Falls Bridge Advisory Committee

Meeting #10

Maintenance of Traffic

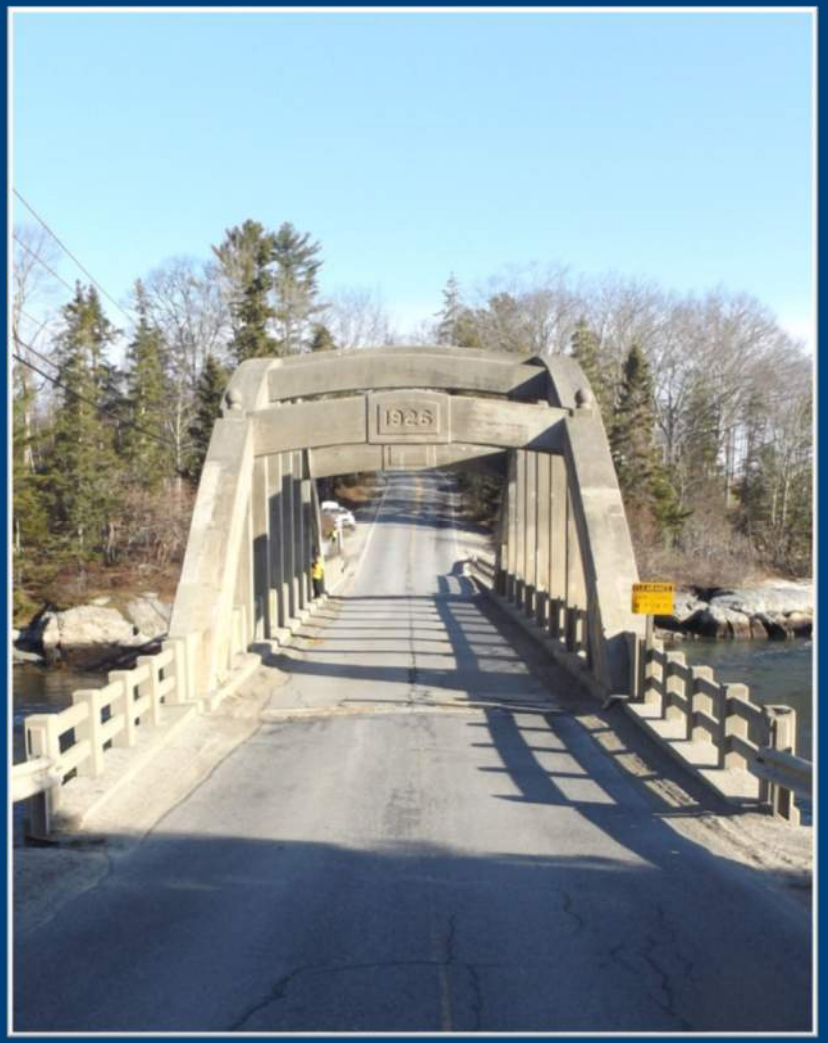
December 21st, 2017

Integrity - Competence - Service

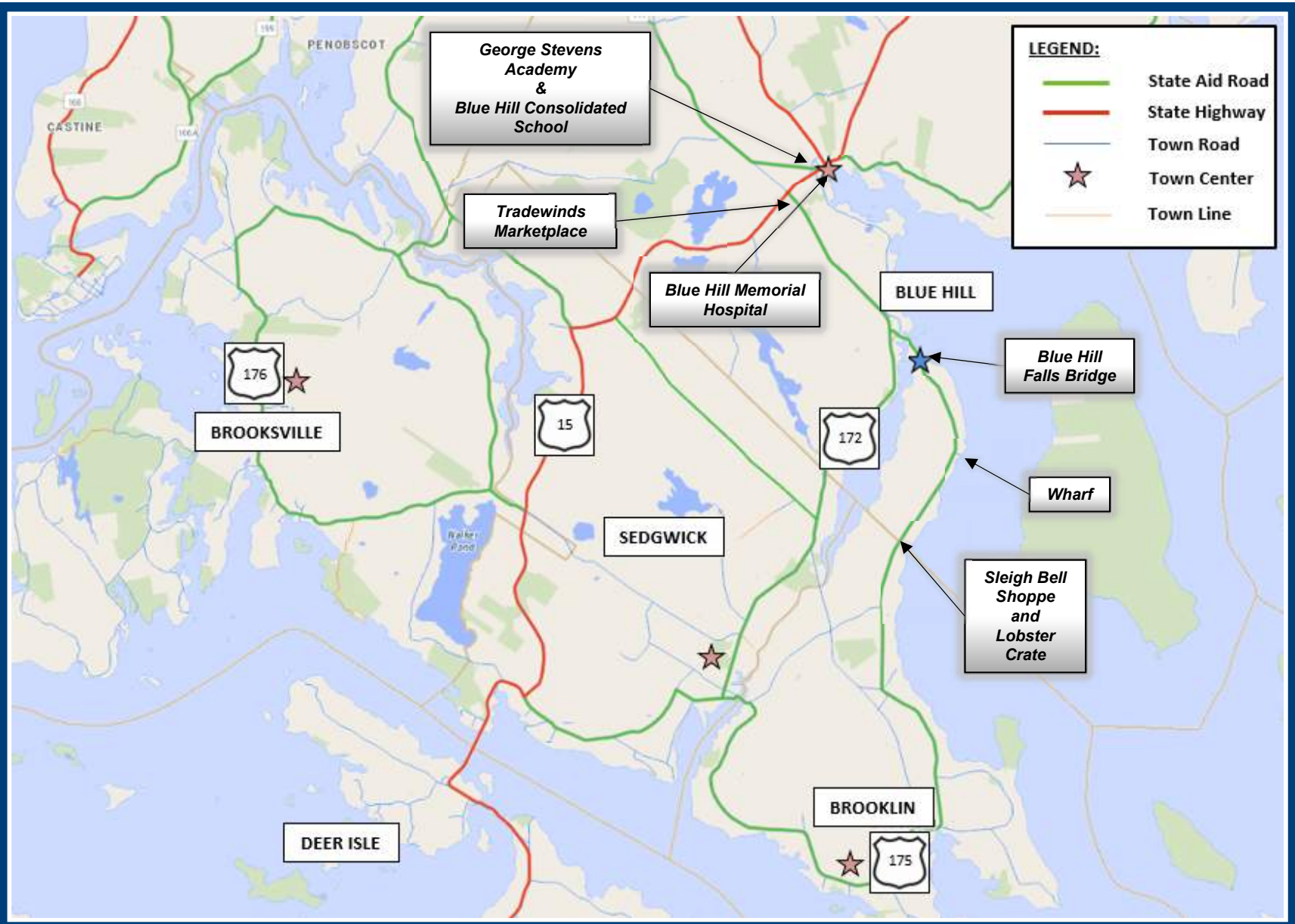
MaineDOT

Meeting Agenda

- Area Map
- Traffic Volume Summary
- Traffic Management Strategies
  - Off-Site Detour
  - On-Site Temporary Bridge
- Comparison of Cost, Impact & Schedule
- Discussion



Area Map


PENOBSCOT
CASTINE
George Stevens Academy & Blue Hill Consolidated School
Tradewinds Marketplace
Blue Hill Memorial Hospital
BLUE HILL
Blue Hill Falls Bridge
176
BROOKSVILLE
15
172
Wharf
SEDGWICK
Sleigh Bell Shoppe and Lobster Crate
BROOKLIN
175
DEER ISLE
LEGEND:
State Aid Road
State Highway
Town Road
Town Center
Town Line

Traffic Volume Summary

Average Annual Daily Traffic

- Route 175 – 1,867 Vehicles Per Day (vpd)
- Route 172 – 1,447 vpd
- Hales Hill Road – 388 vpd
- Hales Woods Road – 173 vpd
- High Street – 270 vpd

Traffic Management Strategies

Off-Site Detour

- Traffic would be diverted to an alternate route using directional signs.
- The route will use either state-aid or town roads, final route is still being determined. However travelers cannot be forced to stay on the signed route.

On-Site Temporary Bridge

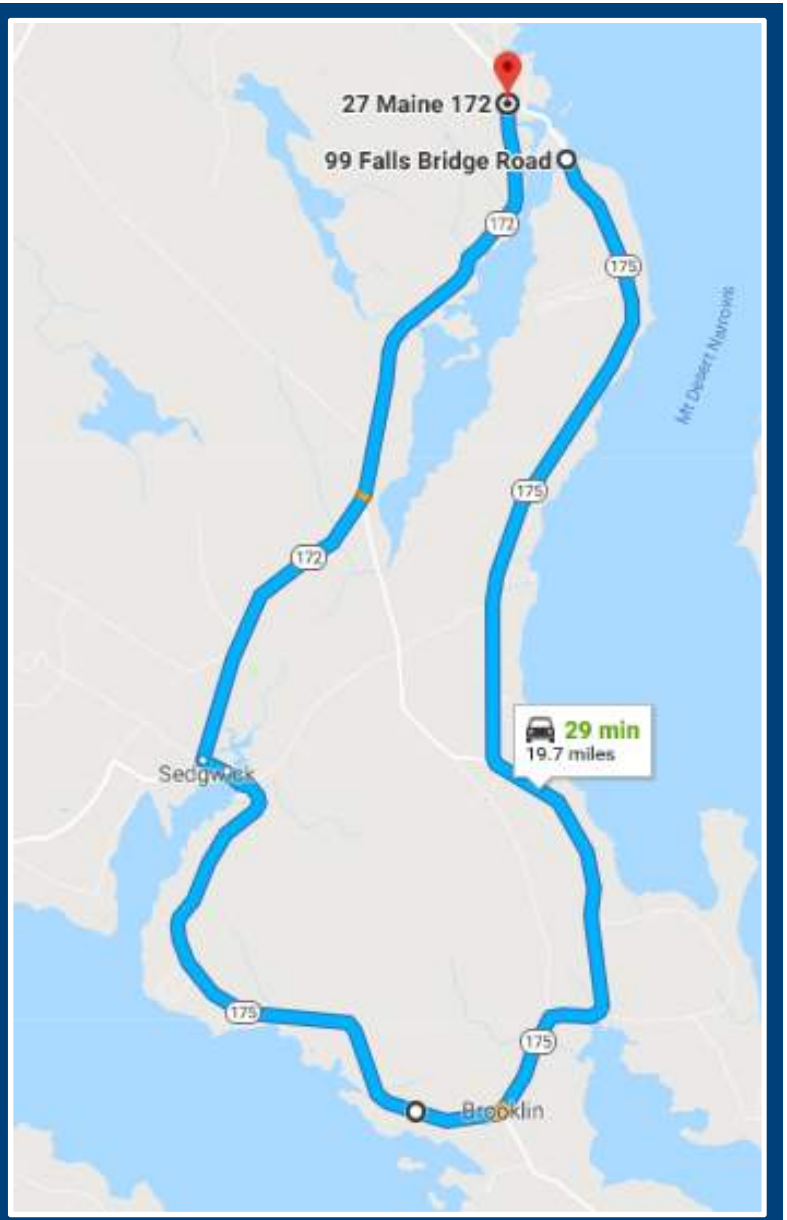
- Traffic would be diverted onto a temporary bridge, built on site.
- The temporary bridge would be a single lane structure.
- Traffic would be limited to one lane controlled by temporary traffic signals.

Off-Site Detour

Detour Route

- Using State-Aid Roads

Detour Route	Travel Time (Distance)	Change in Travel Time (Distance)
Original Route	1 min (0.1 miles)	N/A
Detour Route: (via. State-Aid Roads)	29 min (19.7 miles)	+28 min (+19.6 miles)



Off-Site Detour

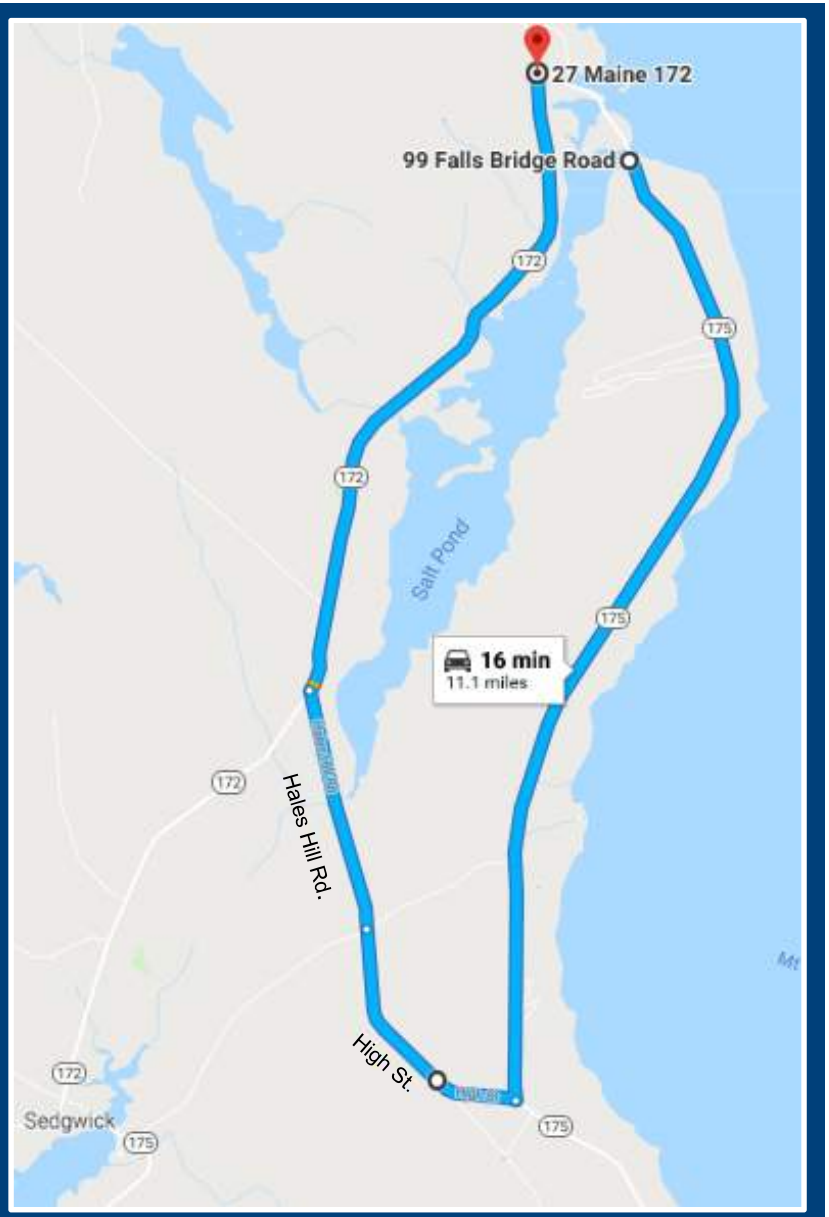
Detour Route

- Using Local Roads (Option A)

Detour Route	Travel Time (Distance)	Change in Travel Time (Distance)
Original Route	1 min (0.1 miles)	N/A
Detour Route: (via. Non State-Aid Roads)	16 min (11.1 miles)	15 min (11.0 miles)

Notes:

- *Hales Hill Rd. is seasonally posted in the Town of Sedgwick.*
- *Hales Hill Rd. has a narrow 20' bridge that will need to be assessed as part of the detour route.*
- *If local roads are used as the signed formal detour route an agreement between MEDOT and the municipality will be required.*



Off-Site Detour

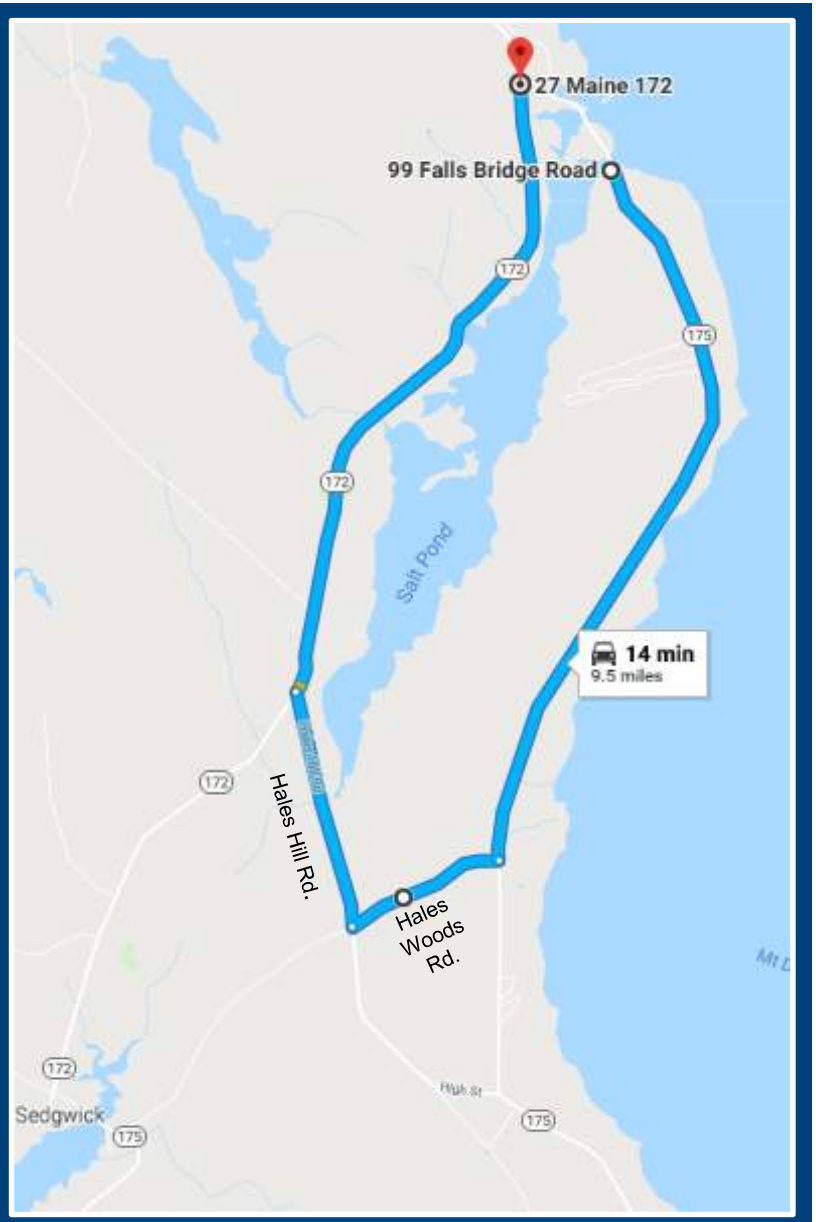
Detour Route

- Using Local Roads (Option B)

Detour Route	Travel Time (Distance)	Change in Travel Time (Distance)
Original Route	1 min (0.1 miles)	N/A
Detour Route: (via. Non State-Aid Roads)	14 min (9.5 miles)	14 min (9.4 miles)

Notes:

- *Hales Woods Rd. to Hales Hill Rd has a small radius intersection therefore Option A is the preferred route.*
- *If local roads are used as the signed formal detour route an agreement between MEDOT and the municipality will be required.*



Off-Site Detour

Through Traffic Detour:

- Routes following State-Aid and Non State-Aid Roads Shown

Detour Route	Travel Time (Distance)	Change in Travel Time (Distance)
Original Route	13 min (9.3 miles)	N/A
Detour Route: (via. State-Aid Roads)	17 min (11.1 miles)	+4 min (+1.8 miles)
Detour Route: (via. Non State-Aid Roads)	14 min (9.6 miles)	+1 min (+0.3 miles)

Notes:

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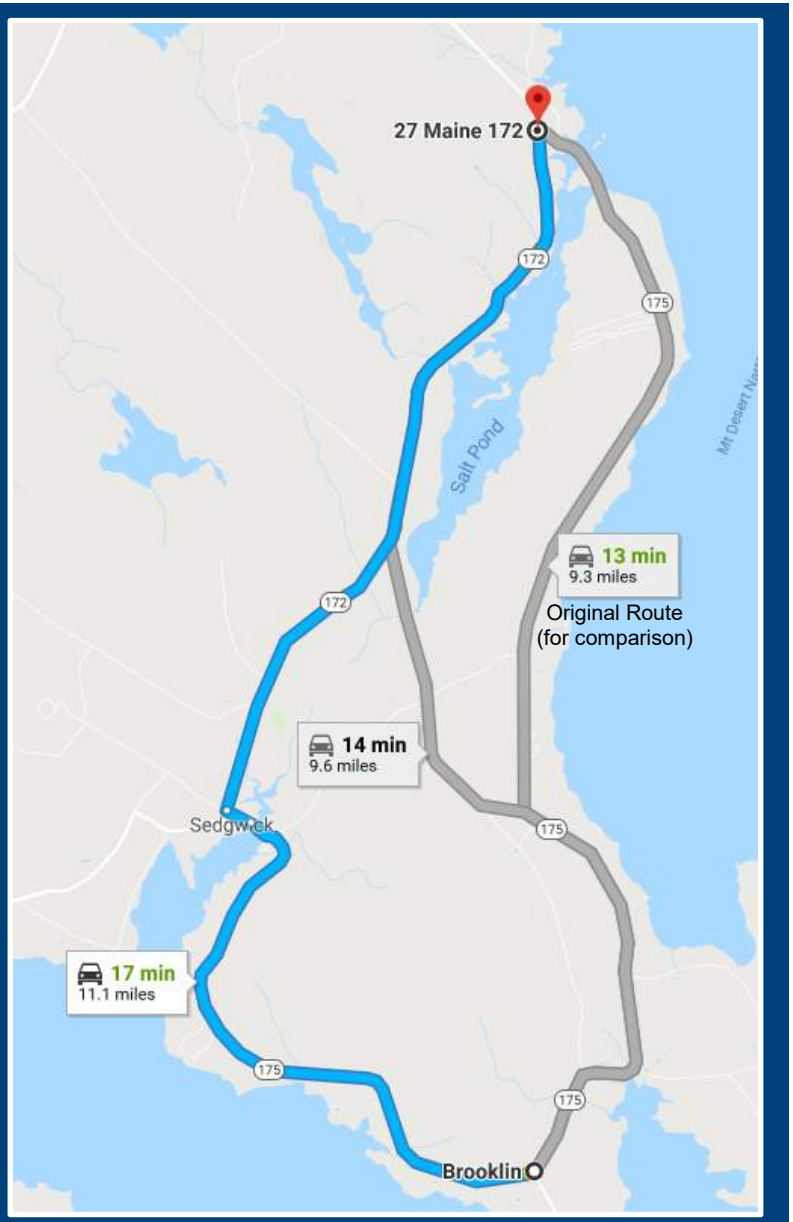
- *Hales Hill Rd. has a narrow 20' bridge that will need to be assessed as part of the detour route.*



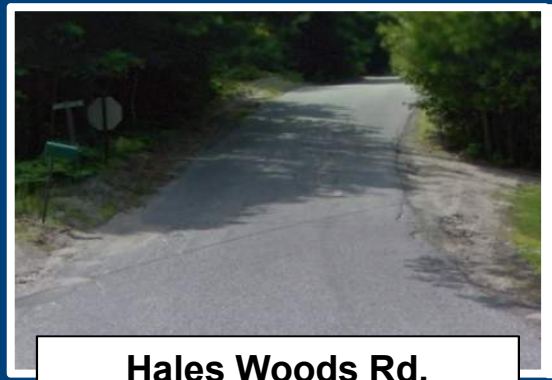
Off-Site Detour

Additional Considerations:

- Roadway width & suitability

Route 175
(Paved Width = 20’-0”)

Route 172
(Paved Width = 22’-0”)



Hales Woods Rd.
(Paved Width =17’-0”

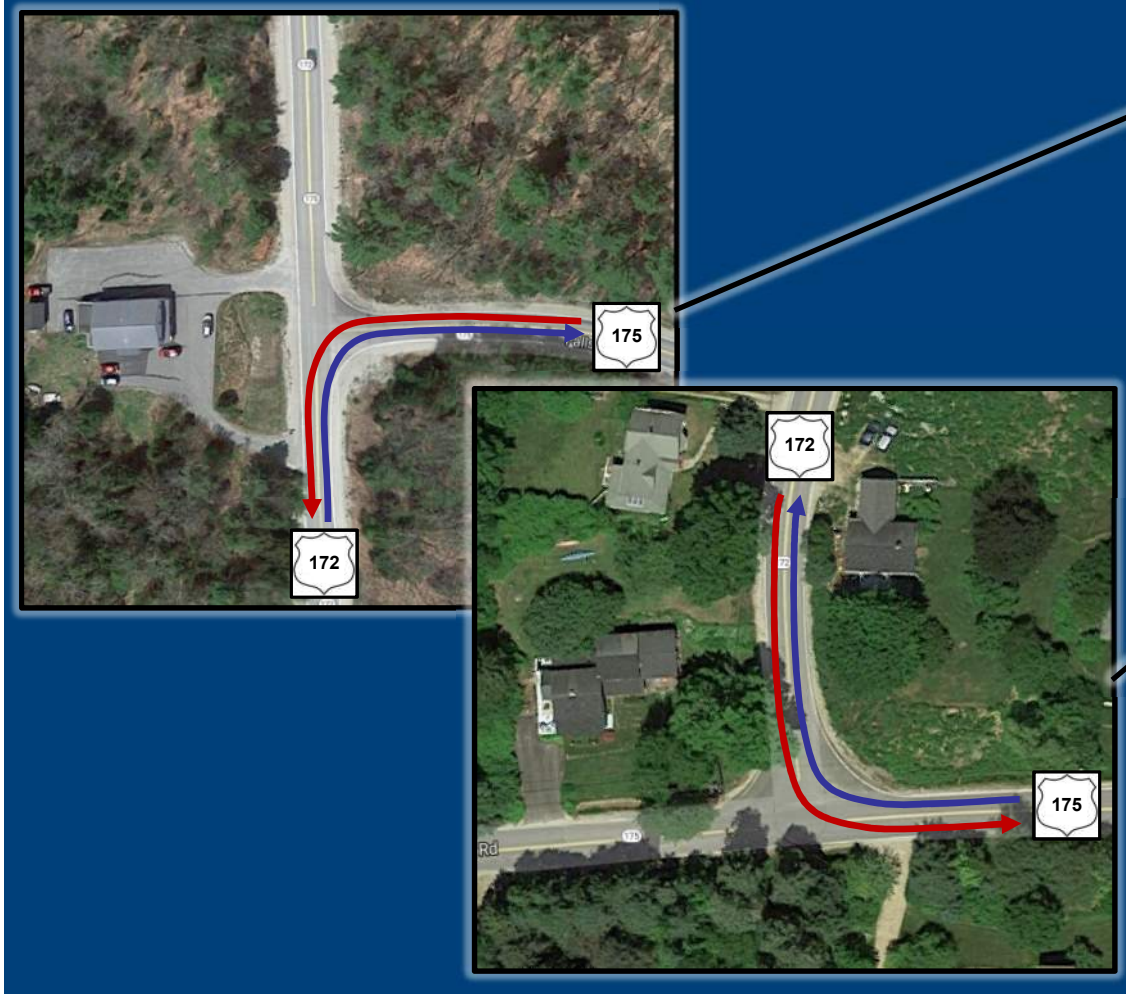
Hales Hill Rd.
(Paved Width = 19’-0”)

High St.
(Paved Width = 19’-0”)

Off-Site Detour

Additional Considerations:

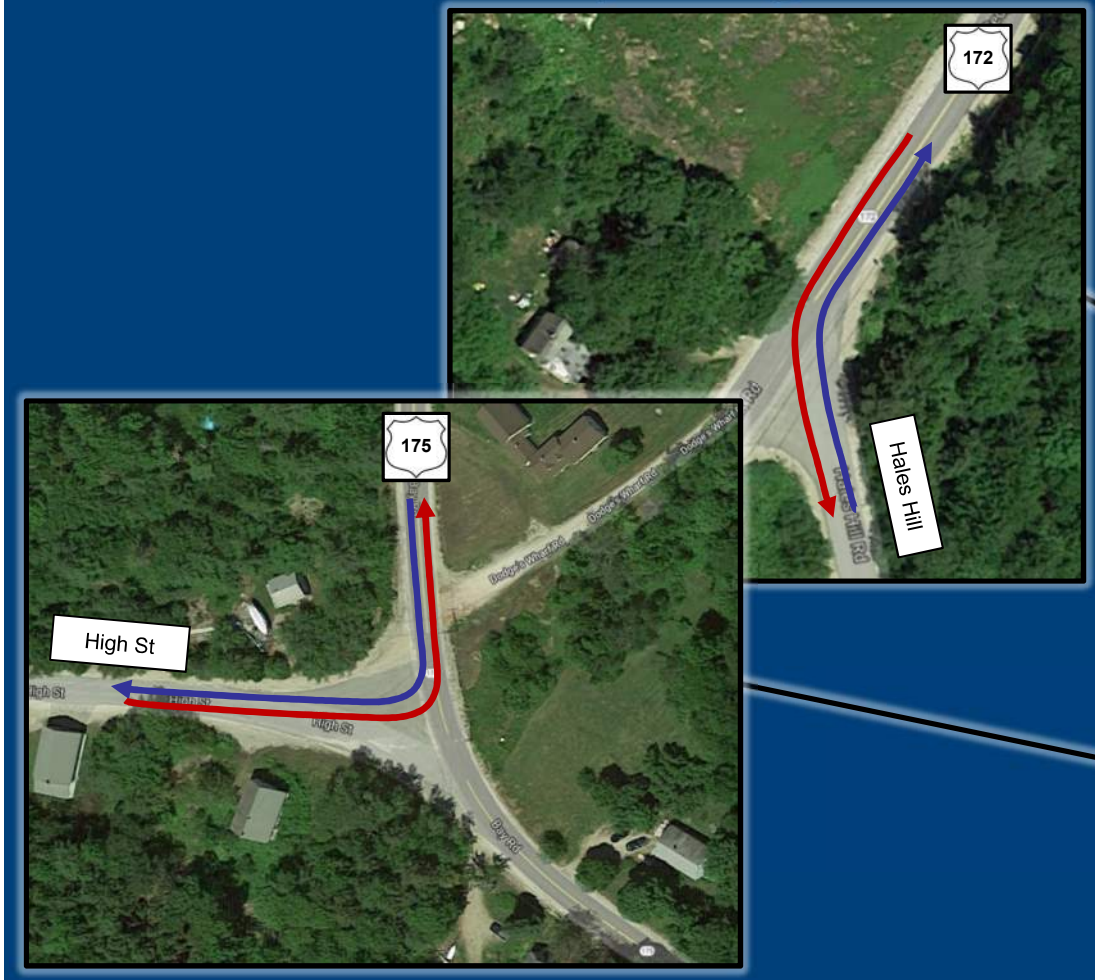
- Intersection suitability for large trucks



Off-Site Detour

Additional Considerations:

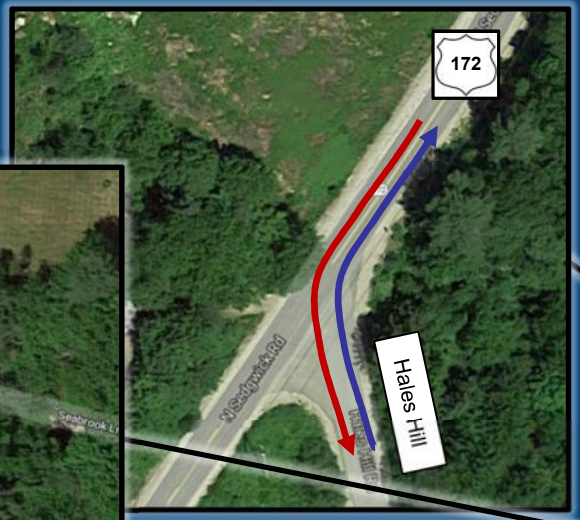
- Intersection suitability for large trucks



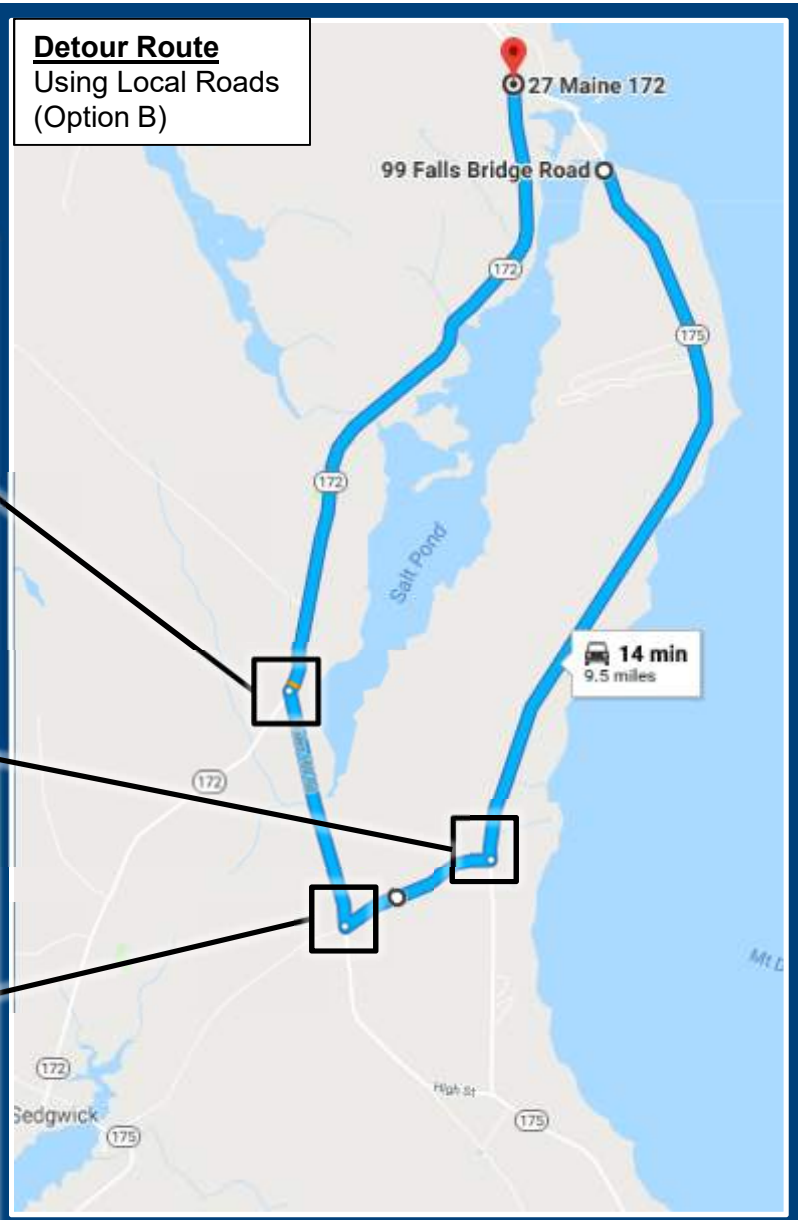
Off-Site Detour

Additional Considerations:

- Intersection suitability for large trucks



Hales Woods to Hales Hill turning radius may be too tight for large trucks, Option A is more favorable.



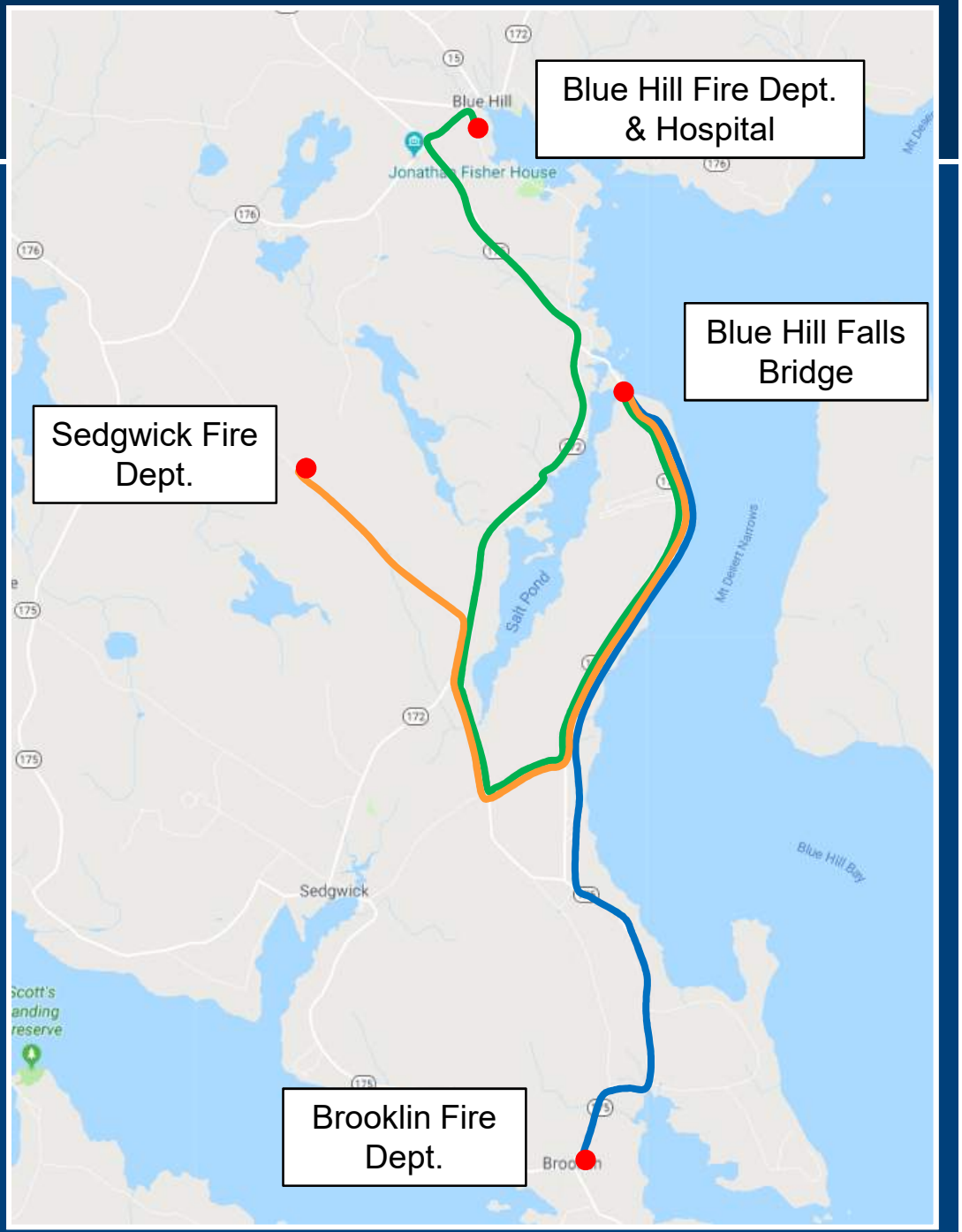
Off-Site Detour

EMS Response Times

	Normal Response Time	Detour Response Time	Response Time Change
Blue Hill	8 min.	20 min.	+12 min.
Sedgwick	9 min.	13 min.	+4 min.
Brooklin	12 min.	12 min.	0 min.

Notes:

- *EMS capabilities may vary by community.*
- *Response times are based on the roads posted speed and travel distance. They do not account for time associated with EMS preparation.*



Off-Site Detour

Cost

- Construction Costs – $50,000 +/- cost associated with detour signage and labor to set up signage.

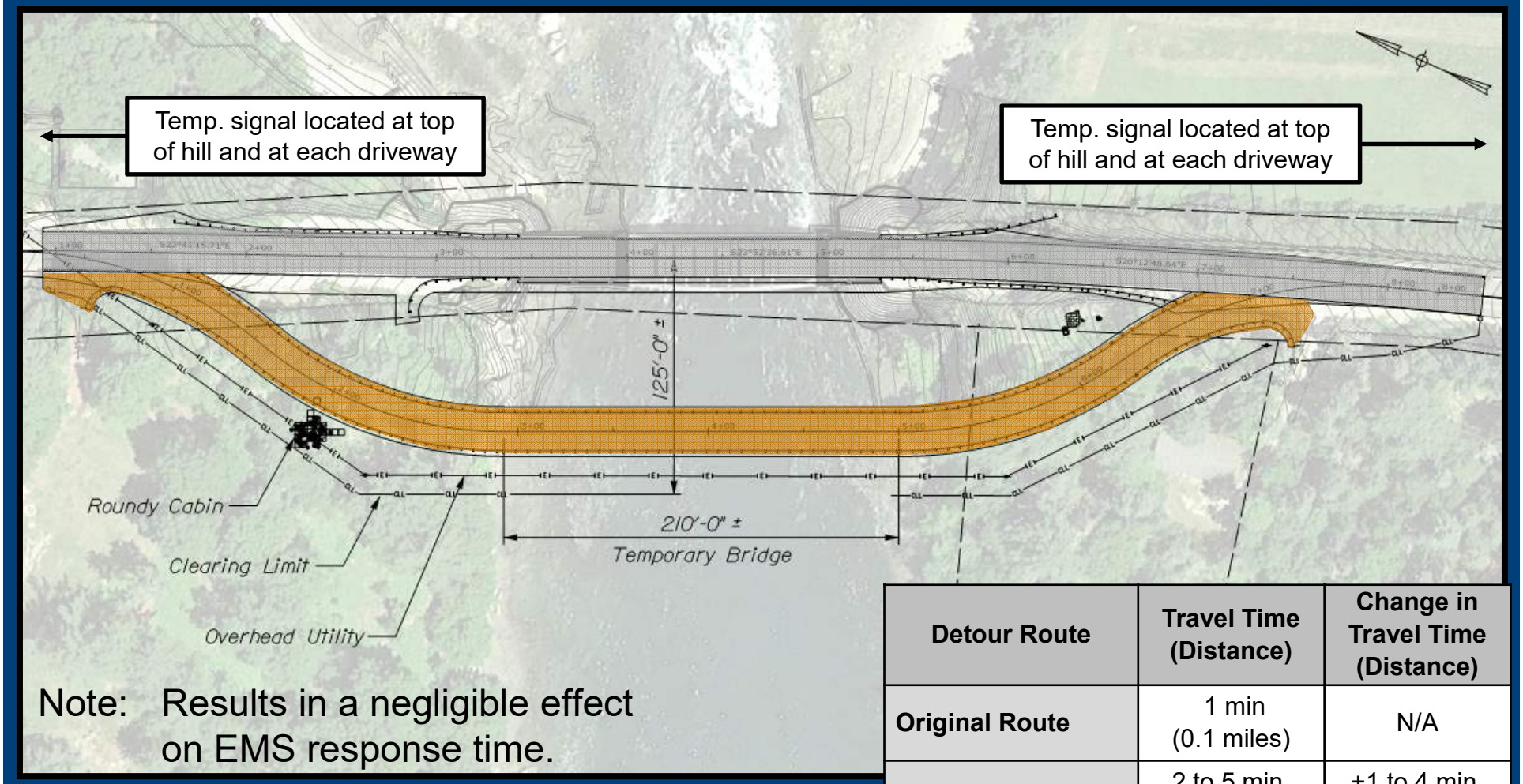
- User Costs – Cost associated with additional time and mileage for passenger vehicles and trucks.
  - Accounts for detour length (0.1 miles) and average detour route speed (43 mph).
  - Detour route is assumed to be Local Roads (Option A) shown previously.

Month (Year 2020)	Average Cost Per Day	Average Cost Per Month	Average Cost Per Year
January	$ 2,949	$ 91,419	
February	$ 3,038	$ 85,064	
March	$ 3,217	$ 99,727	
April	$ 3,663	$ 109,890	
May	$ 4,289	$ 132,959	
June	$ 5,183	$ 155,490	$ 1,584,357
July	$ 6,836	$ 211,916	
August	$ 6,702	$ 207,762	
September	$ 4,914	$ 147,420	
October	$ 4,200	$ 130,200	
November	$ 3,529	$ 105,870	
December	$ 3,440	$ 106,640	
Average =	**$ 4,330**	**$ 132,030**	

Unit User Costs			
VMT-related	$	0.25	running cost per passenger vehicle-mile
	$	1.00	running cost per truck-mile
	$	0.10	crash cost per vehicle-mile
VHT-related	$	12.00	time cost per passenger vehicle-hour
	$	39.00	time cost per truck-hour

On-Site Temporary Bridge

Temporary Bridge Configuration



Note: Results in a negligible effect on EMS response time.

Detour Route	Travel Time (Distance)	Change in Travel Time (Distance)
Original Route	1 min (0.1 miles)	N/A
Temporary Bridge	2 to 5 min. (0.1 miles)	+1 to 4 min. (+0.0 miles)

On-Site Temporary Bridge

Cost

- Construction Costs – $700,000 +/- cost associated with temporary roadway, signal, and temporary bridge construction.

- User Costs – Cost associated with additional time and mileage for passenger vehicles and trucks.
  - Accounts for time spent at the temporary signal.
  - Average Cost Per Day = $399
  - Average Cost Per Year = $0.14 Million

Comparison of Cost, Impact & Schedule

Off-Site Detour vs. On-Site Temporary Bridge

Traffic Management Alternative	Cost			Schedule Impact	Change in EMS Response Time [2]	Environmental Impact Attributed to Traffic Management [3]
	Detour Construction	User Cost [1]	Total Traffic Mgmt. Cost			
Off-Site Detour	$0.05 Million	$3.17 Million	$3.22 Million	No Change	+4 minutes	No Increase
Temporary Bridge	$0.70 Million	$0.29 Million	$0.99 Million	+5 months	+1 to 4 minutes (Temp. Signal)	• Roundy & Luskey Sites • Temporary Fill or Data Recovery • +0.2 Acres Additional Clearing • Two additional temp. in-water piers • Additional temp. wetland impacts

Notes:

1. User costs developed based on a 24 month bridge closure.
2. Change in EMS response times are based on the fastest responding station/community.
3. Environmental impacts attributed to traffic management reflects the added impacts associated with traffic management; these values do not include permanent or temporary impacts associated with Falls Bridge rehabilitation or replacement.

Discussion