Examples of Temporary Traffic Control Plans

CATEGORY 1
NOTES:
ADVANCE WARNING
SIGN SPACING: ~300'
RWA SIGN ON RIDGE TOP RD.
RWA SIGN ON FOREST HILL DR.
SHOULDER TAPER: N/A
TAPER 1: 500' (STARTS AT INTERSECTION)
BUFFER: INSUFFICIENT SPACE FOR A BUFFER
END TAPER: 100'
TOTAL NUMBER OF LANES: 3
TOTAL NUMBER OF LANES CLOSED TO TRAFFIC: 2
TOTAL NUMBER OF LANES OPEN TO TRAFFIC: 1
VWAP REFERENCE: 12.0, 13.0 & 14.0
NIGHT / DAY
VSP REQUIRED: YES / NO

DESIGNED BY: David Newman
REVIEW BY: Jon Cope

Field deviations shall be documented and included with final inspection package!
MOT PLAN FOR TASK WORK ORDER 045-D9-09007821  
RTE-29 SB LANE 3 (38.85037, -77.34458)  

NOTES:  
ADVANCE WARNING  
SIGN SPACING: ~300'  
RWA SIGN ON RIDGE TOP RD.  
RWA SIGN ON FOREST HILL DR.  
SHOULDER TAPER: N/A  
TAPER 1: 500' (STARTS AT INTERSECTION)  
BUFFER: INSUFFICIENT SPACE FOR A BUFFER  
END TAPER: 100'  
TOTAL NUMBER OF LANES: 3  
TOTAL NUMBER OF LANES CLOSED TO TRAFFIC: 1  
TOTAL NUMBER OF LANES OPEN TO TRAFFIC: 2  
VWAP REFERENCE: 12.0, 13.0 & 14.0  
NIGHT / DAY  
VSP REQUIRED: YES / NO

DESIGNED BY: David Newman  
REVIEW BY: Jon Cope

Field deviations shall be documented and included with final inspection package!
NOTES:
ADVANCE WARNING
L & R SIGN SPACING: 350'-500'
SHOULDER TAPER: N/A
TAPER 1: 250'
TAPER 2: 125'
Taper will be before intersection and will include (2). One before left turn lane and one past point where left turn lane starts to allow turning vehicles to access turn lane.
BUFFER: 400'-600'
END TAPER: 100'
TOTAL NUMBER OF LANES: 3
TOTAL NUMBER OF LANES CLOSED TO TRAFFIC: 2
TOTAL NUMBER OF LANES OPEN TO TRAFFIC: 1
VWAP REFERENCE: 12.0 & 13.0 & 21.0
NIGHT / DAY
VSP REQUIRED: YES / NO

DESIGNED BY: Pete Landreth
REVIEW BY: Jon Cope

VDOT REVIEW COMPLETED BY: _____________________________________________
VDOT COMMENTS:

Field deviations shall be documented and included with final inspection package!

SCALE IS APPROXIMATE
Examples of Temporary Traffic Control Plans

CATEGORY 2
Traffic Control General Notes / Transportation Management Plan

Allowable Hours for Lane Closures

<table>
<thead>
<tr>
<th>Day</th>
<th>1000 PM to 500 AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday</td>
<td>1000 PM to 500 AM</td>
</tr>
<tr>
<td>Monday</td>
<td>1000 PM to 500 AM</td>
</tr>
<tr>
<td>Tuesday</td>
<td>1000 PM to 500 AM</td>
</tr>
<tr>
<td>Wednesday</td>
<td>1000 PM to 500 AM</td>
</tr>
<tr>
<td>Thursday</td>
<td>1000 PM to 500 AM</td>
</tr>
<tr>
<td>Friday</td>
<td>No Lane Closures Allowed</td>
</tr>
<tr>
<td>Saturday</td>
<td>No Lane Closures Allowed</td>
</tr>
</tbody>
</table>

General Notes

1. Temporary lane widths shall not be less than 11 feet.

2. All entrance and exit ramps at the Exit 128 interchange shall remain open at all times.

3. Work operations which will restrict lane widths shall not be initiated until the DMV has been notified of the work operation and location in order for wideloads to be notified of the impending lane restrictions.

4. Measures shall be taken to ensure adequate sight distances during construction operations. Traffic Control Devices, signs, construction equipment, material storage or any other obstacle will not be allowed to interfere with sight distances at entrance ramps for this project.

5. Equipment and/or materials shall not be stored within the established Clear Zone of either the North or Southbound lanes, and/or the deflection zone of physical barriers.

6. All traffic control devices and signs necessary for the maintenance of traffic are to be installed, maintained and removed by the Contractor.

7. All traffic control device locations shall be marked by the Contractor and reviewed by the Engineer prior to installation.

8. All sketches and drawings are not to scale and shall be used for reference only.

9. All work shall be accomplished in accordance with the May 2005 Virginia Work Area Protection Manual.

10. The travel lane and approaches for each Stage of construction shall not be милled until traffic has been switched to the following phase.

11. All conflicting pavement markings and raised snowplowable pavement markers shall be covered using Construction Pavement Marking Type E 6.5+.

12. Guardrail shall be installed to current standards prior to change of traffic patterns for the next stage of work.
Construction Sign Layout
I-81 Northbound Lane

Phase II, Stage 1

Phase II, Stage 2

1. ROAD WORK
   60" x 48" x 48"

2. ROAD WORK
   48" x 48"

3. VCD
   50" x 50"

4. SPECIAL
   48" x 48"

5. TRUCKS USE RIGHT LANE
   48" x 48"

6. SPECIAL
   48" x 48"

7. STAY IN LANE
   48" x 48"

8. SPECIAL
   48" x 48"

9. STAY IN LANE
   48" x 48"

10. SPEED LMT
    65

11. R3-1
    48" x 48"

12. R3-1
    48" x 48"

13. SPEED LMT
    65

14. W1-6L
    48" x 48"

15. W1-6L
    48" x 48"

16. W1-6L
    48" x 48"

17. W1-6L
    48" x 48"

18. W1-6L
    48" x 48"

19. W1-6L
    48" x 48"

* Signs spacing shall be 1300 LF - 1500LF or as directed by the Engineer.
Temporary Traffic Control Plan
I-81 Northbound Lane
Phase II, Stage I
Temporary Traffic Control Plan
I-81 Northbound Lane
Phase II, Stage I
Temporary Traffic Control Plan
I-81 Northbound Lane
Phase II, Stage 2

Construction Pavement
Marking 8" (Ty. D Cl. I)
(Temporary 1-Way (40' Spacing))

Construction Pavement
Marking 6" (Ty. D Cl. I)

Group I Channelizing
Devices (300' Spacing)

Group II Channelizing
Devices (100' Spacing)

PCMS Location & Messages
PCMS should be placed on the right shoulder of Interstate 81, NMI, at Mile Marker 186.80
in accordance with the Virginia Work Area Protection Manual.

PCMS Messages

<table>
<thead>
<tr>
<th>Panel 1 Message</th>
<th>Panel 2 Message</th>
<th>Panel 3 Message</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

VDOT
Traffic Engineering
Southwest Regional Operations
Temporary Traffic Control Plan
I-81 Northbound Lane
Phase II, Stage 2

Traffic Engineering
Southwest Regional Operations
Central Region Operations Traffic Engineering

Transportation Management Plan Recommendations Document

Project Development Stage: Preliminary Field Inspection

Project: 0033-042-107, C501 (Intersection of Route 33 & 54)  
UPC# 18948

The role of Traffic Engineering in developing the Transportation Management Plan (TMP) is to provide the Design Team with a Traffic Data and an Accident Data Analysis at PFI, to provide input pertaining to the safe and efficient management of traffic during construction, and to review the plans throughout the Concurrent Engineering process to ensure that traffic management and traffic safety have been sufficiently addressed in the TMP plan.

Traffic and Crash Data Analysis:

Results from Traffic Data Analysis:
For the year 2006, the AM Peak Hour heaviest traffic movement at the intersection of Route 54 & 33 is on Route 33 coming from the West and turning onto Eastbound Route 33 with 387 right turns per hour. In the PM Peak the heaviest movement is on Route 33 coming from the East turning onto Westbound Route 33 with 425 left turns per hour. The majority of the traffic through this project consists of commuters, residents and truckers. From our analysis we conclude that feasible Off-Site detours are not available and recommend the following:

- From the Regional Operations Lane Closure Analysis – lane closures will be allowed between the hours of 9am to 3pm, and between the hours of 6:30pm to 5:30am for one-lane two-way operations.
- Follow the Holiday Restrictions outlined in the 2002 Road & Bridge Specifications
- Temporary Lane Widths should not be less than 11’ wide.
- Traffic on Route 657, which carries 520 Vehicles per day in the year 2006 and expected to carry 710 VPD in the year 2016, will be impacted by the project. However, due to the relatively low traffic volumes, no specific actions are recommended.
- Both existing left-turn lanes on Route 33 must be maintained during construction.
- After traffic is shifted to the proposed Routes 33 and 54, traffic must not be allowed to cut through along existing Route 54. The plan must effectively address this issue.

Results from Crash Data Analysis:
In total there have been 16 accidents within 1000’ and 1700’ of the intersection (Rte. 54 & 33) over the past 3-year period. There have been 7 angle accidents within the operational area of the intersection. There have been 3 accidents at the east entrance of the Fast-Mart that can also be considered to be within the operational area of the intersection. There have been 3 angle accidents on Route 33 at the intersection of Route 657. As a result of these findings we make the following recommendations, some of which may need to be addressed with specific notes incorporated into the plans.

- Measures must be taken to ensure adequate sight distances during construction. Neither traffic control devices, nor signs, construction equipment, material storage, nor any other
obstacle can be allowed to interfere with **sight distances at entrances and intersections** on the project.

- It must be ensured that there is room within the right-of-way for storage of equipment and materials without creating a sight distance problem or introducing a fixed-object hazard to motorists.
- If during construction there is an existing sight distance obstruction at any entrance that can be easily removed, i.e. shrubs or signs that will be relocated anyway, etc, it must be removed as soon as possible.

**Recommended Temporary Traffic Management Strategies**

The following recommendations are based on a **Category II Project Complexity**. These recommendations should be incorporated into the plans by Public Hearing Stage.

**A Well-thought-out Narrative for Sequence of Construction:**

- The narrative for the *sequence of construction* must be clearly conveyed with each step numbered in a logical order so that whenever a step requires traffic to be shifted or affected in any way, all the steps necessary to make this effectual have been listed previous to this step in the sequence.

**Plan-View Illustrations:**

- In order to ensure that traffic can be maintained as proposed, the plan view illustrations must be to a standard scale, they must be neat and uncluttered, and must clearly illustrate the *sequence of the construction process*. Once the proposed design is shown in a phase, no existing design should be shown for those portions of the project in any subsequent phase, so as to clearly illustrate the process of construction and save time and errors in interpreting the plan. Only those items constructed in a previous phase, and those being constructed in the current phase should be shown as constructed in the current phase.

- In addition to what is required by IIM-LD-241, TED-343 for a category II complexity project, the plan-view for this project must also clearly illustrate the following:
  - Turning radii can be sufficiently maintained for the existing traffic.
  - Temporary pavement markings and markers of proper type and class in each location on the plans.
  - Turn Lane dimensions
  - Rather than place the **temporary signs** on the plans, the TTC number for the correct Traffic Control Typical Sections, see Work Area Protection Manual (WAPM), can be shown on the plans where appropriate.
  - All temporary signs that are not specifically addressed in the WAPM must be shown on the plans in the appropriate location.
  - Any unusual situations that are not covered in a standard must be illustrated in a detail or typical to clearly show how traffic is to be maintained at entrances, intersections, etc.
  - When denoting a work area on the plans, denote it all the way to the construction limits.
- Temporary Drainage - Must be addressed to prevent water-build-up in the travel-way.
Central Region Operations Traffic Engineering

- Permanent Drainage - The contractor will most likely want to install all drainage related items first (i.e. pipes, drop inlets, curb and gutter, etc.) Drop inlet, and curb and gutter installations must not be allowed to interfere with the safe and efficient flow of traffic.
- Cross-cuts for installation of drainage pipe - The plan must address how cross-cuts in the roadway will be covered after installation, i.e. asphalt, gravel, etc. Given the amount of traffic, we recommend asphalt.
- The proposed travel-way must not conflict with Utility installations.
- On-site detours must be designed with minimum 6 degree curves and superelevation must be addressed where necessary.
- Excavation – Excavation next to the edge of pavement should be treated with a 6:1 wedge (typical general note) whenever feasible, or otherwise protected.
- If traffic barrier service is deemed necessary to protect a hazard, ensure that it can be placed properly and that all blunt ends are protected.
- Attention must be give to efficiently maintaining convenient access to all commercial entrances.
- It must be ensured that any temporary grades are traversable.
- Pedestrians must not be prevented from passing through the work zone.

Phased Cross-Sections
- Cross-Sections for each phase of construction must be provided for each tie-in, and for the Route 33 section of roadway construction (where traffic is being shifted to the east and west). The cross-sections must show proof that the lane and shoulder widths, etc, can in fact be maintained as proposed throughout these sections of roadway and within the limits of right-of-way. The following must be illustrated on the cross-sections. (see example attached):
  - Travel-way
  - Travel Direction Arrows
  - Dimensions of travel-way and shoulder width
  - Traffic Control Device Placement
  - Work Area
  - Temporary Pavement
  - Legend
  - Shorten the distance between cross cuts in critical areas to ensure that no hazard or obstruction will be overlooked between cross-cuts.
  - Ensure that where slopes tie in that there is no encroachment upon the travel-way.

Informative Traffic Management Notes:
- The Work Zone Clear Zone (different from Design Clear Zone) must be clearly stated in the Traffic Management Notes to bring attention to its importance throughout construction.
- If lane widths have been reduced throughout the entire project it must be noted in the notes. If widths have only been reduced along portions of the project, a list of the affected stations must be provided.
- All applicable Traffic Management General Notes pertaining to the safe and efficient flow of traffic must be incorporated into the plan and must not contradict any instructions detailed elsewhere in the plan.
Central Region Operations Traffic Engineering

Estimate Appropriate Use of Temporary Traffic Control Pay Items:
- Ensure that all necessary construction pay items relative to traffic and safety are included on the summary sheet.
- Eradication: A Quantity for all necessary eradication of existing pavement markings must be included on the summary sheet.
- Flagger Hours – This project will most likely require at least 3 flaggers at some point. The number of **hours required** should be discussed with the constructability team.

**Transportation Operations Strategies**
This plan is required *if* the work zone will be greater than ½ mile in length and/or has reduced-width travel lanes. Development of this plan must be coordinated by the Project Manager. See IIM-LD-241, TED-343 for guidance. A procedure should be developed for notifying the Project Manager and Regional Operations Manager of any traffic delays caused by work outside the **allowable hours for lane-closures**

**Public Communications Strategies:**
We recommend the following relative to this part of the plan:
- The public should be notified of the expected start date for this project and informed of the potential for back-ups during the hours between 9am to 3pm, and between the hours of 6:30pm to 5:30am.