

STATE OF VERMONT
AGENCY OF TRANSPORTATION
Traffic Management Plan

FOR

Bradford BF 0191(29)

VT Route 25B, BRIDGE 1 OVER WAITS RIVER

January 4, 2016



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

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1.0 Project Description

▪ Project Location

- Town of Bradford in Orange County on VT Route 25B over Waits River. The bridge is located approximately 0.17 miles east of the intersection of VT Route 25 and VT Route 25B.

▪ Work zone limits

- Station 11+00, MM 0.142 (Begin Approach) to Station 18+00, MM 0.275 (End Approach)
– Preliminary limits, subject to change

▪ Project background information.

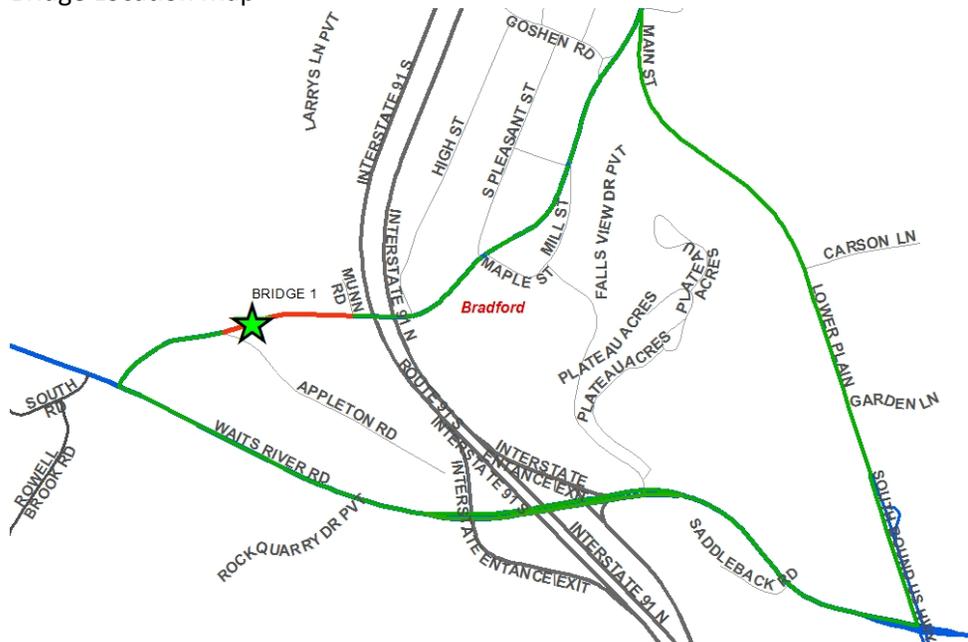
- The Bradford VT Route 25B Bridge 1 project consists of the replacement of the existing bridge. The condition of the deck is poor, the condition of the superstructure is fair and the substructure condition satisfactory. The bridge is considered to be structurally deficient.
- The existing bridge is a three-span, steel beam bridge constructed in 1933. It is 160-feet long and 23.3-feet wide. The three spans are 43 feet, 74 feet, and 43 feet long, respectively.
- The new concrete deck will have two 10-foot lanes with 4-foot shoulders to meet the Vermont State Design Standards. The railing will be three rail, box beam without a curb and the deck will be a bare deck.

▪ Specific traffic restrictions expected on major roadways during the work

- The bridge will be closed to traffic during construction. There will be a detour route which will include portions of VT Route 25, and US Route 5. The use of this detour will minimize construction time, and cost.

▪ Specific roadways that will be directly affected by the project work zones.

- Bridge Location Map



- **Regional projects that may impact each other**
 - None known at this time

- **Project schedule**
 - Target Construction Schedule: Construction activities will take place beginning in April 2017 and last one construction season.
 - Traffic Maintenance: The bridge will be closed during construction. The detour on VT Route 25 and Us Route 5, including Main Street in Bradford adds approximately 1 mile for most travelers.

2.0 TMP Team—Roles and Responsibilities

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

- **TMP Development Managers**—Agency/Contractor personnel with the primary responsibility for developing the TMP.
- **TMP Implementation Managers**—Agency/Contractor personnel primarily responsible for implementing the TMP.
- **TMP Implementation Task Leaders**—Agency personnel/Contractor personnel who manage, complete, oversee, or assist in specific transportation management tasks (examples include TTC inspection/supervision, PI Officer, etc.) during the work.
- **Public Information Officer**—Agency personnel who provide real-time public awareness of the work zone, including detection, prevention, and response to incidents.
- **Emergency Contacts**—Public or semi-public agencies (e.g., hospitals, schools) 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. (These tables can be modified to meet agency needs.)

TMP Development Managers

Agency of Transportation (AOT) DPM	Consultant
Name/Title: Carolyn Carlson 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

TMP Implementation/Monitoring Managers

AOT Resident Engineer	Consultant
Name/Title: Unit: Phone: Email:	Name/Title: Unit: Phone: Email:

Roles and Responsibilities: Implementing the Traffic Management Plan

TMP Implementation Task Leaders

AOT Regional Construction Engineer	Consultant
Name/Title: / Northeast Regional Construction Engineer Unit: Construction Phone: 802- Email:	Name/Title: Unit: Phone: Email:

Roles and Responsibilities:

Public Information Officer

AOT	Consultant
Name/Title: Unit: Phone: Email:	Name/Title: Unit: Phone: Email:

Roles and Responsibilities:

Emergency Service Contacts

Bradford Fire Department	Bradford Police Department
Name/Title: Ryan Terrill (Chief) Address: 135 Carson Lane, Bradford, Vermont 05033 Phone: 802-222-5224 Email: bradfordfire@myfairpoint.net	Name/Title: Jeffrey Stiegler/Chief of Police Address: PO Box 339, Bradford, VT 05033 Phone: 802-222-4727 ext. 301 Email: policechief@bradford-vt.us

Roles and Responsibilities:

Contractor

Contractor	Superintendent
Name/Title: Address: Phone: Email:	Name/Title: Unit: Phone: Email:

Roles and Responsibilities:

Contractors Competent Person	Contractors Safety Officer
Name/Title: Unit: Phone: Email:	Name/Title: Unit: Phone: 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? If Yes, what is/are the applicable type of facility(ies)?

- Yes

Can traffic be detoured?

- A detour is planned for this project. It is approximately 1 mile in length. Travel eastbound on VT 25B is complicated by a sharp turn in the village of Bradford. Truck traffic needing to make this turn will need to travel past the turn, on US Route 5, turn around and come back, so that the turn is a right turn, rather than a sharp left. The Average Daily Traffic volume is 1,400 vehicles per day.
- Early coordination with the police and fire departments always result in the greatest success of a bridge closure.
- There is one local bypass route that could see an increase in traffic from local passenger cars. Although local traffic may use the local bypass route, this route is not appropriate for a signed detour route. The road on the local bypass route is a narrow road, with sharp turns, and is therefore not appropriate for traffic other than passenger vehicles. The most likely local bypass route is follows:
 - VT Route 25, to Old Creamery Road, Maple Street, back to VT Route 25B.

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

- There are no sidewalks on the existing or the proposed bridge, so pedestrian traffic will not need to be maintained during construction.

Would a temporary structure(s) be required?

- A temporary bridge is not necessary. Closing the bridge and utilizing an off-site detour is acceptable.

Would a median crossover be needed?

- N/A

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 aerial utilities located in the project area. However, regardless of the maintenance of traffic (MOT), these utilities will not have to be moved.

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

- No.

Are there any projects to be considered along the corridor or in the region?

- Roadwork in the immediate area that may affect traffic or the contractor's operations?
 - None known at this time
- Roadwork on other roads that may affect the use of alternate routes?
 - None known of at this time

Are there other maintenance of traffic issues? If so, specify.

- No

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: Rural Major Collector
 - Roadway Lane/Shoulder Widths and Bridge Lane/Shoulder Widths: 11'/3' (28') and 10.5'/0' (21').
- 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	2036
AADT	1,400	1,500
DHV	180	190
ADTT	140	230
%T	10.7	15.6
%D	53	53

- Posted/Design Speed: 30 mph
- Traffic operations (signal timing, traffic controls).
 - There is a stop sign at the intersection of Vt Route 25B and Appleton Road.
 - The intersection of Vt Route 25 and Us Route 5 is a signalized intersection.
- Crash data.
 - This information has not yet been investigated.
- Pedestrian/bicycle facilities.
 - There are currently no pedestrian or bicycle facilities through the project area.
- Transit facilities.
 - There are currently no transit facilities though the project area.
- Truck routes.
 - Some trucks use this route and will need to be re-routed during the bridge closure period.
- Local community and business concerns/issues.
 - Comments/concerns regarding traffic operations, delays, access/egress, etc., that have been received from community, business representatives, and stakeholders during the planning and design stages of the project development:

- Bear Ridge Speedway, located on Kidder Road in Bradford, Vermont holds weekly races on Saturday nights, pits open at 3 pm.
- Specific concerns on pedestrian, bicycle, transit facilities, etc.
 - None noted at this time

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).

In addition to traditional TTC strategies, TO and PI mitigation measures must be used for this significant project. TO and PI strategies to be used include:

- Motorist assist patrols.
- Enhanced sign and pavement markings.
- Increased police enforcement.
- Real-time traffic information and updates on project delays.

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)	v
Control Strategies	
1. Construction phasing/staging	
2. Full roadway closures	X
3. Lane shifts or closures	
4. One-lane, two-way controlled operation	
5. Two-way, one-lane traffic/reversible lanes	
6. Ramp closures/relocation	
7. Freeway-to-freeway interchange closures	
8. Night work	

9. Weekend work	X
10. Work hour restrictions for peak travel	
11. Pedestrian/bicycle access improvements	X
12. Business access improvements	
13. Off-site detours/use of alternate routes	X
Traffic Control Devices	
14. Temporary signs	X
15. Arrow boards	
16. Channelizing devices	
17. Temporary pavement markings	X
18. Flaggers and uniformed traffic control officers	X
19. Temporary traffic signals	
20. Lighting devices	
Project Coordination Strategies	
21. Other area projects	X
22. Utilities	
23. Right-of-Way	X
24. Other transportation infrastructure	
Innovative Contracting Strategies	
25. Design-Build	
26. A+B Bidding	
27. Incentive/Disincentive clauses	X
28. Lane rental	
29. Performance specifications	
Innovative or Accelerated Construction Techniques	
30. Prefabricated/precast elements	
31. 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:

Examples of practices that may be used to satisfy the TO component may be found at:

http://www.ops.fhwa.AOT.gov/wz/rule_guide/sec6.htm#sec63

Transportation Operations (TO)	√
Demand Management Strategies	
1. Transit service improvements	
2. Transit incentives	
3. Shuttle services	
4. Parking supply management	
5. Variable work hours	
6. Telecommuting	
7. Ridesharing/carpooling incentives	
8. Park-and-Ride promotion	
Corridor/Network Management Strategies	
9. Signal timing/coordination improvements	
10. Temporary traffic signals	
11. Street/intersection improvements	
12. Bus turnouts	
13. Turn restrictions	
14. Parking restrictions	
15. Truck/heavy vehicle restrictions	
16. Reversible lanes	
17. Dynamic lane closure system	
18. Ramp closures	
19. Railroad crossing controls	
20. Coordination with adjacent construction site(s)	
Work Zone ITS Strategies	
21. Late lane merge	
22. PCMS with speed display	
23. Travel time estimation system	
24. Advanced speed information system	
25. Advanced congestion warning system	
26. Conflict warning system (e.g., construction vehicles entering roadway)	
27. Travel time monitor system	
28. Freeway queue monitor system	
29. CCTV monitoring	

30. Real-time detour	
Work Zone Safety Management Strategies	
31.Speed limit reduction/variable speed limits	
32.Temporary traffic signals	
33.Temporary traffic barrier	
34.Movable traffic barrier systems	
35.Crash cushions	
36.Temporary rumble strips	
37.Intrusion alarms	
38.Warning lights	
39.Automated flagger assistance devices (AFADs)	
40.Project task force/committee	
41.Construction safety supervisors/inspectors	X
42.Road safety audits	
43.TMP monitor/inspection team	
Incident Management and Enforcement Strategies	
44.ITS for traffic monitoring/management	
45.Traffic Message Channel (TMC)	
46.Surveillance (e.g., CCTV)	
47.Traffic Screens (to prevent rubbernecking)	
48.Mile-post markers	
49.Tow/freeway service patrol	
50.Total station units	
51.Photogrammetry	
52.Media coordination	
53.Local detour routes	
54.Contract support for incident management	
55.Incident/Emergency management coordination	
56.Incident/Emergency response plan	
57.Dedicated (paid) police enforcement	
58.Cooperative police enforcement	
59.Automated enforcement	
60.Increased penalties for work zone violations	
61.Emergency pull-offs	

Contingency/Incident Management Plans—Consider developing a contingency plan that addresses specific actions that will be taken to restore or minimize impacts on traffic when the congestion or delay exceeds original estimates due to unforeseen events. This includes work-zone crashes, traffic volumes higher than predicted traffic demand, delayed pick-up of lane closures, etc.

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. It is recommended that agencies consider key components, such as the following six items, in developing the plan:

- (1) Incident Detection and Verification;
- (2) Incident Classification and Response;
- (3) Site Management;
- (4) Site Clearance;
- (5) Motorist Information;
- (6) Evaluation.

5.3. Public Information and Outreach (PI&O)

The PI component shall 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. Examples of communications strategies that may be used to satisfy the PI component may be found at:

http://www.ops.fhwa.AOT.gov/wz/rule_guide/sec6.htm#sec63.

Public Information and Outreach is important to all projects that will have an impact on the public project. This project will create an impact to travelers, businesses, residents, and truckers for the construction season since a decreased speed through the project area will create slight delays. Properly informing these stakeholders of what to expect during construction will ensure proper public support and reduce problems during construction. It is important to be upfront and clear on the impacts that this project will have on the community, and as such the following measures are recommended:

- Factsheets
 - A project factsheet can be used to describe the project and why and when it is taking place.
- Business concerns/issues
- Public Input and Surveys
- Social Media to inform the public

Public Information and Outreach (PI&O)	√
Public Awareness Strategies	
1. Branding	
2. Press kits	
3. Brochures and mailers	
4. Press releases/media alerts	
5. Mass media (earned and/or paid)	
6. Paid advertisements	
7. Project Information Center	
8. Telephone hotline	

Public Information and Outreach (PI&O)	√
9. Planned lane closure website	
10. Project website	
11. Public meetings/hearings, workshops	X
12. Community task forces	
13. Coordination with media/schools/business/emergency services	X
14. Work zone education and safety campaigns	
15. Work zone safety highway signs	
16. Rideshare promotions	
17. Visual information	
Motorist Information Strategies	
18. Radio traffic news	
19. Changeable message signs	X
20. Temporary motorist information signs	X
21. Dynamic speed message sign	
22. Highway Advisory Radio (HAR)	
23. Extinguishable Signs	
24. Highway information network (web-based)	
25. Traveler information systems(wireless, handheld)	
26. Transportation Management Center (TMC)	
27. Live traffic camera(s) on a website	
28. Project information hotline	
29. Email alerts	

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 Implementation/Monitoring

The TMP needs to be implemented in the field, as specified, unless any changes have been approved by the agency. To help ensure appropriate implementation, 23 CFR 630 Subpart J §630.1012(e) requires that the State/Agency and the contractor each designate a trained person at the project level who has the primary responsibility and sufficient authority for implementing the TMP and other safety and mobility aspects of the project.

Monitoring the performance of the TMP during the construction phase is important to establish whether the predicted impacts closely resemble the actual conditions in the field, and whether the TMP strategies are effective in managing the impacts. TMP monitoring is needed for both oversight and evaluation purposes, such as:

- Monitoring and documenting TMP changes during construction.
- Preparing an evaluation of the TMP, including lessons learned.
- Refining work zone impact analysis processes and models based on outcomes.

TMP monitoring includes details of any specific observational, logging, and/or recording activities conducted during the project for work zone performance measurement purposes. Examples of possible performance measures for TMP monitoring include:

- Volume
- LOS
- Queue length
- Delay
- Travel time
- Number of crashes/incidents
- Incident response and clearance times
- Type and frequency of legitimate complaints received.

It is helpful for the TMP Implementation/Monitoring Managers to meet with the Project Manager on a regular basis to discuss and assess the safety and mobility impacts of the project work zone to date. This helps to assess how well the TMP is managing the project impacts, and can help identify and address issues before they become problems. It also provides the opportunity to verify that all key stakeholders and project officials have been receiving timely notifications where required.

9.0 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: Bridge closure with an off-site detour.
 - Traffic Control Devices: “Road Work Ahead” signs should be used to let traffic know that they are entering a construction site. Channelizing devices, temporary pavement markings and Flaggers should be used to control traffic around the work zone. Changeable message boards will be used to alert road users to the bridge closure.
 - Project Coordination Strategies: Coordination with any projects identified at a later stage that will affect this project should be planned for during the design phase.
- The following transportation operations (TO) measures have been identified for use for mitigation of impacts to the work zone and the surrounding roadway network
 - Work Zone Safety Management Strategies: Since construction workers and the traveling public will be in close proximity to each other, several safety management strategies should be utilized including: temporary traffic barriers, moveable traffic barrier systems, a safety supervisor, and TMP monitoring.
 - Incident Management and Enforcement Strategies: The media should be coordinated with to inform the public of any delays that occur due to unexpected incidents, 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 construction should be held in order to notify the public what to expect during construction, and to hear concerns.
- Factsheets
- Business concerns/issues
 - Coordination with the businesses in the area is important. A separate meeting with business owners is encouraged.
- Public Input and Surveys
- Social Media to inform the public of upcoming impacts and changes in traffic patterns

Contacts

Design Project Manager: Carolyn Carlson, 802-828-0048

Resident Engineer: TBD

Regional Engineer: , 802-

Public Information Officer: TBD

Bradford Fire Department: Ryan Terrill (Fire Chief), 802-222-5224

Bradford Police Department: Jeffrey Stiegler (Chief of Police), 802-222-4727 ext. 301

Contractor: TBD

Superintendent: TBD

Contractors Competent Person: TBD

Contractor Safety Officer: TBD

10.0 TMP Review/Approvals

TMPs, and changes to TMPs, must be approved by the AOT before they are implemented. As part of this process, many agencies conduct a TMP review, either by a designated individual or a team. A TMP review is particularly important for higher impact projects, and will help with future revisions of the TMP and performance monitoring. The TMP approval is then based on the TMP review.

The approval of the TMP should be based on conformance of the TMP with the Workzone Safety and Mobility Guide.

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		

11.0 Appendices

- Traffic Counts

Future appendices should include:

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

12.0 Appendix A

AGENCY OF TRANSPORTATION

OFFICE MEMORANDUM

POLICY, PLANNING AND INTERMODAL DEVELOPMENT DIVISION

TO: Christopher Williams, Structures Project Manager
FROM: Maureen Carr, Traffic Analysis Engineer
 By: Colin Philbrook, Traffic Analysis Technician
DATE: July 7, 2013
RE: Bradford Village BF 0191(29)- REVISED
 VT 25B, BR #1

Per your request on July 5, 2013, please find complete estimated traffic data on the above project in the town of Bradford. The data for the years 2016, 2036 and 2056 is included in the table below.

If you have any questions, or if further information is needed, please call at x3667.

TRAFFIC DATA	2016	2036	2056
AADT	1400	1500	~
DHV	180	190	~
ADTT	140	230	~
%T	10.7	15.6	~
%D	53	53	~
FLEXIBLE ESAL	~	2016 ~ 2036 645,000	2016 ~ 2056 1,464,000

CC: Chris Cole, Director of Policy, Planning and Intermodal Development
 Data Analysis Files

Bradford Village BF 0191(29) Revised Memo.docx