VIRGINIA DEPARTMENT OF TRANSPORTATION

LOCATION AND DESIGN DIVISION

INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: WORK ZONE SAFETY AND MOBILITY	NUMBER: IIM-LD-241.6 TED-351.4
SPECIFIC SUBJECT: TRANSPORTATION MANAGEMENT PLAN REQUIREMENTS	DATE: May 20, 2016 SUPERSEDES: IIM-LD-241.5 TED-351.3
LOCATION AND DESIGN DIVISION APPROVAL: B. A. Thrasher, P.E. State Location and Design Engineer Approved May 20, 2016	TRAFFIC ENGINEERING DIVISION APPROVAL: R. J. Khoury, P.E. State Traffic Engineer Approved May 19, 2016

Changes are shaded.

CURRENT REVISION

- Updated the Transportation Management Areas (TMA).
- Changed Public Affairs to Communications.
- Revised traffic impact assessment criteria to use VDOT's Traffic Operations and Safety Analysis Manual (TOSAM).

EFFECTIVE DATE

- These instructions are effective upon receipt.

POLICY

- The Virginia Department of Transportation is committed in providing safe and efficient movement of motorized and non-motorized traffic through or around roadway work zones as well as providing protection for workers and equipment located within work zones. VDOT will focus on roadway visibility and functionality of temporary traffic control in work zones and traffic flow through the work zone. Emphasis will begin with the preliminary engineering stages and carried through to the completion of all work, including post construction reviews.

- Compliance with this guidance is consistent with the Department's goal of reducing work zone crashes and improving travel time thereby benefiting all citizens of the Commonwealth. This guidance outlines recommended procedures to be followed and identifies responsibilities to achieve safer work zones with minimal impact on the traveling public.

- **VDOT, through this directive, is extending this requirement to all work zone activities within state right of way and on all streets and highways that have been accepted into the State Highway System regardless of the funding source as well as all other projects receiving State and/or Federal funding.**

BACKGROUND

- In September 2004, the Federal Highway Administration (FHWA) published the Final Rule on Work Zone Safety and Mobility, 23 CFR 630 Subpart J. This rule, referred to as Work Zone Safety and Mobility, applies to State and local governments that receive Federal-aid highway funding. Transportation agencies are required to comply with the provisions of the Rule by October 12, 2007. This rule updates and broadens the former regulation, "Traffic Safety in Highway and Street Work Zones," to address present and future work zone issues.

- The policy provisions in the Final Rule on Work Zone Safety and Mobility:
    - Requires agencies to implement a policy for the systematic consideration and management of work zone impacts on all Federal-aid highway projects. Furthermore, it encourages agencies to implement the policy for non-Federal-aid projects and programs.
    - Requires the policy to address work zone impacts throughout the various stages of the project's development and construction. The agency must consider work zone impacts during project development, management of work zone impacts during construction, and assessment of work zone performance after implementation. The agency must also consider communication with the public before and during the project.
    - Recognizes the state policy may vary based on the characteristics and expected work zone impacts of individual projects or classes of projects.
    - Requires the development of transportation management plans.

For additional information on the Final Rule on Work Zone Safety and Mobility, follow these links:
http://www.ops.fhwa.dot.gov/wz/resources/final_rule.htm (Regulation, Guidance and Examples);

http://www.ops.fhwa.dot.gov/wz/practices/factsheets/factsheets.htm (Best Practices).

NCHRP Synthesis 208, Development and Implementation of Traffic Control Plans for Highway Work Zones.

TYPICAL WORK ZONE MANAGEMENT STRATEGIES

Various work zone management strategies may be employed to minimize traffic delays, thereby improving mobility as well as traveler and worker safety and completing the construction work in a timely manner while maintaining access for businesses and residents. The following set of strategies is not meant to be all-inclusive, but to present a number of suggestions for consideration while developing transportation management plans. A more extensive listing and general information on work zone management strategies may be accessed at the following web sites:

http://www.ops.fhwa.dot.gov/wz/rule_guide/sec6.htm#tab62 and http://www.ops.fhwa.dot.gov/wz/resources/publications/trans_mgmt_plans/trans_mgmt_plans.pdf

The strategies are divided into three broad groups which are captioned as: 1) Temporary Traffic Control, 2) Public Information; and 3) Transportation Operations. Each of these groups is further defined by the specific items listed below.

- **Temporary Traffic Control Strategies:**
  - Control strategies
  - Traffic control devices
  - Project coordination, contracting and innovative construction strategies

- **Public Communication Strategies:**
  - Public awareness strategies
  - Motorist information strategies

- **Transportation Operations Strategies:**
  - Demand management strategies
  - Corridor/network management strategies
  - Work zone management strategies
  - Traffic/incident management strategies

GENERAL GUIDELINES

This section provides guidelines to be used by Project Managers, Roadway Designers, Traffic Engineers, Work Zone Safety Coordinators and Communication Managers for acquiring the information to develop a Transportation Management Plan (TMP). Project personnel shall involve the

FHWA Area Engineer in each of the project's milestones on federal oversight projects. These guidelines require the evaluation of work zone traffic control and communication strategies beginning at the Scoping Activities and continued throughout the Project Development Process (PDP) and during all phases of construction. For additional information on the PDP, follow this link: http://www.virginiadot.org/business/resources/Project_Management_Online_Guide.pdf. Also see LD-436 Quality Control Check List, available at: http://vdotforms.vdot.virginia.gov/SearchResults.aspx?strFormNumber=LD-436

Specific work requirements are noted in the Project Development Process for each milestone, as are the Project Management forms that are to be submitted at the milestones. All Temporary Traffic Control Plans shall be in compliance with the information published in the Virginia Work Area Protection Manual. Any deviations from the Virginia Work Area Protection Manual must be approved by the Regional Traffic Engineer (RTE) and noted in the plans.

- **Initial Scoping Meeting** – The Project team shall use field observations, available crash data, and other relevant operational information to discuss preliminary work zone management strategies in conjunction with alternative project options and design schemes. Relevant operational information should include but is not limited to, project definition (scope, project's complexity level, roadway and traffic characteristics, and TMP type), construction phasing/staging of equipment and materials, pedestrian and bicycle routes, as well as temporary traffic control, public communications and transportation operations strategies. The Project Manager shall request that the Regional Traffic Engineer (RTE) begin acquiring traffic and crash data and explore possible alternate/detour routes. A preliminary cost estimate for the project's traffic management plan shall be developed by the Project Manager at this milestone. The Project Manager shall request that a preliminary Public Communications Plan be drafted by the District Communications Manager.

- **Final Scope / Preliminary Field Inspection** – The Project Team shall utilize traffic and crash data and the preliminary Sequence of Construction (SOC) plans to identify safety and mobility issues during the proposed construction and begin developing the project's preliminary TMP. The Regional Traffic Engineer, working with the Project Team, shall propose the project's TMP that consists of temporary traffic control, public information, and transportation operations strategies, as appropriate. The Roadway Designer shall incorporate the recommended TMP into the projects initial roadway plans.

- **Public Hearing Team Meeting** – Review of the preliminary TMP as incorporated by the Roadway Designer (includes the Temporary Traffic Control Plan as well as the Public Communications Plan and Transportation Operations Plan if required) must be completed by the Regional Traffic Engineer and Regional Operations Director as applicable. Recommendations/corrections submitted by the Regional Traffic Engineer/Regional Operations Director (ROD) that are accepted by the Roadway Designer in collaboration with the project team are to be incorporated into the preliminary TMP by the Roadway Designer prior to the Public Outreach/Public Hearing and Design Approval.

- **Field Inspection Meeting** – The Roadway Designer shall complete the project's TMP for review by the project team during the Constructability and Work Zone Review stage for the Detailed Design Phase of the Project Development Process. Accepted recommendations/corrections submitted by the project team are to be incorporated into the TMP by the Roadway Designer prior to proceeding to the next phase of the project's development. The Project Team shall review the TMP to ensure that all comments and concerns have been addressed. The Regional Traffic Engineer shall review the TMP to check that all safety information and crash data have been incorporated into the TMP.

- **Pre-Advertisement Conference** – The Roadway Designer shall complete the project's final TMP for review during the Constructability, Work Zone and TMP Review stage in the Final Design and ROW Acquisition Phase of the Project Development Process. Accepted recommendations/corrections submitted by the project team shall be incorporated into the final TMP by the Roadway Designer prior to proceeding to the next phase of the project's development. The Project Team shall review the TMP to ensure that all comments and concerns have been addressed. The TMP cost shall be finalized for the constructability review held prior to the Pre-Advertisement Conference milestone.

- **Implementing the Transportation Management Plan** – During the first day of the new work zone traffic pattern, the project's Manager and project's Work Zone Safety Coordinator shall inspect the work zone to ensure compliance with the TMP. On the third to fifth day of implementation of the TMP's new work zone traffic pattern, the Regional Work Zone Safety Coordinator and the project's assigned Work Zone Safety Coordinator shall conduct an on-site review of the work zone's performance and inform the contractor all required changes to the TMP for implementation to enhance the work zone's safety and mobility. All such changes shall be documented. If the project is a federal oversight project, the FHWA Area Engineer shall be afforded the opportunity to review all such changes prior to implementation. An on-site review of the project's work zone traffic control by the Regional Work Zone Safety Coordinator, Project's Manager/Work Zone Safety Coordinator, District Safety Engineer, and the Contractor shall be conducted within 48 hours of any fatal incident/crash within the work zone. This review shall be recorded on the Work Zone Safety Checklist, Form TE-97000.

- **Evaluation of the Transportation Management Plan** – A performance assessment of the project's TMP including area–wide impacts on adjacent roadways should be performed by the project's designated Work Zone Safety Coordinator during construction as circumstances dictate. Any recommendations and comments shall be communicated to the construction inspection team in writing for appropriate changes to the TMP. A review of the overall effectiveness of the project's TMP shall be completed during the Post Construction Meeting and included with the Post Construction Report. A copy of the specific information on the effectiveness of the project's TMP will be forwarded to the State Traffic Engineer for review.

The following guidance is provided to ensure the Project Team understands their role and responsibilities in the development of the project's TMP. Team members from the design disciplines/work group noted below shall have direct responsibilities for the proper development of the TMP during each stage of the Project Development Process.

The Project Manager shall solicit comments from other design disciplines such as Structure and Bridge, Environmental, Materials, etc, as appropriate, to confirm that all safety and mobility concerns are addressed. All team members shall be provided an opportunity to review the TMP prior to each milestone team meeting.

For projects that do not follow the Project Development Process, the Designer, Project Manager or the Contract Administrator will ensure the TMP and the component plans (Temporary Traffic Control, Public Communication and Transportation Operations Plans) are included in the project and contract documents. The development process should be established at scoping with the plans developed based on consultation with, and guidance from, the applicable discipline.

- **Project Team:**

  The Project Manager, with the project team, will review the project at each milestone to ensure appropriate action is taken to reduce work zone impacts on the public. Responsibilities of the project team include a TMP Design Checklist Review Form that is available at: TMP Design Checklist.

- **Regional Traffic Engineering (RTE):**

  In order to promote the safety of workers as well as the safe and efficient movement of traffic through the project's work zone, the RTE shall consider various temporary traffic management strategies and provide the project team with the following recommendations. The RTE shall review the TMP to assess that all that the applicable information is included in the project's TMP:

  - Temporary traffic management strategies
  - Lane width(s) and the number of travel lane(s) and turn lane(s) to be maintained
  - Traffic impact assessments/analysis on the temporary traffic control plan
  - Identify all signal phases within the work zone and on all detour/alternate routes
  - Allowable work activity hours
  - On-site and off-site detour routes
  - Information on the use and placement of all temporary traffic control devices including barrier and channelization devices
  - Type and placement of all signs, message boards, arrow boards, and TMA's
  - Type and location of temporary pavement markings and markers
  - Access to all businesses and private dwellings
  - Post construction assessment of the Work Zone Traffic Impact
  - Quantities for all temporary traffic control devices

- **Regional Operations:**
  In order to promote the safety of workers as well as the safe and efficient movement of traffic through the project's work zone, the Regional Operations Director shall consider various transportation management strategies and provide the Roadway Designer and the project team with the following recommendations. The Regional Operations Director shall review the TMP to check that the applicable information is included in the project's TMP:

  - Temporary transportation operations strategies
  - Incident/emergency management plan
  - Use of ITS for traffic monitoring and queue detection
  - Surveillance of work zone traffic using CCTV, loop detectors, etc.
  - Use of safety service patrols
  - Contact information for Transportation Operations Centers (TOC) and incident management
  - Traffic impact assessments/analysis on the temporary traffic control plan
  - Identify all signal phases within the work zone and on all detour/alternate routes
  - Allowable work activity hours

- **Location and Design (or Contract Administrator as appropriate):**

  Shall ensure the proper design and presentation of all aspects of the TMP by providing the following detailed information in the plan assembly:

  - Profile, alignment, superelevation and lane widths for all traffic lanes, turning lanes, lane shifts and diversions not identified on existing roadways
  - Earthwork/grading that must be completed prior to the next construction phase
  - Utility work that can be completed within the project's guidelines for the TMP
  - Ensure that all utilities will not conflict with temporary traffic control and other safety devices for all phases of construction.
  - Identification of all temporary pedestrian and bicycle routes.
  - Identification of all temporary pavement locations and temporary drainage items
  - Illustrations of the placement of all temporary signs, message boards, arrow boards, TMA's, barriers, attenuators, temporary pavement markings and markers, existing pavement marking eradication, and placement of Group I and II devices in the temporary traffic control plans for all construction phases (excluding temporary lane and shoulder closings)
  - Identification of all emergency pull-off areas
  - Identification of all construction vehicle and equipment ingress and egress locations (for Temporary Traffic Barrier applications)
  - Identification and notation of all signal phases within the work zone and all detour routes
  - Complete TMP typical sections
  - Complete special design details, special cross section and insertable sheets if applicable

- Provide quantities for all temporary traffic control devices

- **Structure and Bridge:**

  Shall ensure the proper design and presentation of specific aspects of the TMP pertaining to structures by providing the following:

  - Movement, staging and use of cranes, other large equipment and materials
  - Need for and placement of temporary bridge parapet and traffic barrier service
  - Need for the setting of beams over traffic
  - Use of temporary bridges
  - Need for demolition over traffic
  - Placement of the above information in the plan assembly in narrative or illustrated format

- **Communications**

  Shall ensure that the transportation management plan is communicated to appropriate key audiences (motorists, law enforcement, emergency services, businesses, residents, elected officials and media). Strategies will include:

  - Development of project-specific communications plan to keep key customers informed about construction-related impacts before and during the construction;
  - Communication and promotion of ways commuters can avoid construction-related delays, i.e. rideshare, telework, public transportation;
  - Development of a crisis communications plan which outlines steps to be taken during a major incident and includes emergency contact information; and,
  - Determination of the need for and types of community meetings needed to inform the public on the various aspects of the construction project

- **Right of Way:**

  Shall ensure the proper design and presentation of specific aspects of the TMP by providing the following:

  - All temporary/permanent easements needed for construction are included in the plans

- **Project Constructability Work Group:**

  Shall ensure that the project can be constructed according to the Plan Assembly, the Sequence of Construction and the TMP by reviewing the project documents and ensuring that:

- Right of way is provided for the placement of construction equipment and materials
- Access is provided to the work area(s) for construction equipment and materials
- Consideration has been given for, methods of deep utilities and large diameter pipe construction.
- Adequate time is provided to complete the construction
- Utility plans have been coordinated with all phases of construction
- Adequate drainage is maintained during construction
- Appropriate traffic control and an information campaign is provided for the setting of bridge beams or other operations requiring total roadway closures and detours
- All identified safety and mobility issues have been addressed for any unusual construction methods
- The project can be built as designed with the minimum necessary road closures and detours to avoid major recurring traffic impacts

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PLAN REQUIREMENTS

This section provides guidance to Project Managers for establishing a project's TMP requirements based on the project's level of complexity. These guidelines categorize a project into one of three types of transportation management. The project's type identifies the **minimum** TMP requirements and recommendations to be used by Project Managers, Roadway Designers, Regional Traffic Engineers, Regional Operation Directors and Communications Managers for developing TMP. In general, the TMP shall consist of a traffic control plan and, as required, public information and a transportation operations plan. The specific project level requirements for plan content are listed by project type. Any deviation from the requirements noted below will require the review and approval of the State Traffic Engineer.

- **Work Area Access Considerations:**

The Temporary Traffic Control Plan (TTCP) should address the need for access to the work area. This is a constructability issue in which the designer addresses the question of how the contractor will move materials and equipment into the work area safety with a minimum of disruption to traffic. This is a particularly critical issue on high speed roadways such as Limited Access highways, especially if temporary traffic barrier is used to protect work areas. Consideration should be given to the design and construction of temporary acceleration and deceleration lanes for the construction equipment. The following should be considered in the planning, design and operation of work zones.

- Anticipate types of work zones that typically create ingress/egress problems. Examples are work spaces requiring work vehicles to merge in/out of high-speed traffic and work activities that will generate frequent

delivery of materials such as paving projects, bridge projects, and the delivery/movement of fill materials.

- Access into/out of the work space meeting the requirements in the Virginia Work Area Protection Manual shall be included in the Temporary Traffic Control Plan.
- Adequate acceleration/deceleration space for work vehicles should be provided.
- The location of access openings should meet the sight distance requirements listed in Appendix A of the Virginia Work Area Protection Manual. In extreme conditions, lane closures may need to be considered.
- Construction access openings in temporary traffic barrier should be planned per Appendix A of the Virginia Work Area Protection Manual to ensure that the blunt ends of barrier walls are properly protected. The barrier or channelization devices should be planned in a manner as to not create a sight distance problem for equipment operator or motorists.
- Ingress/egress condition may justify a lowering of the speed limit during this activity. Any reduction in the posted speed limit must be authorized by the Regional Traffic Engineer and based on an engineering study per Traffic Engineering Memorandum TED-350.
- Warning signs ("Construction Entrance X" and "Trucks Entering Highway") are available for ingress/egress conditions at work area accesses and should be used when appropriate. Special warning signs may be necessary. All warning sign(s) noting work zone access activities shall be covered/removed when the daily work activity ceases.

- **Type A Projects (Project Management Project Category I & II)**

  - Typical Projects: No-Plan, Minimum Plan, Single Phase Construction, Maintenance Projects, Utility and Permitted Work
  - Project Type: Simple project – widening of pavement or adding turn lanes or entrances. Sequence consists of temporary lane closures and flagging operations with no shifting of traffic onto temporary pavement and with two-way traffic operation maintained at all times or at new construction locations with no existing traffic. Temporary Traffic Control plans that only reference the Work Area Protection Manual do not requiring sealing and signing (refer to Traffic Engineering Division Memorandum 362).
  - Impact on Traffic: Lane closures and time restrictions should comply with the Regional Operation's lane closure policies. If the proposed work cannot be completed within the Regional Operation's allowable lane closure time periods, an assessment of the Work Zone Traffic Impact will be completed using a traffic analysis tool recommended in VDOT's Traffic Operations and Safety Analysis Manual (TOSAM). http://www.virginiadot.org/business/resources/TOSAM.pdf. Lane closures, the use of traffic control devices and their placement, Public Information and Traffic Operations Plans will be approved by the Regional Operations Director with implementation based on the traffic impact evaluation and the Regional Operations Director's approval.

Major Components:

- Temporary Traffic Control Plan

  Major components will consist of General Notes, Typical Sections, and if needed Special Details. Each component should provide the following information (this information may be presented in a narrative format with illustrations/sketches as necessary):

  - General Notes which:

    - Identify the project's TMP Type
    - Identify the work zone location.
    - Identify the length and width of the work zone.
    - Identify the lanes affected by the project work.
    - Note the hours the work zone will be active.
    - Identify potential location(s), within the R/W, for construction equipment and material storage.
    - Define the proposed traffic control by referencing the specific Typical Traffic Control Standard(s) listed in Virginia's Work Area Protection Manual and/or by referencing a Special Detail(s).
    - Note any entrances, intersections or pedestrian access points that will be affected by the work zone or by the traffic control devices.
    - Identify the major types of travelers (such as truckers, commuters, residents, etc.)

  - Typical Sections which:

    - Illustrate lane configuration(s) in the work zone.

  - Special Details which:

    - Show schematically the placement of all traffic control devices and locations of safe access into/out of the work space by work vehicles.
    - Place all traffic control devices in accordance with the standards contained in Virginia's Work Area Protection Manual and the Manual on Uniform Traffic Control Devices. Detail for any traffic control device not illustrated in the Virginia Work Area Protection Manual will be included in the plan.
    - Follow symbol conventions for identifying traffic control devices per Virginia's Work Area Protection Manual and the Manual on Uniform Traffic Control Devices.
    - Show all details, dimensions and explanatory notes required to execute the traffic control plan.

- Public Communications Plan

  A Public Communications Plan is recommended for roadways when traffic volumes exceed the minimum number of vehicles/hour/lane or delay times established by the Regional Traffic Engineer for lane closure periods. The Public Communications Plan shall provide the following information (this information may be presented in a narrative format):

  - A process to notify the Project Manager/Residency Administrator of scheduled work plans and traffic delays.
  - A process to notify the Project Manager/Residency Administrator, Regional Operations Manager and the Public Affairs staff of any unscheduled traffic delays.

- Transportation Operations Plan

  A Transportation Operations Plan is recommended for roadways when the work space is greater than ½ mile in length and/or with reduced-width travel lanes. The Transportation Operations Plan shall provide the following information (this information may be presented in a narrative format as part of the Temporary Traffic Control Plan):

  - A process to notify the Regional Transportation Operations Center (TOC) to place lane closure information on the 511 system and VA-Traffic.
  - A contact list of local emergency response agencies.
  - Procedures to respond to traffic incidents that may occur in the work zone.
  - A process to notify the Project Maintenance of Traffic Coordinator/Project Manager/Resident Administrator, District Work Zone Safety Coordinator/Regional Traffic Engineer, the Regional Operations Manager and Public Affairs Manager of any incidents and expected traffic delays.
  - Procedures to clear the incident and restore normal project traffic operations.
  - Details of the process to review incidents for the purpose of modifying the Temporary Traffic Control Plan to reduce the frequency and severity of such incidents.

- **Type B Projects (Project Management Project Categories III & IV)**

  - Typical Projects: Moderate level of construction activity with the primary traffic impact limited to the roadway containing the work zone.
  - Project Type: Moderately complex project – pavement widening or bridges for additional thru lanes and pavement rehabilitation. Sequence consists of lane closures to one or both directions with shifting traffic that may include temporary pavement or detours for the duration of the work. If detour routes are used they typically will remain in place 24 hours per day for the duration of the work. Project will be constructed over several

phases and may include bridge replacements or new bridges, new interchanges, modifying existing interchanges or a new construction location with existing traffic crossing the construction area.

- Impact on Traffic: An assessment of the Work Zone Traffic Impact will be completed using a traffic analysis tool recommended in VDOT's Traffic Operations and safety Analysis Manual (TOSAM) http://www.virginiadot.org/business/resources/TOSAM.pdf. Lane closures and detour routes will be implemented based on this evaluation. All lane closures and time restrictions shall comply with the Regional Operation's lane closure policies, with any deviations requiring the approval of the Regional Operations Director.

- Major Components:

  - Temporary Traffic Control Plan

    Major components shall consist of Detail Plans, Typical Sections, and as required Special Details/Cross Sections/Profiles. Each component shall provide the following information per construction phase. This information shall be placed on a plan sheet.

      - Detail Plans which include all the information listed for Type A Projects plus:

    - Detail drawing(s) containing the following information:

      - Identify the project's TMP Type
      - Narrative describing the sequence of construction
      - Type and location of all temporary signs for the work zone and all detour routes
      - Type and location of all temporary pavement markings
      - Type and location of all temporary pavement
      - Type and location of all temporary barriers
      - Type and location of all impact attenuator/end treatments/Fixed-Object-Attachments (FOA)
      - Locations of safe access into/out of the work space by work vehicles.
      - Locations of emergency pull-off areas.

    - Document/detail how all entrances, intersections or pedestrian access points/routes that will be affected by the work zone or by the traffic control devices will be maintained or by providing acceptable alternate routes.
    - Identify all road(s) to be used as a detour route.
    - Provide notes regarding all traffic control changes such as temporary signals or signal timing changes required within the work zone or the detour route.

- Typical Sections shall contain all the information listed for Type A Projects.
- Special Details/Cross Sections/Profiles shall contain all the information listed for Type A Projects.

▪ Public Communications Plan

A Public Communications Plan is required for roadways when traffic volumes exceed the minimum number of vehicles/hour/lane or delay times established by the Regional Operations Director for lane closure periods. The Public Communications Plan shall provide the following information (this information may be presented in a narrative format as part of the Traffic Control Plan or as a separate Special Provision Copied Note):

- All the information listed for Type A Projects.
- A process for notifying Public Safety, Emergency Management and mass transit organizations of detour route(s) and available alternate routes during construction.

▪ Transportation Operations Plan

A Transportation Operations Plan is required for roadways when the work space is greater than ½ mile in length and/or with reduced width travel lanes. The Transportation Operations Plan shall provide the following information (this information may be presented in a narrative format as part of the Traffic Control Plan or as a separate Special Provision Copied Note):

- All the information listed for Type A Projects.

- **Type C Projects (Significant Projects – Project Management Category V)**

These types of projects are anticipated to cause sustained and substantial work zone impacts greater than what is considered tolerable based on policy or engineering judgment. They should be identified early in the design process in cooperation with the FHWA.

○ Typical Projects: Long duration construction or maintenance projects on Interstate and freeway projects that occupy a location for more than three days with intermittent or continuous lane closures within the following Transportation Management Areas; Northern Virginia (including the counties of Arlington, Alexandria, Fairfax, Loudoun, Prince William, Spotsylvania and Stafford), Richmond (including the City of Richmond, Chesterfield Charles City, Goochland, Hanover, Henrico, New Kent, and

Powhatan Counties as well as the Town of Ashland), Hampton Roads (including the Cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, Virginia Beach and Williamsburg as well as James City and York Counties), and Roanoke Valley (including the cities of Roanoke and Salem as well as Roanoke County). Also includes Interstate and Principle Arterial Roadways with complex multi-phase construction, high accident rates, full closures, or multiple work zones (two or more) within two miles of each other.

- Project Type: Complex project – adding additional thru lanes, bridge rehabilitation, interchange construction and reconstruction. Sequence consists of lane closures with several traffic shifts that may include temporary pavement or detours for the duration of the work. Impact of work zone on traffic operations extends beyond the work zone and affects alternate and/or detour routes. Multi phase construction – bridge replacements or new bridges. Rebuilding interchanges with additional ramps or extensive modification to existing ramps.
- Impact on Traffic: An assessment of the Work Zone Traffic Impact shall be completed using a traffic analysis tool recommended in VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) http://www.virginiadot.org/business/resources/TOSAM.pdf. Lane closures and detour routes shall comply with the Regional Operation's lane closure policies, with any deviations requiring the approval of the Regional Operations Director.

- Major Components:

  - Temporary Traffic Control Plan
    Major components shall consist of Detailed Plans, Typical Sections, and as required Special Details/Cross Sections/Profiles. Each component shall provide the following information per construction phase. This information will be placed on a coordinate plan sheet.
    - Detail Plans which include all the information listed for Type B Projects including the project's TMP Type as well as a list identifying the location of reduced width lane(s) with the width reduction specified.
    - Typical Sections which include all the information listed for Type B Projects.
    - Special Details/Cross Sections/Profiles which include all the information listed for Type B Projects.
  - Public Communications Plan
    The Public Communications Plan is required and shall provide all the information required for Type A and B Projects. This information may be presented in a narrative format as part of the Traffic Control Plan or as a separate Special Provision Copied Note.
  - Transportation Operations Plan
    The Transportation Operations Plan is required and shall provide all the information required for Type B Projects. (This information may be presented in a narrative format as part of the Traffic Control Plan or as a separate Special Provision Copied Note.)

EXAMPLES

The following link will open folders containing examples of TMP recommendations and Temporary Traffic Control Plans for previously developed projects. These examples are for illustrative purposes only and may not totally reflect current policy.

http://www.virginiadot.org/business/resources/traffic_engineering/memos2/Examples_of_Temporary_Traffic_Control_Plans.pdf

RESPONSIBILITIES

The following guidance is provided to ensure that all individuals involved in the planning and construction of all work activities within state right of way and on all streets and highways that have been accepted into the State Highway System understand their role and responsibilities in the development, implementation and review of the project's TMP. VDOT personnel, contractors and permittees from the design and construction disciplines/work groups noted below shall have direct responsibilities for the proper development and implementation of the TMP during each preliminary engineering and construction stage of the project.

- **Project Manager**

  The Project Manager is responsible for following the current Project Management Procedures established by the Project Management Office. In accordance with the Project Management Procedures, the Project Manager will be responsible for ensuring that the project's Transportation Management Plan (TMP) Type for the project is defined at the scoping meeting.

- **Traffic Engineering Division**

  The Traffic Engineering Division is responsible for providing temporary traffic control standards and work zone guidance and recommendations, as well as identifying and communicating issues related to the design and usage of temporary traffic control devices.
  Specific responsibilities of this office include:

  - Conducting annual process reviews of two regions each year.
  - Evaluating work zone safety by tracking the number of fatalities and injuries in work zones annually.
  - Reviewing TMP post-construction reports to ascertain the effectiveness of the TMP and noting the resolution of work zone and/or temporary traffic control problems.

- Revising temporary traffic control standards, procedures and guidance based on the above collected data to improve work zone safety and mobility.
- Defining the appropriate work zone safety training for VDOT personnel, design consultants, construction workers, flaggers, etc.

- **Area Construction Engineers**

  Specific responsibilities of the Area Construction Engineer include:

  - Ensuring that the implementation of all TMPs' in the district is in accordance with the plans, specifications, Virginia Work Area Protection Manual and any other pertinent documents.
  - Supporting the Work Zone Traffic Control Coordinator and the Region's Work Zone Safety Coordinator(s) in performing their assigned duties.
  - Verifying that all contractor personnel are trained and hold valid certifications as required by the Department.
  - Advising the appropriate VDOT personnel, as noted in this guidance, of work requiring lane shifts, lane closures and/or phase changes two working days prior to implementing this activity.
  - Ensuring that the project's assigned Work Zone Traffic Control Coordinator completes and submits the TMP post-construction report.

- **Regional Work Zone Safety Coordinators**

  The regional work zone safety coordinators are a resource to be utilized by the regional and district staff to ensure that work zones operate safely and efficiently with the least amount of inconvenience and impact to the traveling public. Specific responsibilities of the Regional Work Zone Safety Coordinator include:

  - Providing district and regional staff with guidance and recommendations on work zone design and operation.
  - Performing work zone reviews to promote consistency and ensure compliance with work zone procedures, standards and guidance.
  - Monitoring work zone inspections conducted by field personnel and identifying areas that need improvement.
  - Assisting and supporting the project's assigned Work Zone Traffic Control Coordinator in performing their assigned duties

- **Residency Administrators**

  Specific responsibilities of the Residency Administrator for project's administered by the residency include:

  - Ensuring that residency staff receives the appropriate training related to their duties in the development, implementation and review of Transportation Management Plans (TMP).
  - Supporting the Work Zone Traffic Control Coordinator and the Region's Work Zone Safety Coordinator(s) in performing their assigned duties.

- Notifying the Regional Operations Director of work requiring lane closures two working days prior to implementing the lane closure.
- Notifying the Regional Operations Director of height, width and weight restrictions ten working days prior to the imposition of such restrictions.

- **Regional/District/Residency Permit Staff**

  Specific responsibilities of the Regional/District/Residency permit staff include:

  - Ensuring that the permittee's temporary traffic control plan is in compliance with this document, VDOT specifications, Virginia Work Area Protection Manual and any other pertinent documents.
  - Coordinating lane closure needs and height, width and weight restrictions with the permittee and reporting any requests to the Regional Operations Director two working days prior to the lane closure and ten working days for roadway restrictions before any non-emergency work commences.
  - Ensuring that proposed lane closures are in compliance with the regional lane closure policy.

- **Contractor**

  Specific responsibilities of the contractor include:

  - Designating a person assigned to the project who will have the primary responsibility, with sufficient authority, for implementing the TMP.
  - Ensuring that contractor personnel assigned to the project are trained in traffic control to a level corresponding with their responsibilities in accordance with VDOT's work zone traffic control training guidelines.
  - Advising the appropriate VDOT personnel, as noted in this guidance, work requiring lane shifts, lane closures and/or phase changes two working days prior to implementing this activity.
  - Advising the appropriate VDOT personnel, as noted in this guidance, of height, width and weight restrictions ten working days prior to the imposition of such restrictions.
  - Performing, at a minimum, daily reviews of the work zone to ensure compliance with contract documents and establish specifications and standards.
  - Recommending traffic control improvements to the appropriate VDOT personnel to address field conditions pertaining to traffic flow, visibility, and worker/motorist/pedestrian safety.

- **Permittee**

  Specific responsibilities of the permittee include:

  - Submitting a temporary traffic control plan that prescribes the necessary traffic control measures for the work to be performed. This plan shall have the approval from the appropriate VDOT Permit or Land Development

office for approval prior to the commencement of work activities within VDOT right of way.

- Identifying a point of contact that shall be available at all times that the permittee is working within the public right of way. This person shall have the training and authority to correct any traffic control deficiencies.
- Designating a person assigned to the project that will have the primary responsibility, with sufficient authority, for implementing the temporary traffic control plan and other safety and mobility aspects of the permit work.
- Ensuring that permittee's personnel assigned to the work activity are trained in traffic control to a level corresponding with their responsibilities in accordance with VDOT's work zone traffic control training guidelines.
- Notifying the appropriate VDOT personnel, two days prior to the commencement of work and prior to implementing lane closures' and ten days prior to the imposition of height, width and weight restrictions.
- Maintaining a copy of the temporary traffic control plan at the work site.
- Performing, at a minimum, daily reviews of the work zone to ensure compliance with temporary traffic control plan and establish specifications and standards.

Special Provision Copied Notes

The following Special Provision Copied Notes should be included in a project's contract as noted.

- Contractor Alternate Traffic Control Plan – All Type B & C Projects and select Type A projects.
- Work Zone Traffic Control Management – All Type C Projects and select Type B Projects as determined by the Project Manager. The determination shall be based on traffic volumes, TMP complexity, and need for increased and devoted traffic control management.

TRAINING REQUIREMENTS

The Department has established a Work Zone Safety Training Committee (WZSTC) that will present recommendations on procedures, standards, and specifications involving work zone traffic control training issues. The committee will review for approval training courses submitted in compliance with established procedures. The committee will also review and approve Work Zone Traffic Control Training instructor qualifications. Training courses approved in accordance with this procedure shall be the only training accepted as meeting the standards for qualifying persons to plan, design, implement, inspect, and/or

supervise the selection, placement, or maintenance of work zone traffic control schemes and devices in work zones on streets and highways within the Commonwealth of Virginia State Highway System right of way. The State Traffic Engineer's Office shall maintain a list of approved courses and their sponsors/providers. The official list of approved courses, category descriptions, and addresses of course sponsors/providers and approved instructors are provided on the Department's Web site at:
http://www.virginiadot.org/business/trafficeng-WZS.asp .

TRANSPORTATION MANAGEMENT PLAN TYPE A PERFORMANCE ASSESSMENT

Project/Permit/Route No.:	Project's PMP Category:
Report Completed By:	Date of Report:
VDOT Project/Contract Manager:	
Contractor:	

Please check all applicable boxes for the items listed below. All check boxes denoted by an asterisk require comment. This form shall be completed within 30 days of completion of work and submitted to the State Traffic Engineer.

Plan Design

Correct TMP Category Application:	☐ Acceptable	☐ Changes Required*	☐ Not Applicable
Correct TTC Plan Application:	☐ Acceptable	☐ Changes Required*	☐ Not Applicable
Correct Public Communications Application:	☐ Acceptable	☐ Changes Required*	☐ Not Applicable
Correct Traffic Operations Plan Application:	☐ Acceptable	☐ Changes Required*	☐ Not Applicable
General Plan Effectiveness:	☐ Acceptable	☐ Changes Required*	☐ Not Applicable
Comments: _____ _____			

Safety

Crashes*	☐ Yes (Attach FR-300 if available)	☐ No
Complaints*	☐ Yes (Attach separate sheet)	☐ No
Specification Violations	☐ Yes (Attach CQIP Report(s))	☐ No
Work Zone Safety Reviews:	☐ Yes (Attach Form(s) TE-97000)	☐ No
General Effectiveness:	☐ Acceptable ☐ Changes Required*	☐ Not Applicable
Comments: _____ _____		

Mobility

Driver Expectancy:	☐ Acceptable	☐ Changes Required*	☐ Not Applicable
Delay & Queue Length* (List time & Length):	☐ Acceptable	☐ Changes Required*	☐ Not Applicable
Travel Times (List time)	☐ Acceptable	☐ Not acceptable*	☐ Not Applicable
Work Hour Restrictions:	☐ Acceptable	☐ Changes Required*	☐ Not Applicable
General Effectiveness:	☐ Acceptable	☐ Changes Required*	☐ Not Applicable

Comments:

_____

_____

Additional Comments

Summarize the most successful and least successful work zone traffic control procedures.

_____

_____

_____

_____

Summarize any suggested improvements or changes to the work zone traffic control procedures for future similar projects.

_____

_____

_____

_____

VIRGINIA DEPARTMENT OF TRANSPORTATION

POST-CONSTRUCTION TRANSPORTATION MANAGEMENT PLAN (TMP) PERFORMANCE ASSESSMENT - TMP Types B and C

This Assessment shall be completed by the project's designated Work Zone Safety Coordinator upon completion of the work and approved by the Project Manager to document lessons learned and provide recommendations on how to improve the TMP process and/or modify guidelines. The responses should allow the reviewer of this completed Assessment to understand the successes/failures of the project TMP and its requirements. Please attach any relevant documents, project logs, etc. as well as any responses which cannot fit within the provided space.

WORK ZONE INFORMATION:
PROJECT TITLE:
WORK ZONE SAFETY COORDINATOR:
LOCATION:
DISTRICT/REGION:
UPC#

1) Summarize/describe all changes necessary to correct oversights in the TMP:

2) Summarize/describe all changes made to the original TMP and their level of success:

3) Describe public reaction to the TMP including the frequency and nature of complaints:

4) Summarize travel times encountered during peak periods (if required):

Starting location:		
Ending location:		
Date	Method Used (i.e., floating car, Bluetooth, etc.)	Average Travel Time

5) Summarize queues encountered during peak periods (if required):

Date	Method Used (i.e., advance warning vehicle)	Queue Length
During-construction average queue length:		
During-construction maximum queue length:		
Predicted average/maximum queue length from impacts analysis:		

6) Summarize/identify the peak traffic periods and any discrepancies in these periods from the pre-construction impacts assessment:

7) Summarize the types and number of crashes that occurred during construction:

	Property Damage Only	Injuries	Fatalities	Total
Rear-End				
Angle				
Side-Swipe				
Fixed-Object				
Off-Road				
Other				
Total				

8) Summarize the types and number of safety service patrol responses (when applicable):

9) Summarize/describe the most successful and least successful strategies from the TMP:

10) Summarize/describe any suggested TMP improvements or changes for future similar projects:

This completed assessment shall be forwarded to the State Traffic Engineer following approval below

Project Manager Approval
Name:
Title:
Unit
Signature
Date: