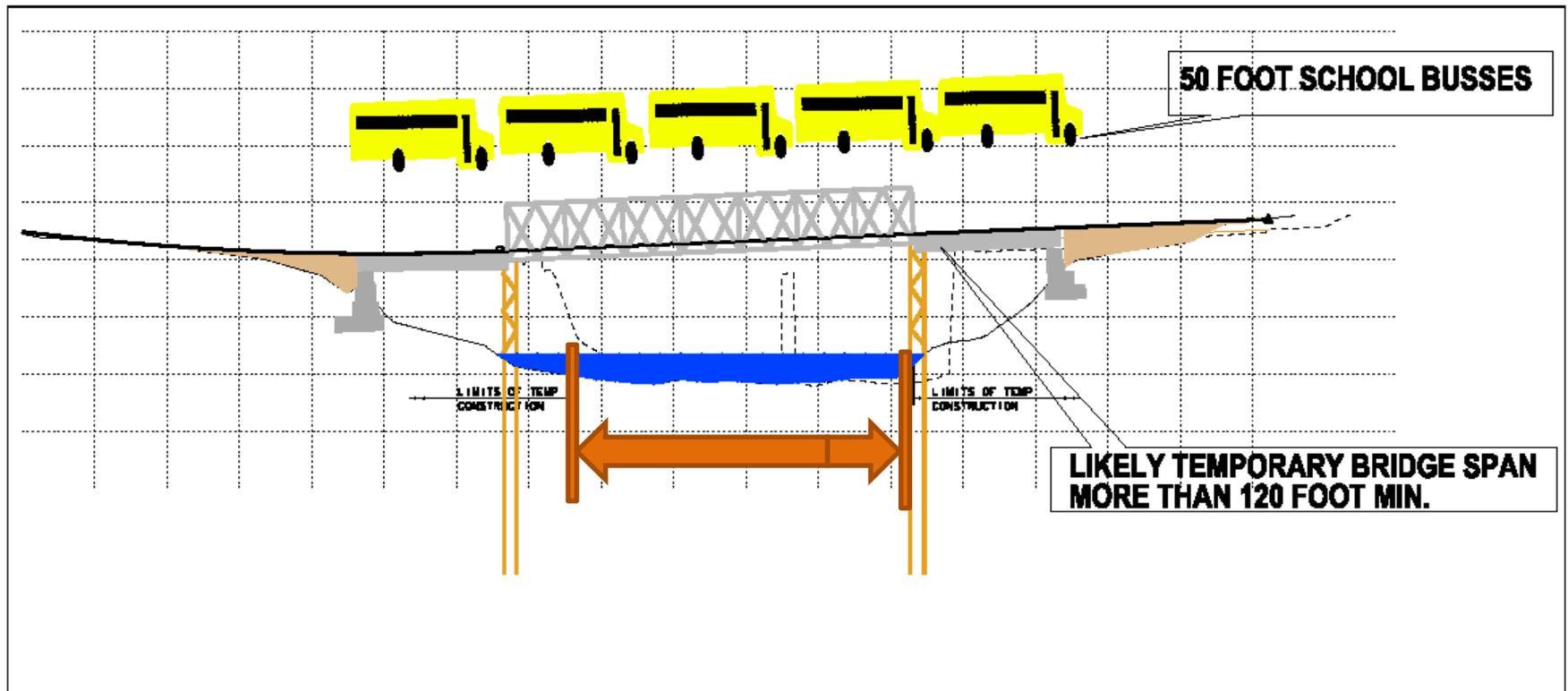
Question:

What would a temporary bridge look like and what are the impacts to the project?

What would a Temporary Bridge Look Like?



Complex Temporary Bridge – 120 ft. Min. Span Likely longer 3 span bridge



Question:

How does the temporary bridge impact the construction traffic?

Analysis of Construction Traffic

| | |
|--------------------|----------|
| Significant Delays | >1 |
| Moderate Delays | 0.85-1.0 |
| Minimal Delays | <0.85 |

| Bridge Open | | Bridge Closed | |
|-------------|------|---------------|------|
| Off Peak | Peak | Off Peak | Peak |
| 1.03 | 1.16 | <0.9 | <1.0 |

**Anticipated Duration Single Lane on US 2 (Days)
(Concurrent with Bridge Closure when Applicable)
Anticipated Project Construction Duration**

| | | | |
|---------|----|--------|----|
| 90 | 45 | 60 | 30 |
| 2 Years | | 1 Year | |

Results of Traffic Management Analysis

Options Considered

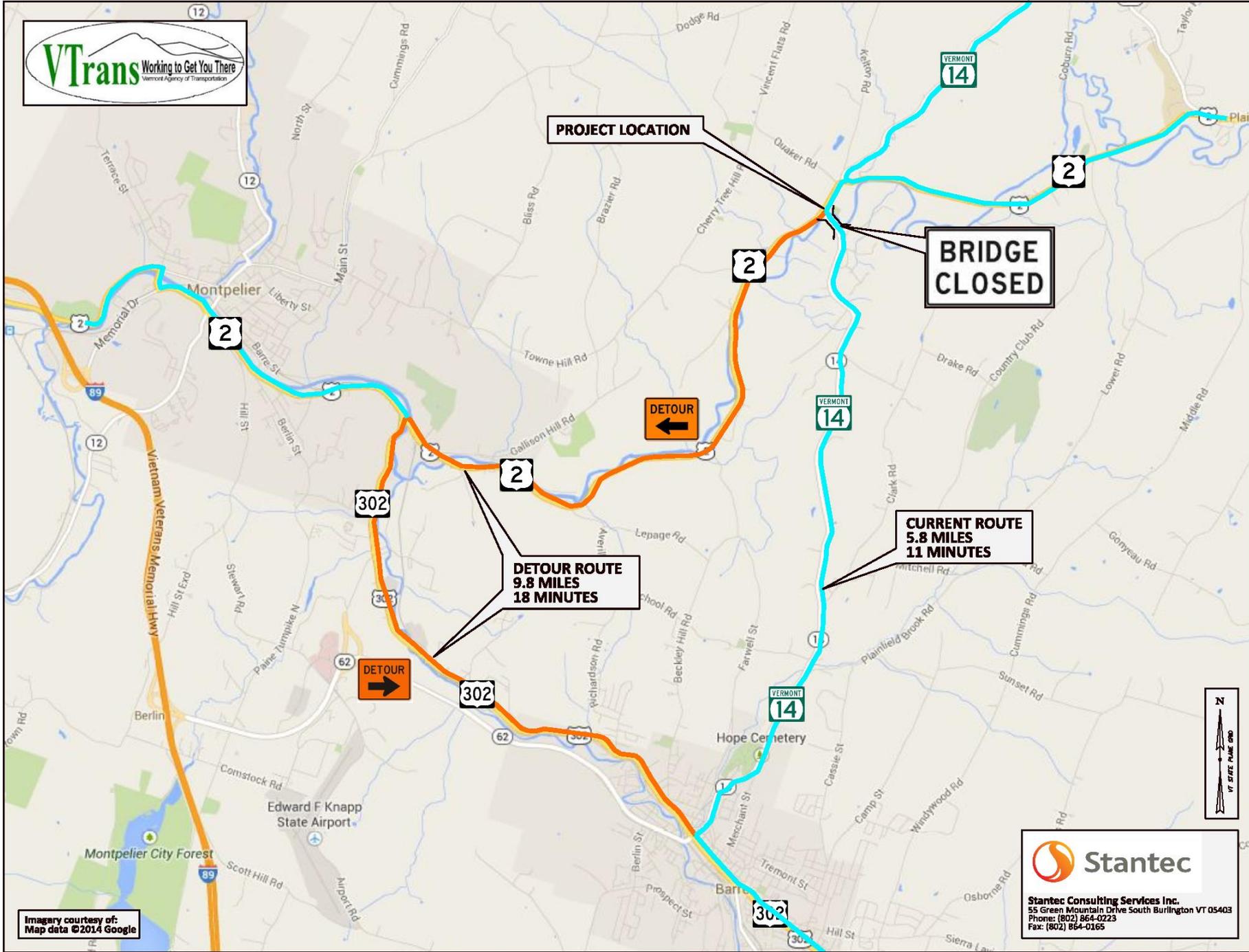
- Maintain 2 Lanes on US Route 2
- Utilize Single Lane Alternating Traffic.
- Temp Bridge / Closure on VT 14
- Off Peak / Night Construction

What we found:

- Not Feasible during portions of construction (narrow)
- Peak Delays with the bridge open are severe.
- **Peak and Off Peak Delays are manageable with the bridge closed and a short work zone.**
- Off Peak = Increased Duration/Cost
- Concrete removal is Noisy.
- Traffic Delay Minimized

Question:

What would a closure of the VT 14 bridge look like, and how long would it last?



PROJECT LOCATION

BRIDGE CLOSED

DETOUR
←

DETOUR ROUTE
9.8 MILES
18 MINUTES

DETOUR
→

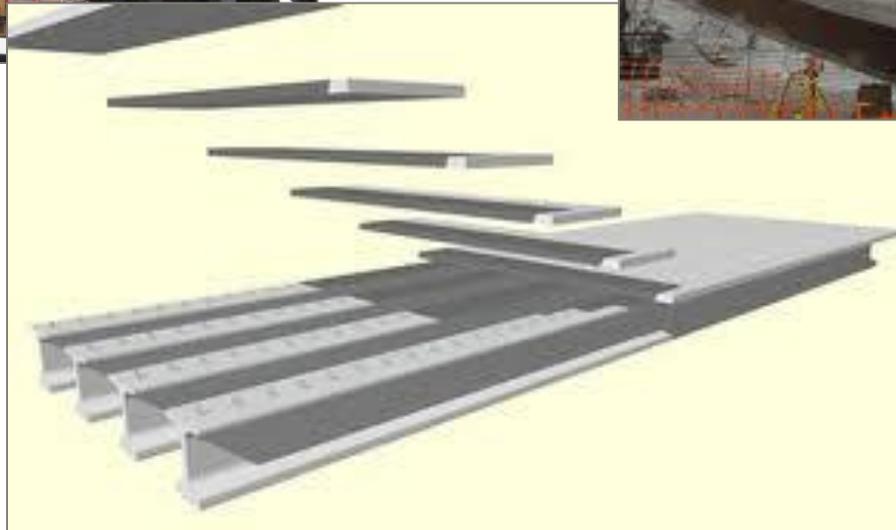
CURRENT ROUTE
5.8 MILES
11 MINUTES



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Imagery courtesy of:
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3 Accelerated Bridge Construction



What is Accelerated Bridge Construction?

- “ABC is bridge construction that uses innovative planning, design, materials, and construction methods in a safe and cost-effective manner to reduce the onsite construction time that occurs when building new bridges or replacing and rehabilitating existing bridges.” -FHWA

ABC History in Vermont

- Been used in Vermont for the past 10 years
- ABC is now considered for all newly programmed projects

How does ABC work for this project?

Eliminate temporary bridge and allow bridge construction to be completed utilizing a 75 day bridge closure target.

Design major substructure elements that can be installed prior to closing the existing bridge.

Incorporate prefabricated elements into the design.
Set limits on contract duration

Give the contractor incentives to finish early.

Project Specific Benefits of ABC

| | Traditional | ABC |
|--|-------------|--------------------------------|
| Construction Duration: | 2 Years | 1 Year |
| Bridge Cost: | \$4.9 M | \$ 3.4 M |
| Total Construction Cost: | \$6.3 M | \$4.8 M |
| Delays on US 2 Thru the Construction Site | - | Reduced magnitude and duration |
| Traffic and Worker Safety: | - | Improved |
| Duration of Single Lane Alternating on US2 : | - | Reduced |

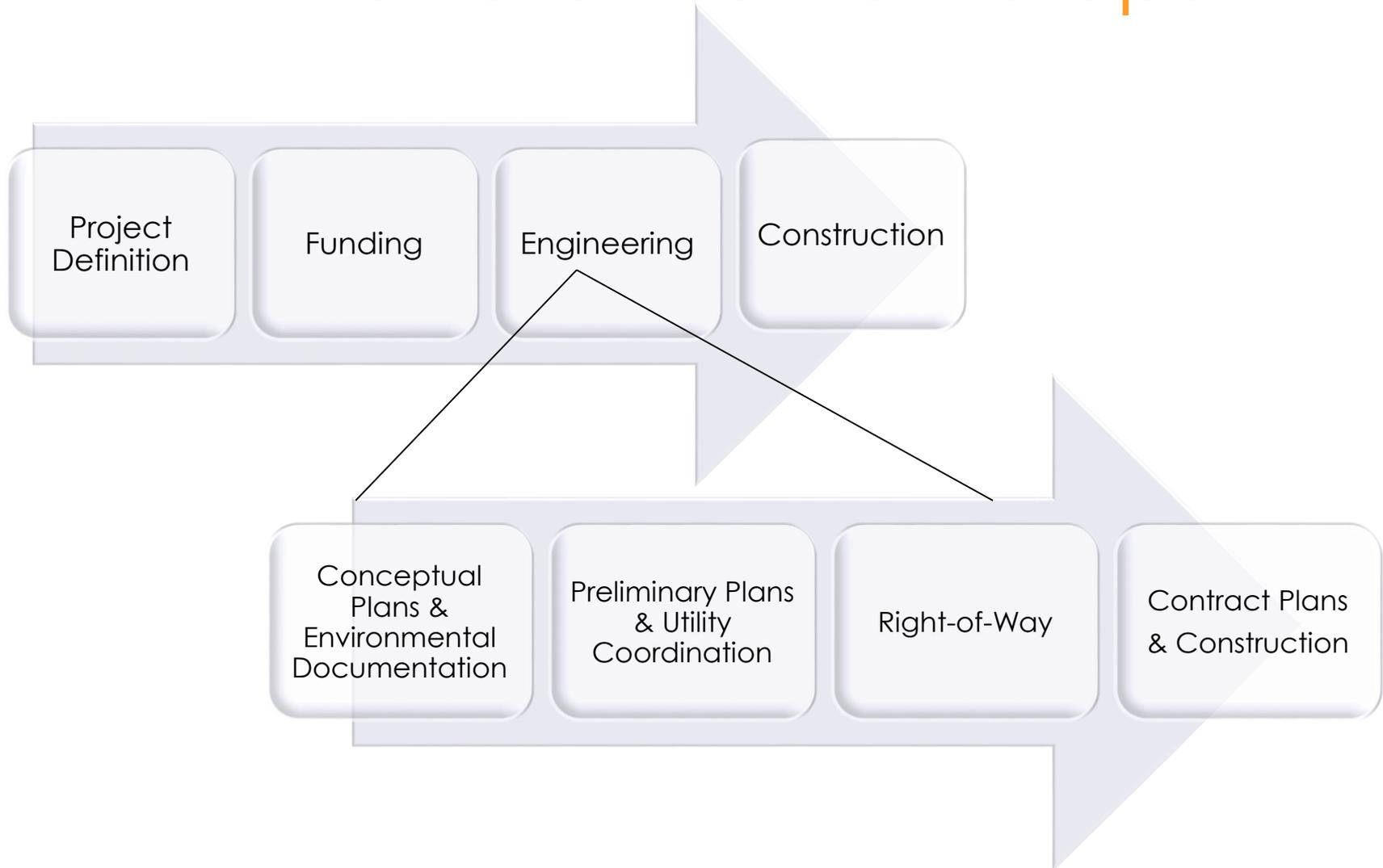
4 Recommended Traffic Management Option for Construction

- 75 day bridge closure
- Allow Night Construction During 75 Day Closure with Restrictions.
- Limit length of Route 2 workzone (300 ft)
- Limits on Single Lane Construction Duration on US 2
- Incentives to the Contractor

Benefits:

*Reduced Duration, Reduced Delays
Reduced Cost, and Improved Safety !!!!*

5 What are the next steps?



Questions, Comments, Feed Back?

