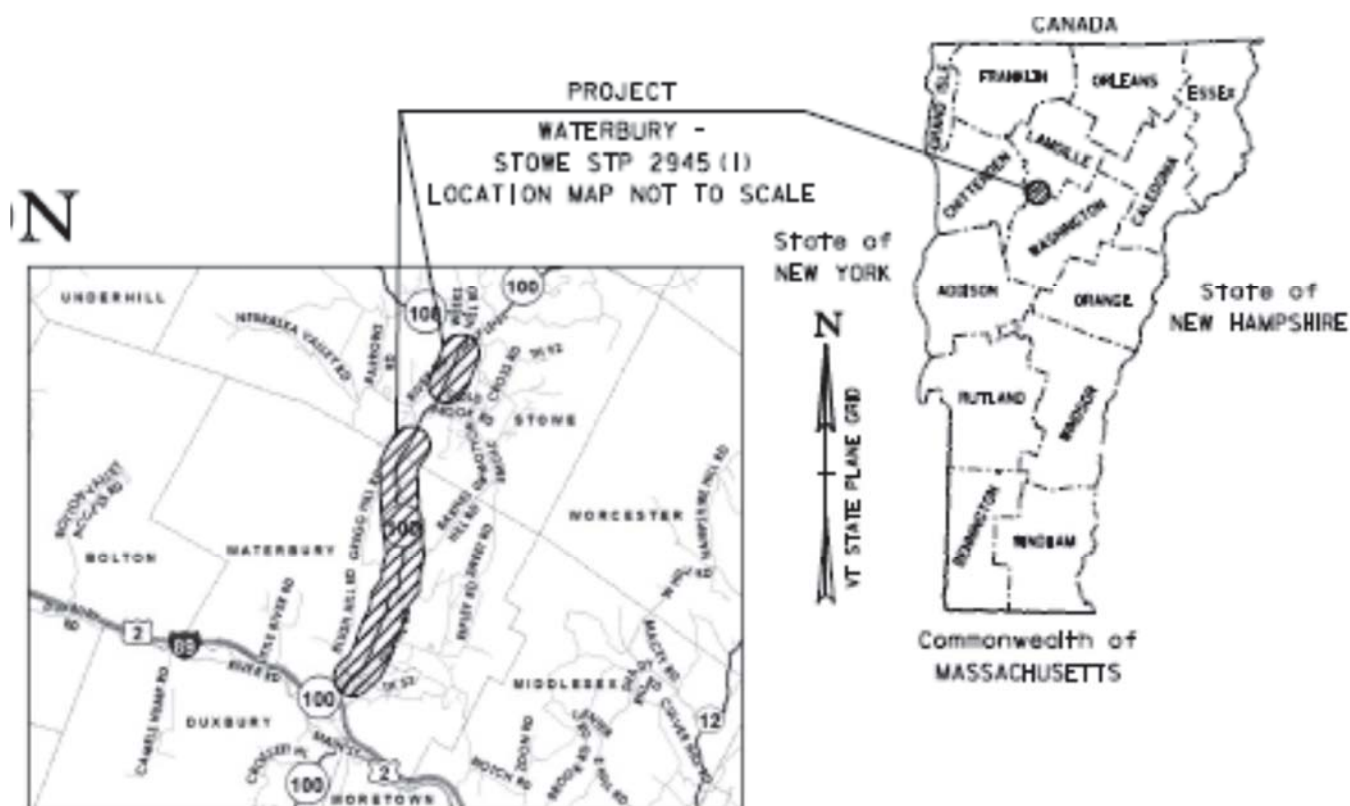


STATE OF VERMONT
AGENCY OF TRANSPORTATION

Traffic Management Plan

FOR
Towns of Waterbury & Stowe

April 24, 2017



This TMP and the information contained herein is for informational purposes only and has been developed for use by the Contractor in the development of any required site specific traffic control plan. The information as contained in the TMP should not be considered “all inclusive” of conditions or scenarios that will be encountered on site during construction operations. Rather, it should be used in conjunction with all other contract plans, specifications and other requirements when preparing any site specific traffic control plan.

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1.0 Project Description

- Project Location:
 - Towns of Waterbury & Stowe, Counties of Washington & Lamoille
- Work zone limits (if possible, include a map showing the limits of the work).
 - Beginning in the Town of Waterbury on VT Route 100 at Sta. 6+91.68 (MM 0.131) and extending northerly along VT Route 100 for a distance of 42,855.65 feet (8.115 mile) to Stowe Sta. S 79+60.14 (MM 1.507). Resuming in the Town of Stowe at Sta. S80+76.16 (MM 1.529) and extending northerly along VT Route 100 for a distance of 7,568.48 feet (1.434 miles) to Stowe Sta. S 156+44.64 (MM 2.963).
- Project background information.
 - Work to be performed under this project includes cold planing, concrete pavement removal, base courses and wearing course, correcting superelevation deficiencies, new pavement markings, guardrail, signs and other highway related items.
- Overview of roadways directly affected by project work zones
 - Work will extend twenty five feet, unless otherwise shown on the plans, down each side road. This will affect all town highways within the project limits along VT Route 100 during construction.
- Specific traffic restrictions expected on major roadways during the work (e.g., shoulder closures, lane closures, lane shifts).
 - Traffic restrictions expected during construction will be shoulder and lane closures (one-way alternating traffic).
- Regional projects that may impact this project
 - None.
- Anticipated Construction Schedule
 - Target Construction Schedule: Construction activities are scheduled to begin during the 2017 construction season and be completed during the 2018 construction season.

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, 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 who have the primary responsibility for reviewing and approving 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.
- **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.
 - **Town of Waterbury, Town Manager** – Bill Shepeluk (802-244-7033)
 - **Town of Stowe, Town Manager** – Charles Safford (802-253-7350)

- **Town of Waterbury Public Works Director** – William Woodruff (802-839-6199)
- **Town of Stowe Public Works Director** – Harry Shepard (802-253-8770)
- **Copley Hospital (Morrisville)** – (802-888-8888)
- **Washington West Supervisory Union Superintendent** – Brigid Scheffert Nease (802-496-2272, x:114)
- **Lamoille South Supervisory Union Superintendent** - Tracy Wrend (802-888-4541)

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	
Vermont Agency of Transportation (VTrans)	Consultant
Name/Title: Michael Fowler, P.E. / Pavement Design Engineer Unit: Pavement Design Phone: (802) 828-0160 Email: Mike.Fowler@vermont.gov	Name/Title: Marc Foisy, P.E. / Project Manager Phone: (802) 864-0223 Email: marc.foisy@stantec.com
Roles and Responsibilities: Review and approval of the Traffic Management Plan prepared by the Contractor.	
TMP Implementation Task Leaders	
VTrans	VTrans
Name/Title: Christopher Williams / Regional Construction Engineer Unit: Northwest Regional Construction Office Phone: (802) 595-0759 Email: Chris.Williams@vermont.gov	Name/Title: TBD/ Resident Engineer Unit: VTrans Construction Phone: Email:
Roles and Responsibilities: Overseeing traffic management tasks on-site while construction activities are being executed.	
Emergency Service Contacts	
Fire and Emergency Medical Services (FEMS)	Police Department (PD)
Name/Title: Gary Dillon / Fire Chief Unit: Waterbury Fire Department Phone: 802-229-4913 Email: rgowans@montpelier-vt.org	Name/Title: Joby Feccia / Police Chief Unit: Waterbury Police Department Phone: 802-223-3445 Email: avacos@montpelier-vt.org

Name/Title: Mark Sgantas/ Fire Chief Unit: Stowe Fire Department Phone: 802-253-4315 Email: N/A	Name/Title: Donald B. Hull/ Police Chief Unit: Stowe Police Department Phone: 802-253-7126 Email: donald.hull@stowepolice.com
Name/Title: Bill Spear/ Fire Chief Unit: Morrisville Fire Department Phone: 802-888-3575 Email: jspear220@adelphia.net	Name/Title: Richard Keith/ Police Chief Unit: Morrisville Police Department Phone: 802-888-4211 Email: rkeith@dps.state.vt.us
Roles and Responsibilities: Provide emergency response services as required.	
Contractor	
Contractor	Superintendent
Name/Title: Address: Phone: Email:	Name/Title: Unit: Phone: Email:
Roles and Responsibilities: Prepare and execute the Traffic Management Plan that addresses site specific vehicular and pedestrian mobility needs. Actively engage the emergency response personnel when the project is about to be advanced in a manner that could impact their operations or ability to serve people.	
Contractors Competent Person	Contractors Safety Officer
Name/Title: Unit: Phone: Email:	Name/Title: Unit: Phone: Email:
Roles and Responsibilities: Points of contact for concerns raised after the Traffic Management Plan is implemented and the Contractor's CEO or Superintendent are not readily available.	

3.0 Preliminary Work Zone Impact Assessment

This preliminary assessment of the work zone has been performed to help identify issues or uncover problem areas that should be considered during project development. However, the information contained herein is for informational purposes only and has been developed for use by the Contractor in the development of any required site specific traffic control plan. The information as contained in the TMP should not be considered "all inclusive" of conditions or scenarios that will be encountered on site during construction operations. Rather, it should be used in conjunction with all other contract plans, specifications and other requirements when preparing any site specific traffic control plan.

- **Does the project include a long-term closure and/or extended weekend closure?**
 - No.
- **Can traffic be detoured?**
 - There are many connecting roads throughout the Town that could be used by motorists to avoid construction, but it is not foreseen that a signed detour route will be needed.
 - Many of the side roads have a legal load limit of twenty-four thousand pounds so truck traffic would be limited to main routes through the Town.
- **Is the existing shoulder sufficient to support traffic during construction?**
 - Existing shoulder width is typically five feet in most areas along the corridor. This will be sufficient for most construction activities during the specified work hours.
- **Is there a pedestrian/bicycle facility that must be maintained?**
 - There are sidewalks, sidewalk ramps, crosswalks, and bike lanes along the south end of the project in Waterbury and the north end of the project in Stowe.
- **Would a temporary structure(s) be required?**
 - N/A
- **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?**
 - Existing utilities (water valves) within the limits of the pavement will be adjusted during construction, while traffic is using the opposing lane.
- **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
 - NO
 - p.m. peak hours, one direction
 - NO
 - a.m. peak hours, both directions
 - NO
 - p.m. peak hours, both directions
 - NO
 - Overnight
 - Yes, See Section 6.0 for overnight work locations.
 - During Local celebrations?
 - No, construction shall not restrict the roadway during local celebrations including the special events listed below.
 - Holidays or weekends
 - No, construction shall not restrict the roadway during holidays or weekend events.
 - Sporting events/other special events

- N/A
- **Will project timing (for example, start or end date) be affected by special events:**
 - School closings or openings?
 - School bus routes are not anticipated to be affected.
 - Holidays?
 - Memorial Day
 - Independence Day
 - Labor Day
 - Weekends:
 - Stowe Mountain Resort, Various Events 2017 – Aug. 5 & 29, Sept. 5, 6, 13, 23, 27, 28, & 30, Oct. 7, 21 & 22. Various events 2018 - TBA
 - Stowe Antique Car Show - Aug. 11-13, 2017
 - Stowe Oktoberfest - Sept. 30–Oct. 1, 2017
 - Stowe Foliage Arts Festival - Oct. 6-8, 2017
 - Stowe Weekend of Hope - May 2018 (TBA)
 - Stowe B3 Fest - June 2018 (TBA) - July 2018 (TBA)
 - Stowe Hot Air Balloon Festival - July 2018 (TBA)
 - Stowe 8 Miler - July 2018 (TBA)
 - Stowe Lacrosse Tournament - July 2018 (TBA)
 - Stowe Oktoberfest - Oct. 2018 (TBA)
 - Stowe Foliage Arts Festival - Oct. 2018 (TBA)
 - Waterbury Leaf Peepers Half Marathon - October 1, 2017, Oct. 2018 (TBA)
 - Waterbury NQID Festival - June 24, 2017, June 2018 (TBA)
 - Waterbury Arts Fest - July 14-15, 2017, July 2018 (TBA)
- **Are there any projects to be considered along the corridor or in the region?**
 - STOWE STP STSW(1)
 - WATERBURY IM 089-2(43)
 - WATERBURY FEGC F 013-4(13)
- **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 at this time.
- **Are there other maintenance of traffic issues? If so, specify.**
 - Yes, Vermont Route 100 is a tourist route and there will be events held in both Waterbury and Stowe that will likely lead to larger volumes of traffic on Fridays and weekends.

4.0 Existing Conditions

This section provides an overview of the existing conditions within the study area. The existing conditions generally include:

- **Roadway characteristics (history, roadway classification, number of lanes, geometrics, urban/suburban/rural).**
 - Roadway Classification:
 - Vermont Route 100 - Minor Arterial
 - Roadway Lane/Shoulder Widths:
 - Vermont Route 100: 11' / 5' (see layout sheets in plans)

- **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 as seen in the table below.

Traffic Data Vermont 100						
Location	AADT		DHV		ESALs	
	2016	2026	2016	2026	2016-2026	2016-2036
VT Route 100						
Begin Project to I-89 SB On/Off Ramp	10,900	11,100	1,200	1,200	1,966,000	4,497,000
I-89 SB on/off ramp to I-89 NB on/off ramp	12,900	13,200	1,500	1,500	2,596,000	6,302,000
I-89 NB on/off ramp to Blush Hill/Stowe St.	13,800	14,100	1,500	1,600	2,640,000	6,442,000
Blush Hill/Stowe St. to Guptil Rd.	15,000	15,300	1,700	1,700	2,523,000	5,650,000
Guptil Rd. to Howard Ave.	11,200	11,400	1,200	1,300	1,740,000	3,969,000
Howard Ave. to Moscow Rd.	9,500	9,700	1,100	1,100	1,474,000	3,379,000
Moscow Rd. to End Project	8,900	9,100	1,000	1,000	1,813,000	4,194,000

- Design Speed:
 - Vermont Route 100: 30-50 mph
- **Traffic operations (signal timing, traffic controls).**
 - Traffic Signal Locations (intersections):
 - VT 100, I-89 SB on/off ramp
 - VT 100, I-89 NB off ramp
 - VT 100, Blush Hill Rd./Stowe Street
 - VT 100, Shaws Shopping Plaza
- **Pedestrian/bicycle facilities.**
 - There are sidewalks, sidewalk ramps, crosswalks, and bike lanes along the south end of the project in Waterbury and the north end of the project in Stowe.
 - It is the Contractor's responsibility to develop the traffic control plan in a manner that provides pedestrian and bicycle accommodations throughout all phases of construction. Including site specific solutions for the various operations that are anticipated.
- **Transit facilities.**

- GMTA bus stops:
 - There are various bus stops along the “Route 100 Commuter” route. This route follows Vermont Route 100 for the length of this project. The contractor shall coordinate with GMTA during construction to maintain access to bus stops.
- **School Bus Routes.**
 - It is not anticipated that school bus routes will be impacted.
- **Local community and business concerns/issues.**
 - .
 - Emergency service vehicles/delays by the local bypass
 - Ped traffic for full time schools

The sample table below summarizes pertinent project information related to the routes affected by the bridge/road closure.

Roadways Affected By Local Passenger Car Detour Route—Summary						
Roadway/Street Name	Classification	ADT	Capacity	Peak Hour Volume	Existing LOS	Proposed LOS

5.0 Work Zone Impact Management Strategies

This section provides an overview of various strategies deployed to improve the safety and mobility of work zones 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 significant projects. Some examples of TO and PI strategies 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.

Typical Applications from the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) shall be used to facilitate road users through the work zone. These Typical Applications can be found in part 6 of MUTCD, temporary traffic control. Proper use of these methods shall be used to ensure a 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 Typical Applications provided below should not be considered “all inclusive” of conditions or scenarios that will be encountered on site during construction operations.

- MUTCD Typical Applications recommended for this project include:
 - Typical Application 3 – Work on Shoulders
 - Typical Application 4 – Short-Duration or Mobile Operation on a Shoulder
 - Typical Application 6 – Shoulder Work with Minor Encroachment
 - Typical Application 10 – Lane Closure on a Two-Lane Road Using Flaggers
 - Typical Application 15 – Work in the Center of a Road with Low Traffic Volumes
 - Typical Application 21 – Lane Closure on the Near Side of an Intersection
 - Typical Application 22 – Right-Hand Lane Closure on the Far Side on an Intersection
 - Typical Application 23 – Left-Hand Lane Closure on the Far Side of an Intersection
 - Typical Application 26 – Closure in the Center of an Intersection
 - Typical Application 27 – Closure at the Side of an Intersection
 - Typical Application 28 – Sidewalk Detour or Diversion
 - Typical Application 30 – Interior Lane Closure on a Multi-Lane Street
 - Typical Application 46 – Work in the Vicinity of a Grade Crossing

These Typical Applications are not intended to be the only traffic control applications that are available to the contractor. The contractor shall develop site specific traffic control plans.

Temporary Traffic Control	Check if recommended for use
Control Strategies	
1. Construction phasing/staging	X
2. Full roadway closures	
3. Lane shifts or closures	X
4. One-lane, two-way controlled operation	X
5. Two-way, one-lane traffic/reversible lanes	
6. Ramp closures/relocation	
7. Freeway-to-freeway interchange closures	

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

Transportation Operations	Check if recommended for use
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	
42. Road safety audits	
43. TMP monitor/inspection team	
Incident Management and Enforcement Strategies	
44. ITS for traffic monitoring/management	
45. TMC	
46. Surveillance (e.g., CCTV)	
47. Helicopter for aerial surveillance	
48. Traffic Screens	
49. Call boxes	
50. Mile-post markers	
51. Tow/freeway service patrol	
52. Total station units	
53. Photogrammetry	
54. Media coordination	X
55. Local detour routes	
56. Contract support for incident management	
57. Incident/Emergency management coordination	X
58. Incident/Emergency response plan	X

59. Dedicated (paid) police enforcement	
60. Cooperative police enforcement	X
61. Automated enforcement	
62. Increased penalties for work zone violations	X
63. Emergency pull-offs	

Contingency/Incident Management Plans—

The Contractor shall 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.

The Contingency/Incident Management plan shall include 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. The Contractor shall 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 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. 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 can be important for the success of all projects. This project will create an 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. 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 show the detour routes, 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	Check if Recommended for use
Public Awareness Strategies	
1. Branding	
2. Press kits	X
3. Brochures and mailers	X
4. Press releases/media alerts	X
5. Mass media (earned and/or paid)	
6. Paid advertisements	
7. Project Information Center	
8. Telephone hotline	
9. Planned lane closure website	
10. Project website	X
11. Public meetings/hearings, workshops	
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	
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	X

Public Information and Outreach	Check if Recommended for use
29. Email alerts	X

6.0 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.

The Contractor shall meet with the TMP Implementation Task Leaders 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.

7.0 TMP Review/Approvals

TMPs, and changes to TMPs, must be approved by VTrans before they are implemented.

8.0 Appendices

- A. Traffic Analysis
- B. Crash Data

Location: VT 100 South of I-89 (W212), Waterbury

Date: May 28-29, 2015

Hour	Volume (VPH)			Recommended Work Hours	Estimated Delay	
	SB	NB	2-Way		Average (sec)	Max (min)
00:00 - 01:00	13	29	42			
01:00 - 02:00	15	8	23			
02:00 - 03:00	7	6	13			
03:00 - 04:00	13	9	22			
04:00 - 05:00	30	33	63			
05:00 - 06:00	86	76	162		81	2.8
06:00 - 07:00	264	295	559			
07:00 - 08:00	485	547	1032			
08:00 - 09:00	358	398	756			
09:00 - 10:00	304	332	636			
10:00 - 11:00	320	291	611			
11:00 - 12:00	345	315	660			
12:00 - 13:00	299	337	636			
13:00 - 14:00	373	337	710			
14:00 - 15:00	363	400	763			
15:00 - 16:00	454	438	892			
16:00 - 17:00	562	565	1127			
17:00 - 18:00	593	650	1243			
18:00 - 19:00	310	370	680			
19:00 - 20:00	221	229	450			
20:00 - 21:00	183	198	381		94	3.5
21:00 - 22:00	126	114	240			
22:00 - 23:00	71	73	144			
23:00 - 24:00	33	54	87			
TOTAL	5828	6104	11932			

Recommended Work Hours: 7 PM to 6 AM

Delay estimates assume a 2500 feet segment operating with one-lane alternating flow. **Four Lane, Median Divided. One-lane alternating flow may not apply.**

Location: VT 100 North of Guptil Road (W135), Waterbury

Date: August 16-17, 2015

Hour	Volume (VPH)			Recomm nd Work Hours	Estimated Delay (min)		Estimated Queue (feet)	
	SB	NB	2-Way		Average	Maximum	Average	Maximum
00:00 - 01:00	20	26	46					
01:00 - 02:00	16	17	33					
02:00 - 03:00	12	9	21					
03:00 - 04:00	21	11	32					
04:00 - 05:00	36	12	48					
05:00 - 06:00	82	46	128					
06:00 - 07:00	134	102	236		1.5	1.5	163	259.0
07:00 - 08:00	273	200	473					
08:00 - 09:00	420	275	695					
09:00 - 10:00	599	452	1051					
10:00 - 11:00	673	532	1205					
11:00 - 12:00	700	623	1323					
12:00 - 13:00	623	594	1217					
13:00 - 14:00	573	585	1158					
14:00 - 15:00	601	592	1193					
15:00 - 16:00	607	473	1080					
16:00 - 17:00	515	448	963					
17:00 - 18:00	402	333	735					
18:00 - 19:00	241	266	507					
19:00 - 20:00	205	212	417					
20:00 - 21:00	137	185	322		1.5	1.7	229	392
21:00 - 22:00	85	92	177					
22:00 - 23:00	54	49	103					
23:00 - 24:00	14	38	52					
TOTAL	7043	6172	13215					
<i>VTrans Limit</i>	250	250	500		1.7	2.1	356	664

Recommended Work Hours: 7 PM to 6 AM

Delay estimates assume a 2500 feet segment operating with one-lane alternatin
 "Maximum" conditions assume flow rates increased by 50 percent.

Location: VT 100 South of Stowe Line (W081), Waterbury

Date: May 28-29, 2015

Hour	Volume (VPH)			Recommen nd Work Hours	Estimated Delay (min)		Estimated Queue (feet)	
	SB	NB	2-Way		Avg	Max	Avg	Max
00:00 - 01:00	6	28	34					
01:00 - 02:00	9	11	20					
02:00 - 03:00	13	9	22					
03:00 - 04:00	13	9	22					
04:00 - 05:00	30	19	49					
05:00 - 06:00	92	62	154		1.4	1.4	109	164
06:00 - 07:00	293	212	505					
07:00 - 08:00	674	403	1077					
08:00 - 09:00	599	497	1096					
09:00 - 10:00	445	388	833					
10:00 - 11:00	388	376	764					
11:00 - 12:00	411	332	743					
12:00 - 13:00	428	434	862					
13:00 - 14:00	412	376	788					
14:00 - 15:00	437	415	852					
15:00 - 16:00	520	505	1025					
16:00 - 17:00	606	607	1213					
17:00 - 18:00	623	701	1324					
18:00 - 19:00	378	534	912					
19:00 - 20:00	207	304	511					
20:00 - 21:00	128	231	359		1.5	1.8	295	515
21:00 - 22:00	84	200	284					
22:00 - 23:00	80	89	169					
23:00 - 24:00	42	65	107					
TOTAL	6918	6807	13725					
<i>VTrans Limit</i>	250	250	500		1.7	2.1	356	664

Recommended Work Hours: 7 PM to 6 AM

Delay estimates assume a 2500 feet segment operating with one-lane alternatin
 "Maximum" conditions assume flow rates increased by 50 percent.

Vermont Agency of Transportation

Statewide Sections - Route Log Order /2 - Statewide

Years: 2010 - 2014

H.C.L. No.	Route	System	Town	Mileage	ADT	Years	Crashes	Fatalities	Injuries	PDO Crashes	Critical Rate	Actual Rate	Ratio Actual/Critical	Severity Index (\$/Accident/L)	
363	VT-100	Minor Arterial (r)	Wilmington	4,980 - 5,280	4100	5	8	0	0	0	8	2,766	3,563	1,288	\$8,900
149	VT-100	Minor Arterial (r)	Wilmington	5,380 - 5,680	4115	5	11	0	2	2	9	2,763	4,882	1,767	\$21,627
378	VT-100	Minor Arterial (r)	Wilmington	5,880 - 6,180	4200	5	8	0	2	6	6	2,749	3,479	1,265	\$26,400
488	VT-100	Minor Arterial (r)	Wilmington, Dover	7,080 - 0,078	3300	5	6	0	2	5	5	2,923	3,32	1,136	\$33,717
461	VT-100	Minor Arterial (r)	Dover	0,878 - 1,178	4703	5	8	0	7	4	4	2,672	3,106	1,163	\$73,488
94	VT-100	Minor Arterial (r)	Dover	1,778 - 2,078	4900	5	14	0	3	13	13	2,645	5,218	1,973	\$25,171
110	VT-100	Minor Arterial (r)	Dover	2,778 - 3,078	3273	5	10	0	3	7	7	2,929	5,58	1,905	\$29,900
44	VT-100	Minor Arterial (r)	Dover	3,978 - 4,278	1300	5	6	0	1	5	5	3,716	8,429	2,268	\$20,567
114	VT-100	Minor Arterial (r)	Straiton, Wardsboro	1,331 - 0,294	1300	5	5	0	3	2	2	3,716	7,024	1,89	\$50,900
113	VT-100	Minor Arterial (r)	Wardsboro	0,694 - 0,994	1300	5	5	0	3	3	3	3,716	7,024	1,89	\$52,690
87	VT-100	Minor Arterial (r)	Jamaica	1,721 - 2,021	1200	5	5	0	2	3	3	3,791	7,61	2,007	\$36,900
462	VT-100	Minor Arterial (r)	Londonderry	1,665 - 1,965	2500	5	5	0	0	5	5	3,14	3,652	1,163	\$8,900
285	VT-100	Minor Arterial (r)	Londonderry	2,865 - 3,165	1921	5	5	0	0	5	5	3,363	4,753	1,414	\$8,900
211	VT-100	Minor Arterial (r)	Weston	2,919 - 3,219	2621	5	7	0	1	6	6	3,102	4,878	1,572	\$18,900
45	VT-100	Minor Arterial (r)	Ludlow	4,512 - 4,812	1600	5	7	0	0	7	7	3,525	7,99	2,267	\$8,900
535	VT-100	Minor Arterial (r)	Killington	0,649 - 0,949	3500	5	6	0	0	6	6	2,879	3,131	1,087	\$8,900
442	VT-100	Minor Arterial (r)	Waterbury	3,436 - 3,736	9500	5	14	0	3	11	11	2,26	2,691	1,191	\$23,900
371	VT-100	Minor Arterial (r)	Stowe	0,593 - 0,893	9516	5	15	0	2	14	14	2,259	2,879	1,274	\$18,827
163	VT-100	Minor Arterial (r)	Stowe	1,293 - 1,593	8900	5	19	0	3	16	16	2,294	3,899	1,7	\$19,953
25	VT-100	Minor Arterial (r)	Stowe	2,293 - 2,593	8900	5	30	0	2	28	28	2,294	6,156	2,684	\$13,567
17	VT-100	Minor Arterial (r)	Stowe	3,393 - 3,693	9848	5	35	0	1	34	34	2,242	6,491	2,895	\$10,900
189	VT-100	Minor Arterial (r)	Stowe	3,993 - 4,293	9869	5	20	0	2	18	18	2,236	3,664	1,639	\$15,900

Statewide Sections - Route Log Order /2 - Statewide

Years: 2010 - 2014

H.C.L /3. Route No.	System	Town	Mileage	ADT Years	Crashes	Fatalities	Injuries	PDO Crashes	Critical Rate	Actual Rate	Ratio Actual/Critical	Severity Index \$(/Accident/1.)	
370 VT-100	Minor Arterial (r)	Stowe	5,493 - 5,793	8700	5	14	0	6	12	2,306	2,939	1,274	\$41,443
518 VT-100	Minor Arterial (r)	Hyde Park	4,873 - 5,173	4208	5	7	0	5	4	2,748	3,038	1,106	\$61,443
302 VT-100	Minor Arterial (r)	Lowell	1,071 - 1,371	2000	5	5	0	1	4	3,328	4,566	1,372	\$22,900
229 VT-100	Minor Arterial (r)	Lowell	4,171 - 4,471	2232	5	6	0	4	4	3,234	4,909	1,518	\$58,533
297 VT-100	Minor Arterial (r)	Troy	0,398 - 0,698	3102	5	7	0	3	5	2,97	4,121	1,388	\$40,171
286 VT-100B	Major Collector (r)	Moretown	6,400 - 6,700	1800	5	5	0	1	4	3,649	5,073	1,39	\$22,900
284 VT-100C	Major Collector (r)	Johnson	0,000 - 0,300	2300	5	6	0	0	6	3,424	4,764	1,391	\$8,900
559 VT-100C	Major Collector (r)	Johnson	0,900 - 1,200	2574	5	5	0	0	5	3,326	3,547	1,067	\$8,900
257 VT-100C	Major Collector (r)	Johnson	1,200 - 1,500	2600	5	7	0	4	4	3,317	4,917	1,482	\$50,171
567 VT-100C	Major Collector (r)	Johnson	1,800 - 2,100	2600	5	5	0	1	4	3,317	3,512	1,059	\$22,900
166 VT-100C	Major Collector (r)	Johnson	2,400 - 2,700	2600	5	8	0	4	7	3,317	5,619	1,694	\$47,238
# 85 VT-103	Principal Arterial (r)	Chester	2,847 - 3,147	4072	5	10	0	1	9	2,214	4,485	2,026	\$15,900
# 182 VT-103	Principal Arterial (r)	Ludlow	1,776 - 2,076	9114	5	15	0	2	13	1,81	3,006	1,66	\$18,233
# 6 VT-103	Principal Arterial (r)	Ludlow	2,076 - 2,376	8848	5	33	0	1	32	1,823	6,812	3,735	\$11,021
# 344 VT-103	Principal Arterial (r)	Ludlow	2,476 - 2,776	8278	5	11	0	6	6	1,853	2,427	1,31	\$47,891
179 VT-104	Major Collector (r)	St. Albans Town	1,208 - 1,508	3600	5	10	0	5	7	3,052	5,073	1,662	\$45,690
141 VT-104	Major Collector (r)	St. Albans Town	2,008 - 2,308	9290	5	22	0	4	18	2,431	4,325	1,779	\$21,627
307 VT-104	Major Collector (r)	St. Albans Town	2,608 - 2,908	5969	5	12	0	9	7	2,693	3,671	1,363	\$64,367
455 VT-105	Minor Arterial (r)	St. Albans Town	1,377 - 1,677	3180	5	6	0	1	5	2,951	3,446	1,168	\$20,567
645 VT-105	Minor Arterial (r)	Swanton	1,847 - 2,147	4800	5	7	0	2	5	2,659	2,663	1,002	\$28,900
478 VT-105	Minor Arterial (r)	Sheldon	0,747 - 1,047	4800	5	8	0	3	5	2,669	3,044	1,145	\$35,150
314 VT-105	Minor Arterial (r)	Sheldon	2,747 - 3,047	5141	5	10	0	2	8	2,614	3,552	1,359	\$22,900