Fairlee IM 091-2(91)
Regional Concerns Meeting

I-91 over Lake Morey Outlet

March 27, 2023

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Introductions

Laura Stone, P.E.
VTrans Scoping Project Manager

Adam Goudreau, P.E.
VTrans Design Project Manager

Shannon Beaumont, P.E.
Fuss & O'Neill Senior Design Engineer

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Purpose of Meeting

- Provide an understanding of our approach to the project.
- Provide an overview of project constraints.
- Discuss our selected alternative.
- Provide an opportunity to ask questions and voice concerns.

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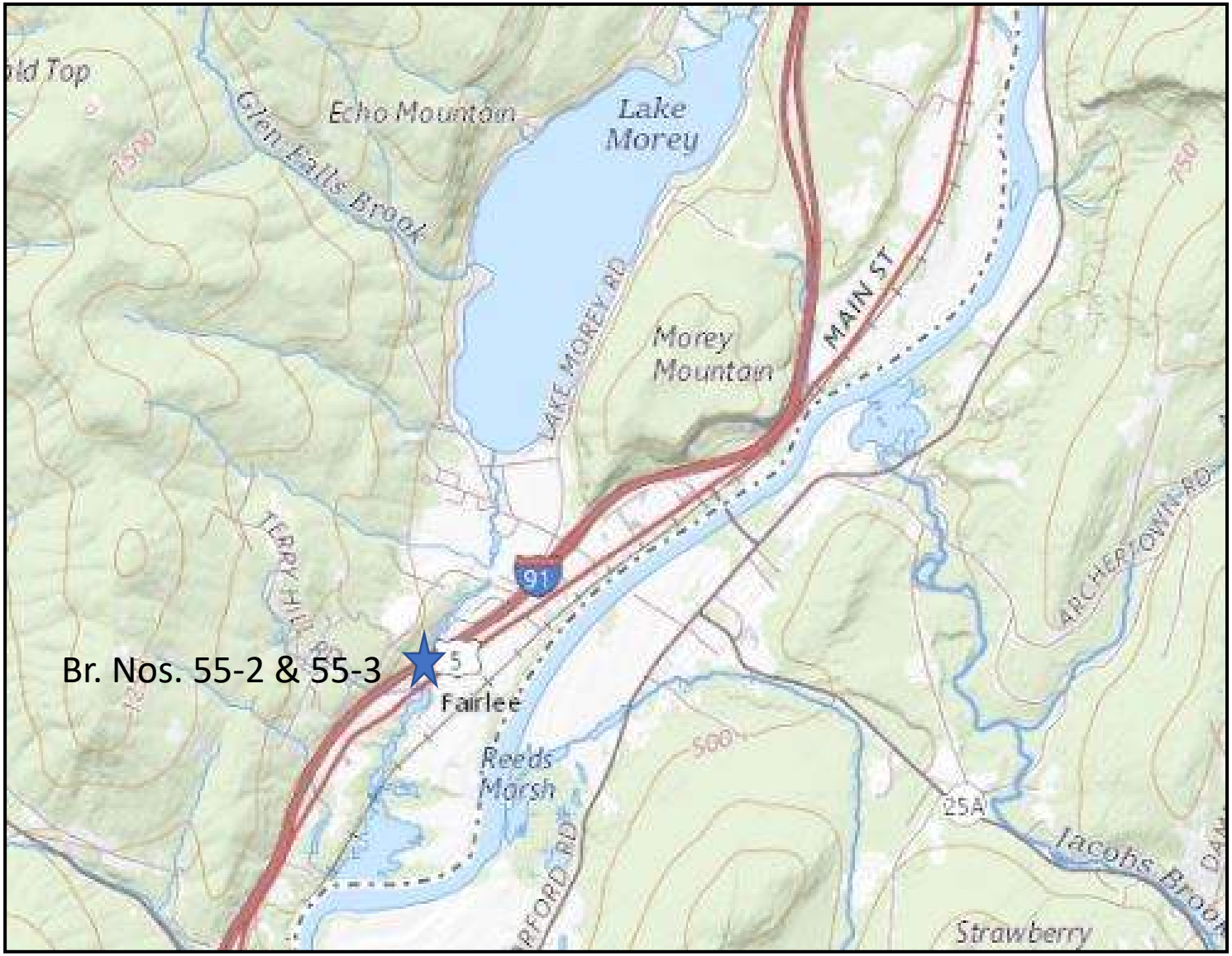

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Project Location

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BRIDGE NOS. 55-2 & 55-3
PROJECT LOCATION

Meeting Overview

- VTrans Project Development Process
- Project Overview
  - Existing Conditions
  - Alternatives Considered
  - Selected Alternative
- Maintenance of Traffic
- Schedule
- Summary
- Questions

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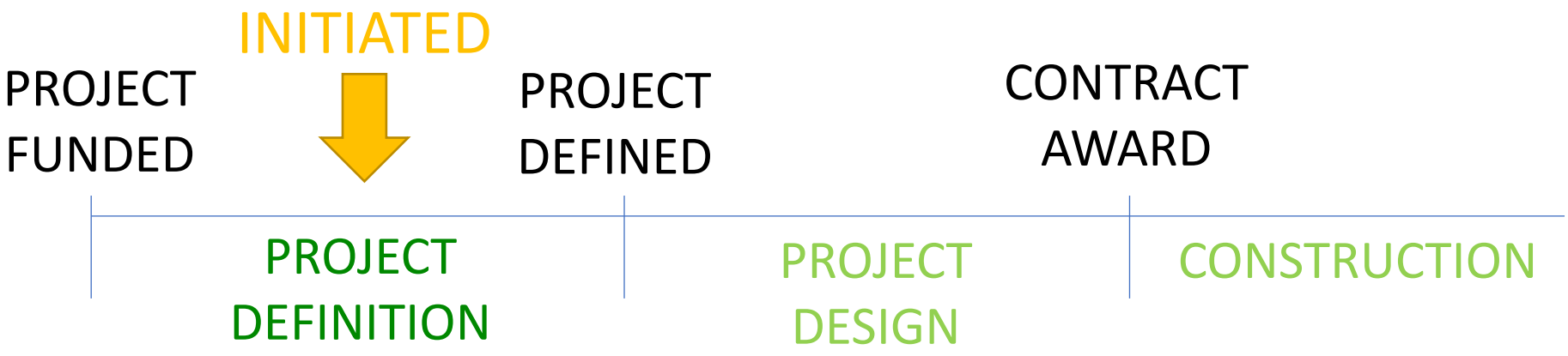
VTrans Project Development Process



- Identify resources & constraints
- Evaluate Alternatives
- Public Participation
- Build Concensus

- Quantify Area of Impact
- Environmental Permits
- Develop Plans, Estimate, and Specifications
- Right-of-Way Process if necessary

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Looking North

Existing Conditions – Bridge Nos. 55-2 & 55-3

- Roadway Classification – Rural Principal Arterial – Interstate
- Culvert Type – Twin Corrugated Metal Pipes (CMPs)
- Ownership – State of Vermont
- Constructed in 1971

Looking South

Existing Conditions – Bridge Nos. 55-2 & 55-3

- Large embankment and extensive fill over the CMPs

Existing Conditions – Bridge Nos. 55-2 & 55-3

- The culvert pipe, including the inverts, are heavily corroded with sections completely rusted through creating holes.
- The pipes are experiencing crushing along 2/3 of their lengths.
- Does not meet the minimum standard for bankfull width.

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Condition Ratings

Existing Conditions – Bridge Nos. 55-2 & 55-3

- Bridge No. 55-2 is rated 3 (serious).
- Bridge No. 55-3 is rated 4 (poor).

Upstream Inverts

Existing Conditions – Bridge Nos. 55-2 & 55-3

Downstream Inverts

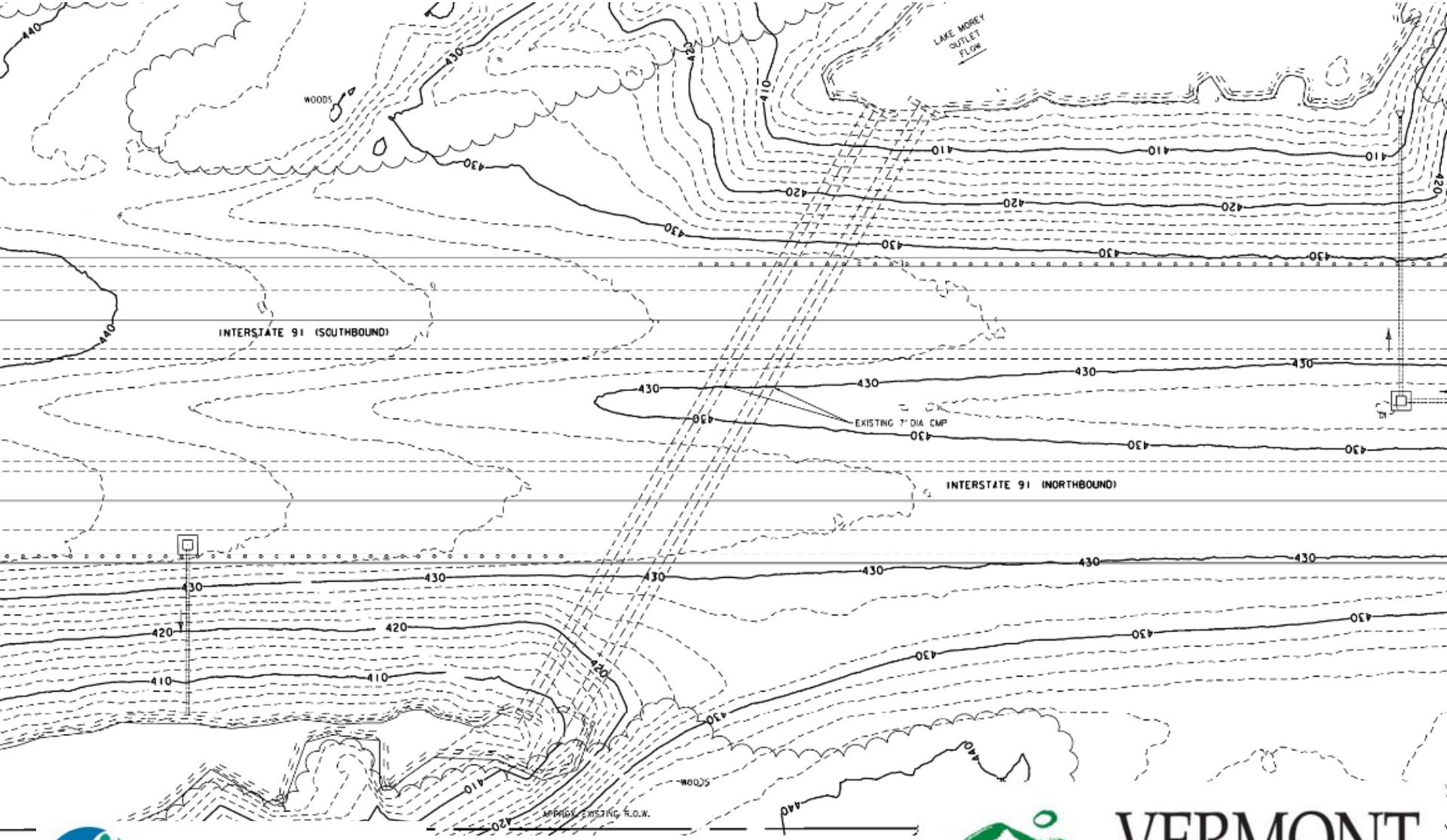
Existing Conditions – Bridge Nos. 55-2 & 55-3

Resources

Existing Conditions – Bridge Nos. 55-2 & 55-3

- Wetlands
- Rare, Threatened, and Endangered Species

Existing Conditions



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Design Criteria and Considerations

- Average Daily Traffic
  - 5,300 vehicles per day
- Design Hourly Volume
  - 880 vehicles per hour
- % Trucks
  - 4.2%

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Alternatives Considered – Bridge Nos. 55-2 & 55-3

- No Action
  - Additional deterioration will occur, eventually resulting in failure.
- Rehabilitation
  - Cannot address crushing and will not meet hydraulic requirements.
- Replacement
  - 75-year design life
  - Meets hydraulic requirements

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Selected Alternative

- Short Span Buried Structure
  - One structure replaces both existing pipes.
  - Clear span will meet or exceed bankfull width (BFW = 16 to 18 feet).
  - Matches existing roadway alignment, profile, and section
  - No Right-of-Way needed
  - No Utility Relocation
  - Low maintenance

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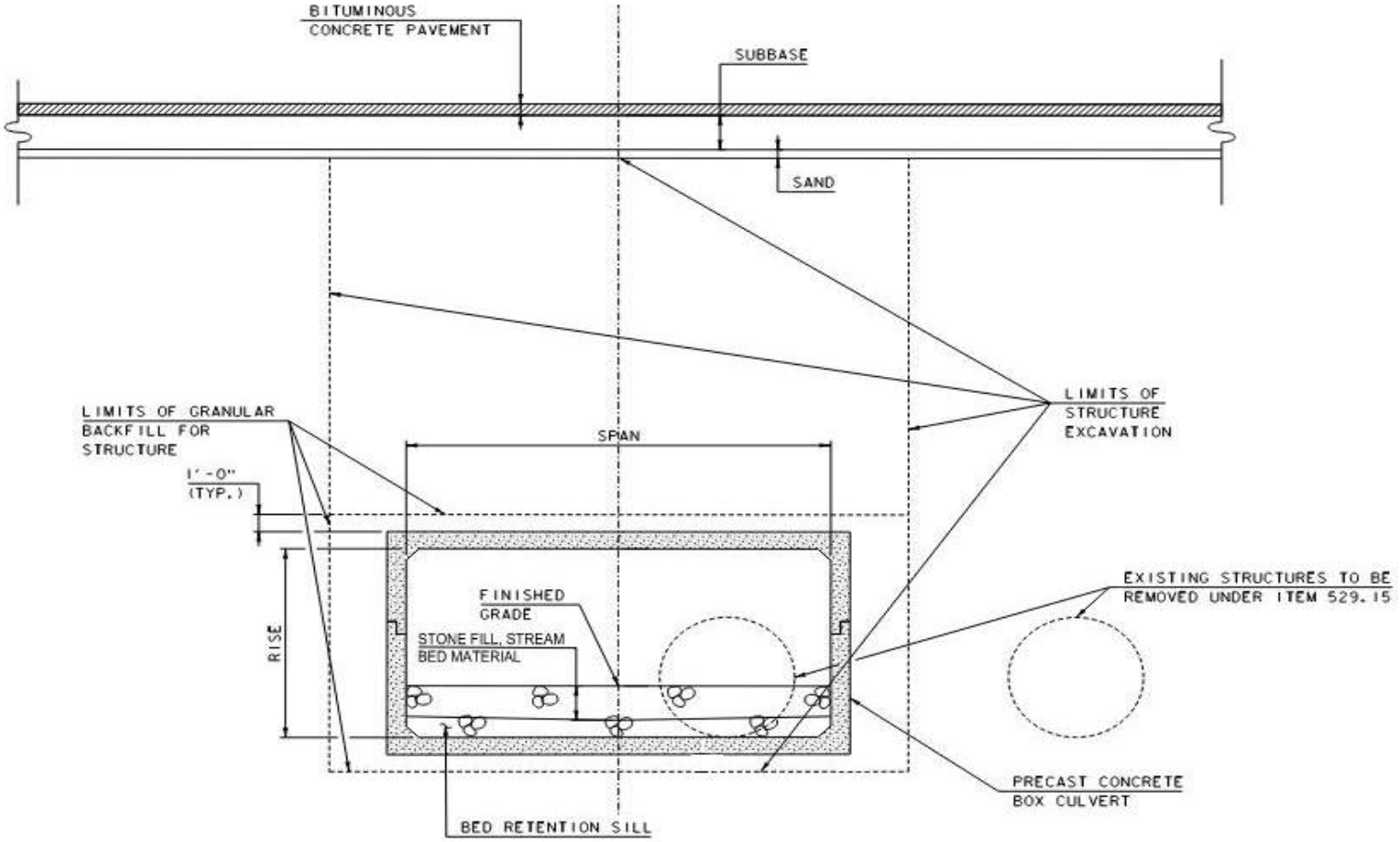

BURIED BOX CULVERT TYPICAL SECTION

NOT TO SCALE

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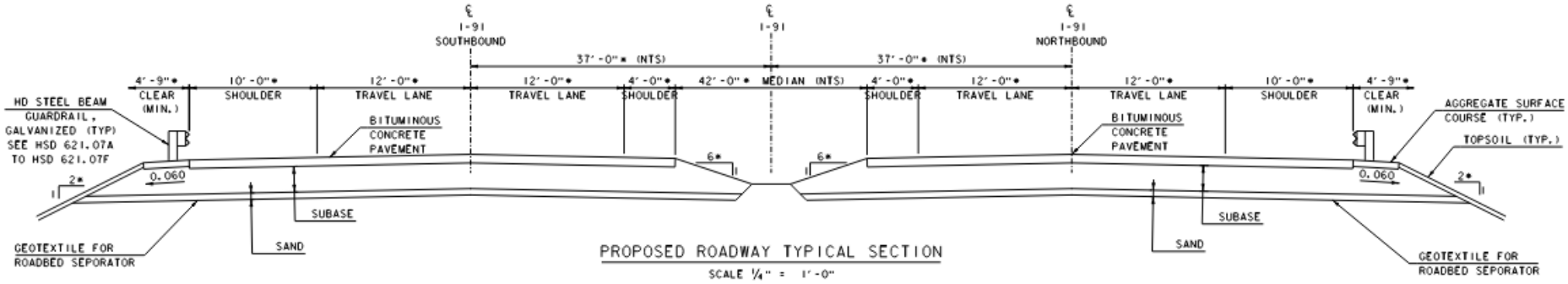
Proposed Roadway Typical Section



- Matches existing roadway section

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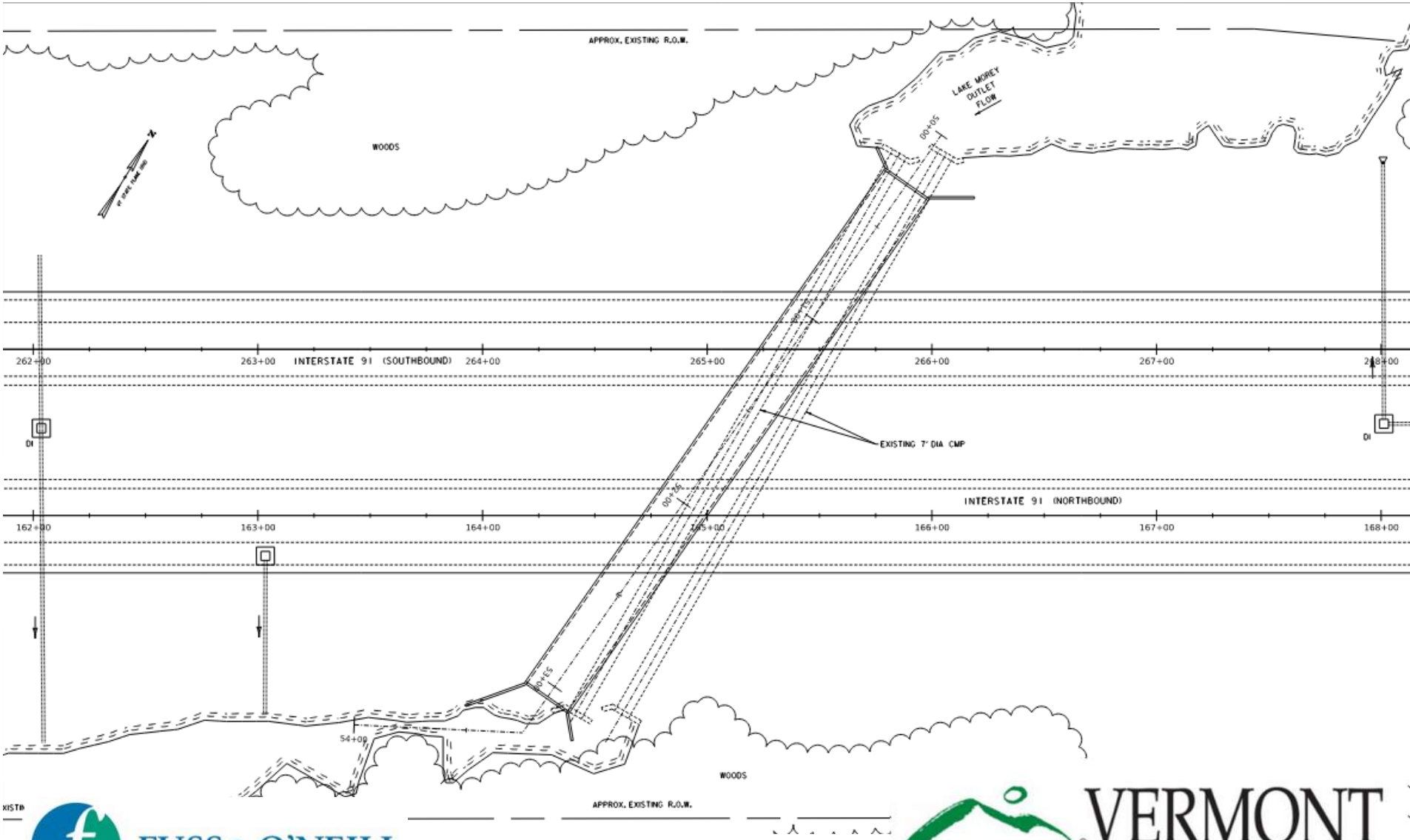
Proposed Layout – Full Culvert Replacement



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Maintenance of Traffic Options Considered

- Phased Construction with Median Use
- Phased Construction with Median Crossover
- Off-Site Detour

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Selected Method of Traffic Maintenance

Median Crossover

- Reduce both directions of traffic to one lane
- Construct temporary crossovers in existing median

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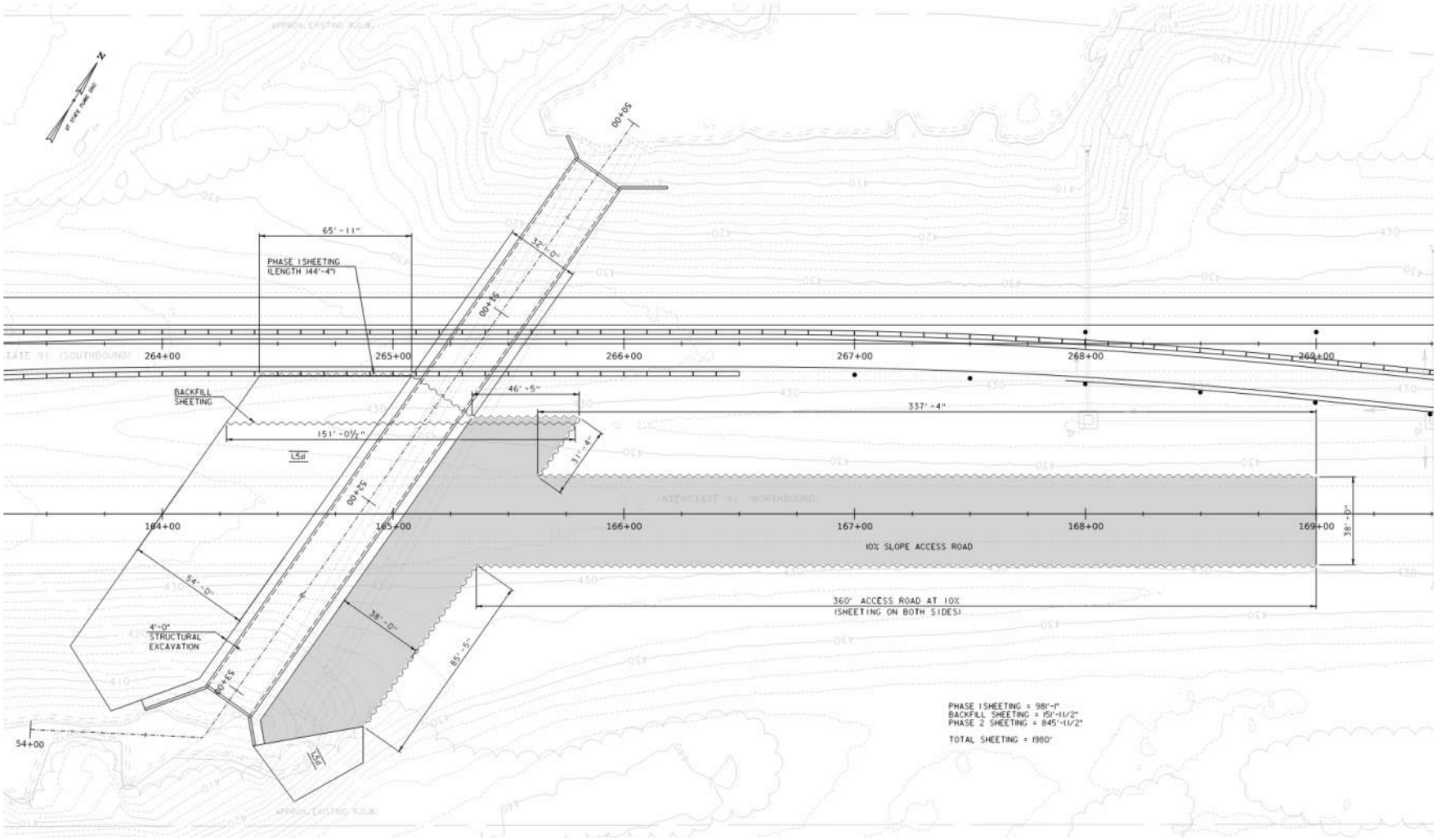
Phased Construction with Median Crossover



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Phase 1

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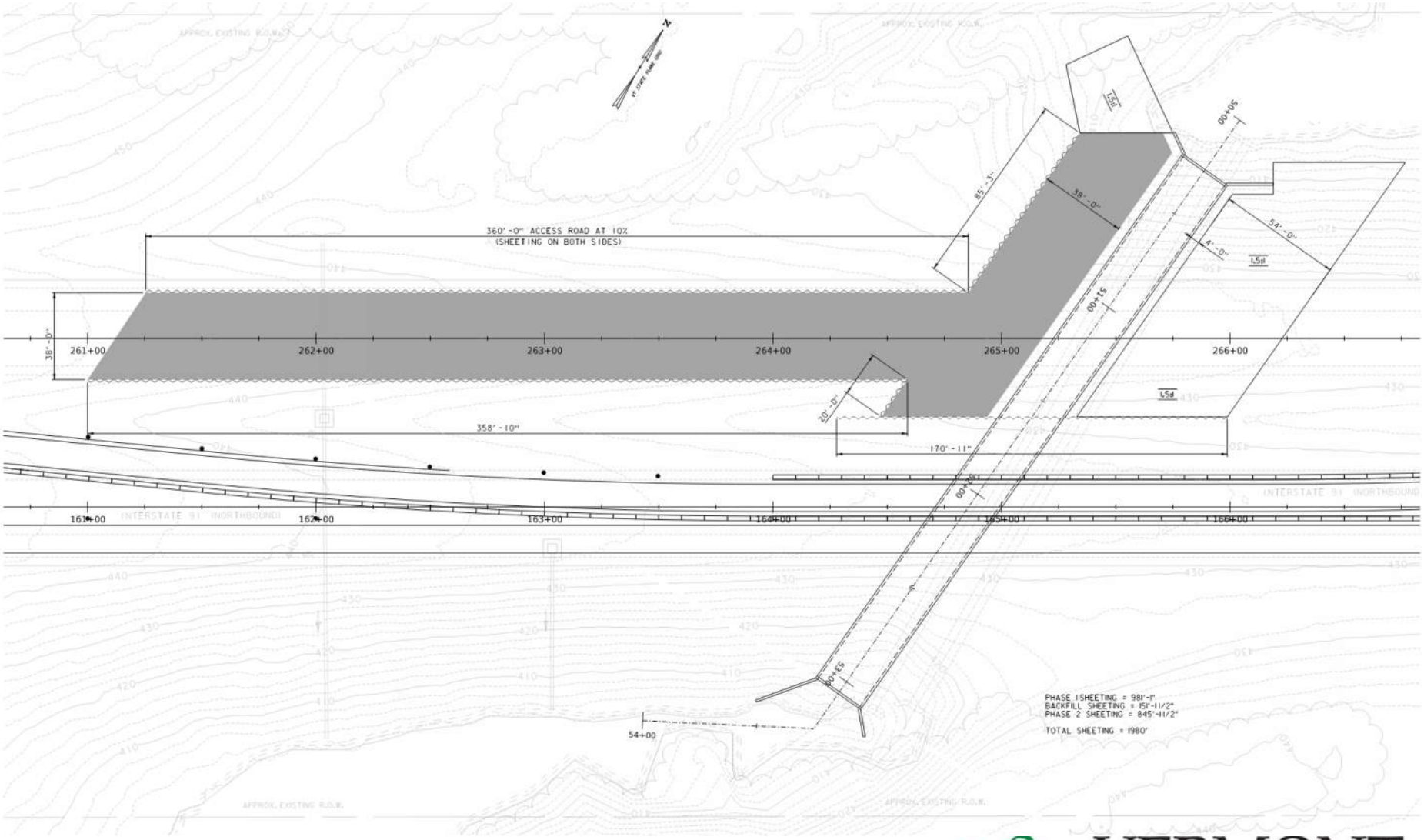
Phased Construction with Median Crossover



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Phase 2

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Preliminary Project Schedule

- Preliminary Plans – Winter 2024
- Permitting and Right-of-Way Clear – Winter 2025
- Bid Advertisement – Summer 2025
- Contract Award – Fall 2025
- Target Construction Season – 2026

  - Total Cost Estimate: $9,300,000

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Project Summary: Bridge Nos. 55-2 & 55-3

- Full Culvert Replacement with Traffic Maintained on a Median Crossover with Phased Construction
  - Total Cost Estimate: $9,300,000
  - Meets Bankfull Width and Hydraulic Requirements
  - 75-year design life
  - No Right-of-Way Needed
  - No Utility Relocation

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Questions/Comments

Thank You For Attending

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Alternatives Matrix

Fairlee IM 091-2(91)		Do Nothing	Alternative 1A	Alternative 1B	Alternative 2	Alternative 3A	Alternative 3B	Alternative 3C
			Buried Arch/Rigid Frame	Buried Box Culvert	Long Span Buried Arch	At-Grade Integral Abutment Bridge		
			NB/SB Crossover	NB/SB Crossover	NB/SB Crossover	NB/SB Crossover	Median Use Temporary Roadway	Phased Construction
COST[1]	Bridge Cost	$ -	$ 4,225,000.00	$ 3,975,000.00	$ 6,975,000.00	$ 5,075,000.00	$ 5,125,000.00	$ 5,125,000.00
	Removal of Structure	$ -	$ 50,000.00	$ 50,000.00	$ 55,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00
	Roadway	$ -	$ 1,111,650.00	$ 1,111,650.00	$ 877,800.00	$ 659,125.00	$ 504,400.00	$ 536,825.00
	Maintenance of Traffic	$ -	$ 1,207,425.00	$ 1,207,425.00	$ 1,157,425.00	$ 717,425.00	$ 1,326,653.00	$ 807,250.00
	Construction Cost	$ -	$ 6,594,075.00	$ 6,344,075.00	$ 9,065,225.00	$ 6,501,550.00	$ 7,006,053.00	$ 6,519,075.00
	Construction Engineering & Contingencies	$ -	$ 1,649,000.00	$ 1,587,000.00	$ 2,267,000.00	$ 1,626,000.00	$ 1,752,000.00	$ 1,630,000.00
	Total Construction Costs w/ CEC	$ -	$ 8,243,075.00	$ 7,931,075.00	$ 11,332,225.00	$ 8,127,550.00	$ 8,758,053.00	$ 8,149,075.00
	Preliminary Engineering[2]	$ -	$ 1,236,461.25	$ 1,189,661.25	$ 1,699,833.75	$ 1,219,132.50	$ 1,313,707.95	$ 1,222,361.25
	Right of Way	$ -	$ 164,900.00	$ 158,700.00	$ 226,700.00	$ 162,600.00	$ 175,200.00	$ 163,000.00
	Maintenance Cost[3]	$ -	$ -	$ -	$ -	$ 1,280,000.00	$ 1,280,000.00	$ 1,280,000.00
	Total Project Costs	0	$ 9,644,436.25	$ 9,279,436.25	$ 13,258,758.75	$ 10,789,282.50	$ 11,526,960.95	$ 10,814,436.25
	Annualized Costs	0	$ 128,592.48	$ 123,725.82	$ 176,783.45	$ 143,857.10	$ 153,692.81	$ 144,192.48
SCHEDULING	Project Development Duration[4]	N/A	2 years	2 years	2 years	2 years	2 years	2 years
	Construction Duration	N/A	24 months	24 months	24 months	24 months	24 months	36 months
	Closure Duration (If Applicable)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ENGINEERING	Typical Section - Roadway (feet)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)
	Typical Section - Bridge (feet)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)	10-12-12-4 (each barrel)
	Geometric Design Criteria	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	Traffic Safety	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	Alignment Change	No	No	No	No	No	No	No
	Bicycle Access	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Pedestrian Access	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hydraulics	Substandard	Meets Minimum Standard	Meets Minimum Standard	Meets Minimum Standard	Meets Minimum Standard	Meets Minimum Standard	Meets Minimum Standard
	Utilities	No	No	No	No	No	No	No
OTHER	ROW Acquistion	No	No	No	No	No	No	No
	Road Closure	No	No	No	No	No	No	No
	Design Life	<5 years	75	75	75	75	75	75

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