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**Traffic Engineering Instructions (TEI)**

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**Distribution:** Director of Highway Division, Chief of Contract Administration, Director of Maintenance and Operations, Director of Policy, Planning and Intermodal Development, Director of Project Delivery, Director of Municipal Assistance, District Administrators, District Project Managers and Technicians, Highway Safety & Design Project Managers, Municipal Assistance Project Managers, Maintenance Administrator, Program Development Section Managers, Structures Project Managers, Consultant designers

**APPROVED**  
By Joshua Schultz at 12:39 pm, Sep 15, 2016

**Approved:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Joshua Schultz, PE  
Transportation Systems Management and Operations Manager

**Subject: Work Zone Detour Guidance**

**Administrative Information:**

- Effective Date:** TEI 16 - 604 shall be effective from the date of approval.
- Superseded TEI:** Not Applicable
- Exceptions:** Not Applicable
- Disposition of TEI Content:** The content of TEI 16 - 604 will be incorporated into future revisions to the Vermont Agency of Transportation Standard Drawings, Traffic Design Manual and/or other applicable design guidance documentation.

**Purpose:**

The purpose of this guidance is to provide basic guidelines to aid in developing Temporary Traffic Control (TTC) plans for work zone detours. It should be noted that this information is not all inclusive, and that each work site will poses its own site specific challenges. This document should be supplemented with the Vermont Work Zone Safety & Mobility Guidance Document and its Appendix A, as well as the current edition of the Manual on Uniform traffic Control Devices (MUTCD) and its latest revisions.

**Implementation:**

The content of TEI 16 - 604 is to be implemented beginning immediately for all work zones on the State Highway System that meet the guidance set forth in this Traffic Engineering Instruction.

## General Information

A detour can be a very effective traffic control measure. By closing the road to live traffic, positive protection for workers is maximized. Detours can also allow for improved finished products as contractors can work in a single work space without the need to construct the project in multiple smaller pieces. There are several elements involved whenever it is deemed necessary before or during the course of a construction project to close an existing roadway and create a detour, rerouting road users to an alternative route that returns them back to the highway they were originally diverted from.

The information presented in this document is to assist municipalities, contractors, designers, and engineers in identifying specific considerations when developing a detour plan, but should not be considered an Agency Standard.

## Public Relations

Closing a roadway during construction may impact local traffic generators, school districts, and the post office. Concurrence from municipalities having jurisdiction over affected roadways should be obtained. Coordinate early in the planning process with affected entities such as the post office, county, city, school district, major employers, and emergency vehicle response teams to minimize the impact of a road closure on the community.

Extensive outreach is a significant factor in the success of the full closure and/or detour. Strategies that seek to educate and inform the general public of the work zone impacts and the changing conditions of the project are essential. This communication provides an opportunity for motorists to avoid the construction site, reduces driver frustration and lost time, reduces complaints from drivers who use the route, and raises public confidence that VTrans is well organized and efficient. Potential strategies for this public outreach and communication are:

- Radio and television public service announcements
- Newspaper articles, newsletters and brochures
- Web page, twitter, Facebook, and other social media
- Public assemblies - selectboard meetings, Front Porch Forum, town websites, town bulletin boards, etc.
- Telephone hotline
- Door-to-door notices - mailings posters
- 511 and WAZE traffic information site
- Coordination with the Regional Planning Commissions

All items of interest should be included in the notification to the public:

- Type of work to be performed.
- Hours the highway will be fully opened to traffic.
- Hours of restricted usage.
- Type and place delays can be expected.
- Suggested alternate routes.
- Duration of the project.
- Location of the detour, if applicable.
- Anticipated completion date of project.
- A name and phone number the public can contact for information or to make comments about how the detour is operating.

*The information mentioned above should be updated regularly so that the public is kept current on the status of the project. The Public Information Officer may be of help in this responsibility.*

**Traffic Control Plan for Detour**

The detour plan should include detour schedules and diagrams indicating the steps required to maintain the detour during each phase of construction and showing the type, number and placement of all traffic control devices. The submittal should include a tentative schedule indicating when specific signs, barricades, and pavement markings will be activated and deactivated.

**Detour Considerations**

Detours guide traffic around construction zones off the project site instead of through the construction. A detour is a signed alternate route off the project site that is adequate or appropriate for the intended traffic and the intended duration.

- The existing roads should be able to adequately and safely handle the expected volumes of traffic generated by the proposed detour. Geometric improvements or traffic control along the proposed detour route may be required.
- The existing pavements should be structurally adequate to handle the expected traffic volumes. Surfacing improvements along the proposed detour route may be necessary.
- The detour route should be a reasonable length and should not require the motorist to travel too far from the normal route. Road user cost comparison defining cost with and without a detour should be calculated.
- The detour should not significantly affect the operation of businesses along the proposed improvement.
- Access should be provided and maintained to residents and businesses as much as conditions permit.
- The detour should not adversely affect emergency vehicle operations, access for all emergency vehicles, fire hydrants and alarm boxes along the closed route at all times
- Approvals should be obtained from applicable governing agencies.
- Appropriate and adequate detour signing for the entire route in both directions travels should be installed.

Other considerations:

- Provide safe, efficient, and accessible facilities for bicyclists and pedestrians. Pedestrian routes that are part of the detour plan should meet all applicable ADA standards and requirements that replicates as nearly as practical the most desirable characteristics of the existing sidewalk(s) or a footpath(s) of the existing facilities. Bicycle routes should not force the bicyclist to dismount, and the chosen route should be maintained to manage potential hazards, such as sand, large tire ruts, and muddy surfaces. Where it becomes impractical to provide a temporary facility - due to space limitations or other physical site constraints - other alternative measures should be developed and implemented to accommodate these road users, including strategies such as:
  - Designating a pedestrian and/or bicycle detour route using existing facilities that minimize out-of-direction travel

- Partnerships with local transit providers to provide discounted or complimentary passes
- Shuttle services provided by private transportation vendors
- Where trash collection is affected by the closure, the Contractor should ensure that all bins/bags are brought to a point where the collection can be completed and retrieval of the empty containers can occur.

## **Detour Requirements**

All detour plans should meet the following requirements in addition to any specified by the Contract plans and by the Resident Engineer as being necessary for a particular project:

- The detour should be as simple and direct as possible.
- All temporary traffic control devices and equipment used should conform in design and placement to requirements set forth in the current edition of the Manual on Uniform Traffic Control Devices and its latest revision.
- All detours should have the proper temporary traffic control signs that will inform all road users where the detour begins, where it rejoins the roadway under construction, and where they are to make turns along the detour route.
- The detour should be clearly marked where it intersects other roadways
- Consideration should be taken regarding changing traffic signal timing capacities along the detour route, adding or deleting signal phases, interconnecting traffic signals to improve traffic flow along the detour.
- Temporary parking and turning restrictions either for the full duration of the detour or at specified time periods may need to be considered to improve traffic flow and reduce traffic conflicts with larger vehicle turning radii.
- Detour routes must accommodate height, width, weight, length, and off-tracking and other physical characteristics of the design vehicle (largest vehicle expected to use the detour).
- Provide routine inspections and maintenance of the traffic control elements for the detour verifying elements are performing both day and night. Things that look fine during the day could be confusing after dark.

## **Detour deployment checklist**

1. Inventory the devices you plan to use – make sure they are all clean and in good working order.
2. Review the Traffic Control Plans for appropriate installation.
3. Discuss safe procedures with your team, including proper personal protective equipment.
4. Make sure workers have the proper training prior to assignment.
5. Identify appropriate emergency contacts.
6. Visit the site in advance to identify any potential issues.
7. Notify other personnel as needed (law enforcement, rescue, etc.).
8. Prior to installation, place signs and other devices along the shoulder so they can be quickly moved into position.
9. Install the devices per the guidance in this manual for the appropriate operation.
10. Review your installation for good driver navigation and make adjustments as needed

**Detour signs**



It is vital that drivers are aware that a detour is coming up before they must take it. By having a sign that says "Detour Ahead," or "Road Closed Ahead," people will be able to prepare and think about the new route they must take. Driving the same way to a destination can often make it so that motorists operate a vehicle without thinking too much about the route. The noticeable signs are key to keep someone from being taken by surprise and can prevent a crash from occurring.



Town Highway Detour



State Highway Detour

Detour Arrow signs should be used to direct motorists along the detour route providing advance information when approaching turns are required. The street name should be incorporated above the detour arrow for streets without posted route numbers to provide additional guidance for the motorist.



It is also important to provide the motorist with information when the detour itself has ended and they have reconnected with the original route of travel by using an "End Detour" sign.



The large Detour Arrow should be mounted below the Road Closed sign on a Type 3 barricade to prevent access into the closed roadway for the provided detour.

◇ Also reference part 6 of the current "Manual on Uniform Traffic Control Devices" and its latest revisions for more information regarding detour signing for bicycle routes.

**Special Consideration for Installation and Removal for Detour Routes**

When the traffic control plan requires a detour route, installation and removal procedures are different than for a normal stationary lane closure.

*For installation of a detour:*

- First install the last sign motorists will see (the sign that guides motorists back to the route they were detoured from).
- Second, install the remaining signs working back toward the beginning of the detour. This procedure allows motorists to detour only after all the signs are in place.
- With the appropriate level of staff available, all detour signs may be placed in the field at the same time. Alternately, detour signs can be placed one by one and covered until ready for use.
- When existing route marker assemblies are located at the intersections or along the detour route, the detour route marker assemblies should be installed adjacent to the existing route marker assemblies and existing route markers that are in conflict with the detour should be covered.

- Detour Route confirmation signs are needed after each major intersection throughout the Detour Route. Also follow-up route marker assemblies should be installed every mile or two along the route in both directions of travel.

*For removal of a detour:*

- First remove the sign at the beginning of the detour route.
- Second, remove the other signs with the flow of traffic.
  - Detour signs should be removed as soon as the detour is no longer in effect. If removal of the detour signs is delayed, the time between the opening of the road and the removal of the detour signs, portable changeable message signs (PCMS) may be used to indicate the roadway is open

### Temporary Speed Reduction for Detour Routes

It should be noted, that speed limits do not generally need to be reduced along off-site detours. However, in some cases, increased traffic and potential for queuing at intersections may warrant a reduction in the existing posted speed limit. Refer to A Guide to Establishing Temporary Speed Limits in Highway Construction and Maintenance Work Zones.

- For State highway systems(See page 6 for state highway certificate)
  - A Temporary Speed certificate can be established and approved for the affected state highway by the District Transportation Administrator, the Construction & Materials Bureau Director, or the Project Delivery Bureau Director.
- For Town roadways (See page 7 for town highway certificate)
  - 23 V.S.A. Section 1010 authorizes the legislative body of a municipality to reduce the speed limit on town highways for special events and maintenance activities for work zones. The fine is doubled in the immediate work zones only not the detour route.
  - If a temporary speed limit is desired for the off-site detour, a temporary speed certificate will need to be filled out and filed for the time period desired and the existing posted speed limit signs revised with the new speed limit, typically reduced not more than 10 miles per hour from the normally posted speed limit and accompanied by a fluorescent yellow “NOTICE” (W16-18p) plaque above the temporary speed limit sign.
  - All conflicting speed limit signs should be removed or covered.
  - At the end of the temporary speed zone, the “resumed” speed limit should be posted.



Signs to be used in an “Active” Work Zone



Signs to be used along a Detour Route

Certificate for Construction and Maintenance Work Zone

STATE OF VERMONT  
CERTIFIED STATEMENT DESIGNATING A TEMPORARY  
SPEED LIMIT ON THE INTERSTATE, STATE OR U.S. HIGHWAY SYSTEM

*In accordance with Title 23, Vermont Statutes Annotated, Section 1006a, a temporary speed limit is hereby designated for the section of highway described below.*

Project or Town Name: \_\_\_\_\_

Project Number (if Applicable) \_\_\_\_\_

Route No. \_\_\_\_\_

Current Posted Speed Limit \_\_\_\_\_

Proposed Temporary Speed Limit \_\_\_\_\_

Approximate Mile points **SEE ATTACHED LIST**

Anticipated Dates From \_\_\_\_\_ Thru \_\_\_\_\_

Requested By \_\_\_\_\_ Date \_\_\_\_\_

*The official signs designating the foregoing speed limit will be erected and removed as directed by the Agency of Transportation. The temporary speed limit will be in effect when the related signs are posted. Removal or covering of the signs by the Agency shall return the speed limit to its previous status. The anticipated from/thru dates indicated may be extended thirty days without a new certificate.*

Approved by \_\_\_\_\_ Date \_\_\_\_\_

Title Director of Project Delivery Bureau or  
Director of Construction & Materials Bureau or  
District Transportation Administrator

- Original to: \*\*, Traffic Operations Engineer  
Copy to: \*\*, Field Force Commander, Dept. of Public Safety  
\*\*, Dept. of Public Safety  
\*\*, Dept. of Public Safety  
\*\*, DMV Commercial Enforcement Unit  
\*\*, Construction Section  
\*\*, Regional Construction Engineer  
\*\*, District Transportation Administrator # \_\_\_\_\_  
\*\*, (Requestor, Title)

Certificate for Construction and Maintenance Work Zone

CERTIFIED STATEMENT DESIGNATING A TEMPORARY  
SPEED LIMIT ON THE TOWN HIGHWAY SYSTEM

*In accordance with Title 23, Vermont Statutes §1010 Special Occasions; Town Highway Maintenance, a temporary speed limit is hereby designated for the section of highway described below.*

Town Name: \_\_\_\_\_

Project Name & Number (if  
Applicable) \_\_\_\_\_

Town Highway Number/Street Name: \_\_\_\_\_

Begin/End Locations:

Current Posted Speed Limit \_\_\_\_\_

Proposed Temporary Speed Limit \_\_\_\_\_

Anticipated Dates From \_\_\_\_\_ Thru \_\_\_\_\_

Requested By \_\_\_\_\_ Date \_\_\_\_\_

*The official signs designating the foregoing speed limit will be erected and removed as directed by the Agency of Transportation (or Town of \_\_\_\_\_). The temporary speed limit will be in effect when the related signs are posted. Removal or covering of the signs by the Agency shall return the speed limit to its previous status. The anticipated from/thru dates indicated may be extended thirty days without a new certificate.*

Approved by \_\_\_\_\_ Date \_\_\_\_\_

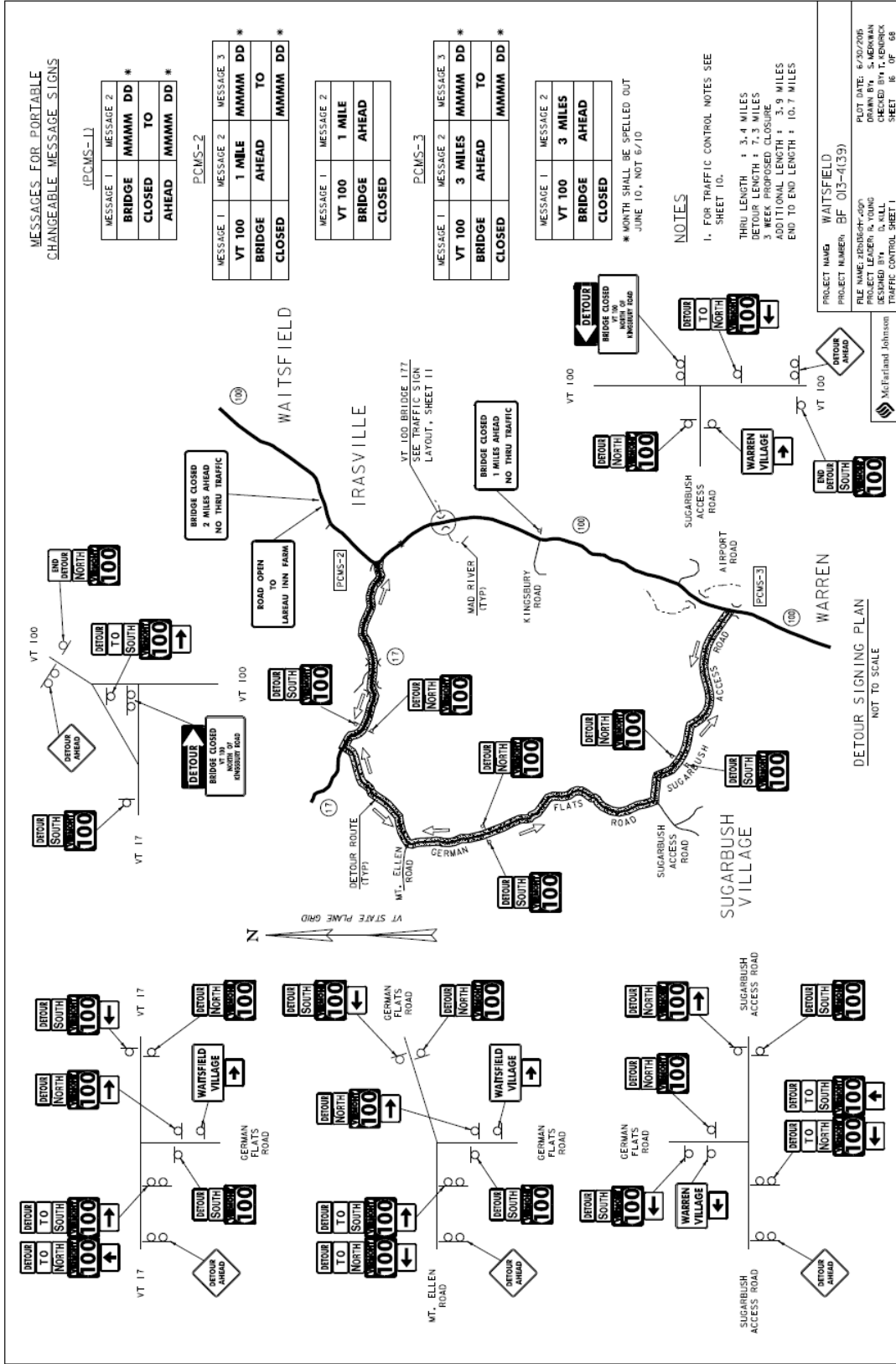
Title \_\_\_\_\_, Select board Chair (or Town Manager or governing authority)

Original to: \*\*, Traffic Operations Engineer

- Copy to
- \*\* , Field Force Commander, Dept. of Public Safety
  - \*\* , Dept. of Public Safety
  - \*\* , Dept. of Public Safety
  - \*\* , DMV Commercial Enforcement Unit
  - \*\* , Construction Section
  - \*\* , Regional Construction Engineer
  - \*\* , Project Manager



# Example Detour for State Routes



MESSAGES FOR PORTABLE  
CHANGEABLE MESSAGE SIGNS

(PCMS-1)

MESSAGE 1	MESSAGE 2
BRIDGE	M MMM DD *
CLOSED	TO
AHEAD	M MMM DD *

(PCMS-2)

MESSAGE 1	MESSAGE 2	MESSAGE 3
VT 100	1 MILE	M MMM DD *
BRIDGE	AHEAD	TO
CLOSED		M MMM DD *

MESSAGE 1	MESSAGE 2
VT 100	1 MILE
BRIDGE	AHEAD
CLOSED	

(PCMS-3)

MESSAGE 1	MESSAGE 2	MESSAGE 3
VT 100	3 MILES	M MMM DD *
BRIDGE	AHEAD	TO
CLOSED		M MMM DD *

MESSAGE 1	MESSAGE 2
VT 100	3 MILES
BRIDGE	AHEAD
CLOSED	

\* MONTH SHALL BE SPELLED OUT  
JUNE 10, NOT 6/10

NOTES

- 1. FOR TRAFFIC CONTROL NOTES SEE SHEET 10.
- THRU LENGTH : 3.4 MILES
- DETOUR LENGTH : 7.3 MILES
- 3 WEEK PROPOSED CLOSURE
- ADDITIONAL LENGTH : 3.9 MILES
- END TO END LENGTH : 10.7 MILES








PROJECT NAME: WAITSFIELD  
PROJECT NUMBER: BF 03-4(139)  
FILE NAME: ZEDBRIGHT.dwg  
DRAWN BY: S. MERRIN  
CHECKED BY: J. MERRIN  
DATE: 6/20/2005  
TRAFFIC CONTROL SHEET  
SHEET NO. OF 68

DETOUR SIGNING PLAN  
NOT TO SCALE

McFarland Johnson

## Local Detours on Town Roads



Legend	Sign Code	Design	Size	Color	Quantity
A	R11-2		48x30	Black/White	2
B	W20-2		48x48	Black/Orange	5
C	W16-8P M4-9 L		12X24 30x24	Black/Orange	5
D	W16-8P M4-9 R		12x24 30x24	Black/Orange	4
E	W16-8P M4-9		12x24 30x24	Black/Orange	3
F	R11-4 modified		60x30	Black/White	6
G	M4-8a		24x18	Black/Orange	2

Also refer to the **2009 Manual on Uniform Traffic Control Devices (MUTCD)** Part 6 Chapter 6H Typical Applications:  
**TA- 9** Overlapping Routes with Detour, **TA-19** Detour for One Travel Direction, **TA-20** Detour for Closed Street