

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Traffic Management Plan

FOR

Derby IM 091-3(49)

Bridge 1 on US 5 Connector, also known as Bridge 114 over I 91

August 23, 2017



This document shall be provided to the Resident Engineer prior to the preconstruction meeting.

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1.0 Project Description

▪ Project Location

- The bridge is located on US 5 Connector over I91 at exit 29. The bridge is located 500 feet east of the I-91 Southbound on ramp and 200 feet south of the US\Canadian border.

▪ Work zone limits

- The work zone includes that area under the bridge as well above the bridge from 200 feet prior to begin bridge to 200 feet after end bridge.

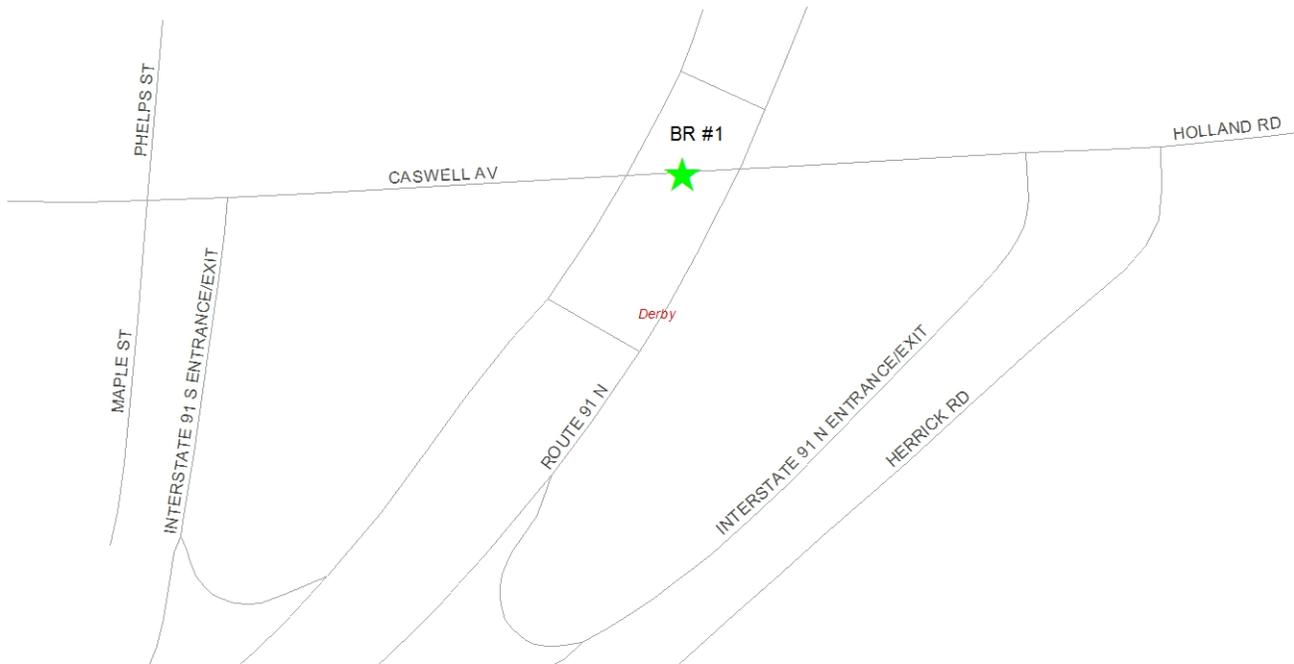
▪ Project background information.

- This bridge was constructed in 1962 as part of the interstate construction in this area, Project number I91-3(3). The railing and some of the bearings were replaced in 1992 or 1993 under project number IR Deck (28). An additional lane on the southbound interstate leading into the US border station was added in 2006, using project Derby IM 091-3(41). New guardrail was also part of this project. Caswell avenue was included in a paving, line stripping, guardrail and sign replacement project, Derby STP 2703(1), in 2010.

▪ Specific traffic restrictions expected on major roadways during the work

- There will be minor delays on I91 during construction when activities like setting structural steel will require 10-20 minute shut downs of certain barrels of the interstate.
- On the US 5 connector, also known as Caswell Avenue, traffic will be staged so that there is always one-lane traffic, alternating directions. This traffic will be controlled by the use of traffic signals.

Bridge Location Map



- **Project schedule**

- Target Construction Schedule: Construction activities will likely take place beginning in April 2018 and last until August 2018.
- Traffic Maintenance: Phased construction on Caswell Avenue and temporary (less than 10 minute) lane closures on I 91 under Caswell Avenue.

2.0 TMP Team—Contact Information

Defining roles and responsibilities from the initial stages of a project helps to coordinate all the activities related to TMP development and implementation. This section includes contact information and roles and responsibilities for major personnel involved in the project.

- **TMP Development Managers**—Personnel with the primary responsibility for developing the TMP.
- **TMP Implementation Managers**—Personnel primarily responsible for implementing the TMP.
- **Emergency Contacts**—Public or semi-public agencies (e.g., hospitals, schools, fire, police, select board/town administrator, road foremen) that need to be kept informed about work zone activities, especially in case of a road closures.

Contact information and roles and responsibilities of major personnel involved in the project.

TMP Development Managers

Agency of Transportation (AOT) DPM	Town of Derby/Village of Derby Line
Name/Title: Carolyn Carlson, P.E./Project Manager Unit: Structures Phone: 802-828-0048 Email: Carolyn.carlson@vermont.gov	Name/Title: Unit: Phone: Email:

Roles and Responsibilities: Development of the Traffic Management Plan. AOT will be responsible for developing the TMP related to the area within the project construction limits. The Town will be responsible for developing the TMP related to the detour route.

TMP Implementation/Monitoring Managers

AOT Resident Engineer	Town of Derby/Village of Derby Line
Name/Title: Unit: Phone: Email:	Name/Title: Unit: Phone: Email:

Roles and Responsibilities: Implementing the Traffic Management Plan. AOT will be responsible for implementing the TMP related to the area within the project construction limits. The Town will be responsible for implementing the TMP related to the detour route.

Other Important Agency Contacts

AOT Regional Engineer	AOT Construction and Materials Bureau Director
Name/Title: Jeremy Reed, Regional Const. Engineer Unit: Construction Phone: 802-751-3295 Email: Jeremy.reed@vermont.gov	Name/Title: David Hoyne/Director Unit: Construction and Materials Phone: 802-828-2593 (main desk) Email: david.hoyne@vermont.gov

Emergency Service Contacts

Fire Department	VT State Police (Region Barracks)
Name/Title: Derby Line Fire Department Address: 239 Elm Street Phone: Email: ellamcraig@hotmail.com	Name/Title: Walter Smith, Lieutenant Address: 35 Crawford Road, Derby VT 05829 Phone: 802-334-8881 Email: walter.smith@vermont.gov

Roles and Responsibilities:

Contractor	
Contractor	Superintendent
Name/Title:	Name/Title:
Address:	Unit:
Phone:	Phone:
Email:	Email:
Roles and Responsibilities:	
Contractors Competent Person	Contractors Safety Officer
Name/Title:	Name/Title:
Unit:	Unit:
Phone:	Phone:
Email:	Email:
Roles and Responsibilities:	

3.0 Preliminary Work Zone Impact Assessment

This preliminary assessment of work zone impacts should be developed in the early planning stages of the project to help identify issues or uncover problem areas that should be considered during project development.

Preliminary assessment of work zone impacts questionnaire:

Does the project include a long-term closure and/or an extended weekend closure? No

What is/are the applicable type of facility(ies) being used to accommodate traffic?

- Traffic will be phased so that one lane is built while the other lane is used to maintain traffic on Caswell Avenue. Then the new lane will be used for traffic, while the other lane is built. Pier caps will also be built one half at a time.

Can traffic be detoured?

- Yes, but that is not the recommended alternative
 - See scoping report for analysis of detour options. The recommended alternative is stage construction with no detour.

Is the existing shoulder sufficient to support traffic during construction?

- Yes, the existing shoulder will be utilized to stage construction.

Is additional width required on culverts or bridges to maintain traffic?

- No.

Is there a pedestrian/bicycle facility that must be maintained?

- Pedestrian use will be restricted during construction. There is a sidewalk on the bridge. There will not be a sidewalk on the bridge post-construction. The existing sidewalk is not ADA approved as it is not maintained (plowed) in the winter. There is no sidewalk leading to the bridge, on either the west or the

east side. Wide shoulders (more than 5 feet wide), will be provided post-construction for use by pedestrians and bicycles. During working hours, pedestrians will be escorted through the work zone by flaggers.

Would a temporary structure(s) be required?

- If we were to maintain pedestrian traffic during non-working hours, a temporary bridge would be required. However, it is not possible due to site constraints to do this.

Would a median crossover be needed?

- A median cross-over could be considered in order to eliminate temporary closures of the I 91 lanes for overhead construction activities. It is not currently recommended.

Would there be a need to maintain railroad traffic?

- N/A

Could maintenance of traffic have an impact on existing or proposed utilities?

- There are no utilities on the Caswell Avenue bridge. In the area of the bridge, there are numerous buried utilities under and around I91. These will not be impacted by our construction or by our maintenance of traffic.

Does it appear that maintenance of traffic will require additional right-of-way?

- No.

Can the contractor restrict the roadway during the time periods listed?

- a.m. peak hours, one direction - Yes, on Caswell Ave. Yes on I91 but limited to certain days.
- p.m. peak hours, one direction - Yes, on Caswell Ave. Yes on I91 but limited to certain days.
- a.m. peak hours, both directions - No, on Caswell Ave. Yes on I91 but limited to certain days.
- p.m. peak hours, both directions - No, on Caswell Ave. Yes on I91 but limited to certain days.
- Overnight - Yes
- Local celebrations - No
- Holidays or weekends - No on I91, TBD on Caswell Ave.
- Sporting events/other special events - No
- Will project timing (for example, start or end date) be affected by special events:
 - No
- Are there any projects to be considered along the corridor or in the region?
 - No
- Roadwork in the immediate area that may affect traffic or the contractor's operations?
 - No
- Roadwork on other roads that may affect the use of alternate routes?
 - No
- Are there other maintenance of traffic issues? If so, specify.
 - Working over the interstate may require lane or full barrel shutdowns/rolling road blocks during the setting of the structural steel.
 - Traffic back ups due to Border stations in both directions on I-91.

4.0 Existing Conditions

This section provides an overview of the existing conditions within the project area, and includes:

- Roadway characteristics (history, roadway classification, number of lanes, geometrics, urban/suburban/rural).
 - Roadway Classification: Caswell avenue is a major collector and I91 is a Principal Arterial.
 - Roadway Lane/Shoulder Widths and Bridge Lane/Shoulder Widths: see record plans and project plans. Existing width on bridge: 5' sidewalk, 4'-11'-11'-4' typical. Planned width on bridge: 5'-6" - 12' - 12' - 5'-6" (to face of rail)
- Historical traffic data (volumes, speed, capacity, volume/capacity, percent trucks, queue length, peak traffic hours).
 - A traffic study of this site was performed by the Vermont Agency of Transportation. The traffic volumes are projected for the years (2016) and (2036).

TRAFFIC DATA	(2016) Caswell Ave	(2016) I91 SB	(2016) I91 NB	(2036) Caswell Ave	(2036) I91 SB	(2036) I91 NB
AADT	1400	980	1000	1500	1000	1100
DHV	160	150	190	170	160	210
ADTT	116	130	208	182	169	292
%T	8.3	13.3	20.8	12.1	16.9	26.5
%D	52	100	100	52	100	100

- Design Speed: 30 mph posted on Caswell Ave. 40 mph posted on I91.
- Traffic operations (signal timing, traffic controls).
 - We will need temporary traffic signals to control the phased traffic, two-directions, alternating one-lane at a time. There are no permanent traffic signals in place or anticipated. Phase one will have both eastbound and westbound traffic using the existing eastbound lane. Lane width will be 14'-8" from face of curb to center of barrier. Phase two will have both eastbound and westbound traffic using the new westbound lane. Lane width will be 13'-11" from face of curb to center of barrier.
- Crash data.
 - None identified at this time
- Pedestrian/bicycle facilities.
 - Existing 5'-0" sidewalk on the north side, not maintained in the winter. Existing shoulders, 4'-0" north and south. No sidewalk in proposed work. Proposed shoulders 6'-1" north and south.
- Transit facilities.
 - None identified at this time
- School Bus Routes
 - None identified at this time

- Local community and business concerns/issues.
 - Currently investigating

5.0 Work Zone Impact Management Strategies

This section provides an overview of various strategies to be deployed to improve the safety and mobility of the work zone and reduce the work zone impacts on the road users, community, and businesses.

The strategies are grouped according to the following three categories.

1. Temporary Traffic Control (TTC)
2. Transportation Operations (TO)
3. Public Information and Outreach (PI&O).

5.1. Temporary Traffic Control (TTC)

A TTC plan describes temporary traffic control measures to be used for facilitating road users through a work zone or an incident area. The TTC plan plays a vital role in providing continuity of reasonably safe and efficient road user flow and highway worker safety when a work zone, incident, or other event temporarily disrupts normal road user flow. The TTC plan shall be consistent with the provisions of the MUTCD and AASHTO Roadside Design Guide.

Temporary Traffic Control (TTC)	Check if recommended for use
Control Strategies	
1. Construction phasing/staging	Caswell Ave.
2. Full roadway closures	
3. Lane shifts or closures	I91
4. One-lane, two-way controlled operation	Caswell Ave.
5. Two-way, one-lane traffic/reversible lanes	Caswell Ave.
6. Night work	x
7. Weekend work	x
8. Work hour restrictions for peak travel	x
9. Pedestrian/bicycle access improvements	
10. Business access improvements	
11. Off-site detours/use of alternate routes	
Traffic Control Devices	
12. Temporary signs	x
13. Arrow boards	
14. Portable changeable message signs	x

15. Channelizing devices	
16. Temporary pavement markings	x
17. Flaggers and uniformed traffic control officers	x
18. Automated Flagger Assistant Devices	
19. Temporary traffic signals	x
20. Lighting devices	
21. Truck attenuators	
Innovative or Accelerated Construction Techniques	
22. Prefabricated/precast elements	
23. Rapid cure materials	

5.2. Transportation Operations (TO)

The TO component shall include the identification of strategies to mitigate impacts of the work zone on the operation of the transportation system within the work zone impact area. The work zone impact area consists of the immediate work zone as well as affects to the surrounding roadways and communities. Additional information can be acquired from the [“Workzone Safety and Mobility Guidelines”](#) (WSMG) and [“Appendix A”](#) in the WSMG document:

Transportation Operations (TO)	Check if recommended for use
Demand Management Strategies	
1. Shuttle services for pedestrian traffic	
Corridor/Network Management Strategies	
2. Signal timing/coordination improvements	
3. Temporary traffic signals	x
4. Street/intersection improvements	
5. Bus turnouts	
6. Turn restrictions	
7. Parking restrictions	
8. Truck/heavy vehicle restrictions	
9. Reversible lanes	
10. Dynamic lane closure system	
Work Zone Safety Management Strategies	
31. Speed limit reduction/variable speed limits	
32. Temporary traffic signals	x
33. Temporary traffic barrier	x

34.Movable traffic barrier systems	X
35.Crash cushions	
36.Project task force/committee	
37.Construction safety supervisors/inspectors	
38.Road safety audits	
39.TMP monitor/inspection team	
Incident Management and Enforcement Strategies	
40.Media coordination	X
41.Local detour routes	
42.Contract support for incident management	
43.Incident/Emergency management coordination	X
44.Incident/Emergency response plan	
45.Dedicated (paid) police enforcement	
46.Cooperative police enforcement	

Contingency/Incident Management Plans—

It is best to develop the Contingency/Incident Management plan as a collaborative effort with the emergency response and the public safety community. Development of such a plan is crucial in the early phases to properly integrate the concerns of the first responder personnel.

5.3. Public Information and Outreach (PI&O)

The PI component can include communication strategies that seek to inform the general public of work zone impacts and the changing condition of the project. The general public may include road users, area residences and businesses, and other public entities.

Public Information and Outreach can be important for the success of bridge closure projects. This project will create a short term impact to travelers, businesses, residents, and truckers. Properly informing these stakeholders of what to expect during construction will ensure proper public support and reduce problems during construction. The following measures can be used:

- Factsheets
 - A project factsheet has been completed
- Public Input and Surveys are being sent to the town of Derby and the transportation district

Public Information and Outreach (PI&O)	Check if recommended for use
Public Awareness Strategies	
1. Brochures and mailers	
2. Press releases/media alerts	X
3. Telephone hotline	
4. Planned lane closure website	
5. Project website	X
6. Public meetings/hearings, workshops	X
7. Community task forces	
8. Coordination with media/schools/business/emergency services	X
9. Email alerts	
Motorist Information Strategies	
10. Changeable message signs	X
11. Temporary motorist information signs	X
12. Dynamic speed message sign	
13. Project information hotline	

6.0 Notes

Any additional notes on selected strategies, the TMP in general, or any item requiring special attention for the project can be provided in this section.

This section should include meeting notes or conversation notes where decisions pertaining to the TMP are made.

7.0 TMP Summary

This summary should include a brief description of the traffic management strategies selected for use on the project as well as important contact information. This summary should be included in the contract documents.

TMP Summary

- The following temporary traffic control (TTC) measures have been identified for use though the construction area.
 - Control Strategies:
 - Traffic Control Devices: Traffic signal to control one-way traffic during phased construction.
 - Innovative or Accelerated Construction Techniques: N/A
- The following transportation operations (TO) measures have been identified for use for mitigation of impacts to the work zone and the surrounding roadway network
 - Incident Management and Enforcement Strategies: The media should be coordinated with to inform the public of any delays that occur due to unexpected incidents, Emergency response personnel should be aware of the local routes available in case of emergency, and an Incident/Emergency response plan should be drafted and coordinated with emergency personnel.

Public Information and Outreach Summary

The following measures are recommended to warn the public of the possible impacts to them:

- Public meetings prior to the closure should be held in order to notify the public what to expect during the closure, and to hear concerns.
- Factsheets
- Public Input and Surveys
- Social Media to inform the public of upcoming impacts

Contacts

Design Project Manager: Carolyn Carlson, P.E.

Resident Engineer: TBD

Regional Engineer:

Public Information Officer: TBD

Fire and Emergency Medical Services:

VT State Police (Regional Barracks):

Contractor: TBD

Superintendent: TBD

Contractors Competent Person: TBD

Contractor Safety Officer: TBD

8.0 TMP Review/Approvals

TMPs, and changes to TMPs, can be submitted for review by the Transportation Systems Management & Operations (TSMO) section at AOT before they are implemented. Review of the TMP by AOT prior to implementation is not mandatory, but is highly encouraged.

TSMO Contacts		
AOT - Transportation Systems Management & Operations (TSMO)		
Name/Title: Amy Gamble, PE\Traffic Operations Engineer		
Address: 1 National Life Drive, Montpelier, VT 05633-5001		
Phone: 802-828-1055		
Email: amy.gamble@state.vt.us		
Roles and Responsibilities: Review of Traffic Management Plans		

The approval of the TMP should be based on conformance of the TMP with the Work Zone Safety and Mobility Guideline.

Regional Construction Engineer			Traffic Operations Engineer			Project Manager		
All approvals must be obtained prior to the start of work								
Signature:			Signature:			Signature:		
Name:			Name:			Name:		
Date:			Date:			Date:		
Revision#	Initials	Date	Revision#	Initials	Date	Revision #	Initials	Date
1			1			1		
2			2			2		

9.0 Appendices

Future appendices could include:

- Traffic Counts
- Temporary Traffic Control Plans
- Traffic Operation Plan
- Public Information and Outreach Plan
- TMP Review Notes
- Project Monitoring Form or Post-Project Evaluation Form.