

*TDOT WORK ZONE SAFETY AND MOBILITY MANUAL*

**PART 4: Transportation Management Plan Development**

## PART 4: Transportation Management Plan Development

Part 4 describes the procedures required by TDOT's Work Zone Safety and Mobility Process for the development of a TMP. A TMP is required for projects that are expected to impact traffic as a result of an established work zone. The TMP is simply a document illustrating how a coordinated set of transportation management strategies will be used to mitigate work zone impacts. Once a project's significance has been determined, as outlined in Part 3, the TMP can be developed.

Three types of TMP's are defined in this Work Zone Safety and Mobility Manual.

A **Basic TMP** is required for a project which causes minimal work zone impact and/or a project for which all traffic operation and public information strategies have been found to be unnecessary. Only a TTC Plan is required as part of the Basic TMP.

An **Intermediate TMP** is required for a project which is not defined as a Significant Project (described in Part 3), but for which additional traffic operation and/or public information strategies should be utilized. For the Intermediate TMP, a TTC Plan and either a Transportation Operations Plan or a Public Information Plan, or both, are utilized.

A **Significant TMP** is required for any Significant Project (as defined in Section 3.1). All three strategy sets (TTC, Transportation Operations, and Public Information) are required as part of a Significant TMP.

Part 4 of the TDOT Work Zone Safety and Mobility Manual outlines the strategies to be used and/or considered for each of these three types of TMP's.

### 4.1 General TMP Development Considerations

Several aspects of work zone development should be considered as part of the early planning of each project. This early recognition of work zone impacts is a goal of the TDOT Work Zone Safety and Mobility Manual and facilitates the beginning of an effective TMP for the project. Some general considerations to be made early in the process are:

- What are some likely impacts of the work zone and how can these be minimized?
- What type of strategies does TDOT already have in place to help mitigate work zone impacts?
- What are the typical work zone methods for projects of this type?

Once some attention has been given to such questions, project leaders will recognize the underlying foundation of the TMP and begin thinking about its development. This section provides guidance to project leaders in fundamental TMP considerations like TMP development timeframe and responsibilities.

#### *4.1A TMP Development Timeframe*

Because different project types take different paths through planning, design, and construction, not every TMP will be completed by the same process. Regardless of the specific project timeline, most TMP's will begin during the late planning/early design stage of the project. At this time, most of the information needed to begin the TMP will be available. As additional project information becomes available, the TMP can progress in increasing detail. The TMP should generally be completed as part of the design process and should be finalized along with the final set of design plans and available at the time the construction bid documents are prepared.

Some TMP's, because of the standard and repetitive project development process used, can be fully completed soon after the project location is identified. Other TMP's will require additional efforts to complete.

#### *4.1B TMP Development Responsibilities*

The TMP workbook is organized such that anyone with an understanding of work zone operation and the construction needs of a particular project can complete it. This includes TDOT project staff and design consulting organizations. It is not expected, however, that one person can successfully complete the TMP without the input and coordination of other project stakeholders. Particularly for Intermediate and Significant TMP's, responsibility for completion of the plan will be a joint effort among several TDOT Divisions and possibly consultants working with the Divisions.

The TMP manager (individual responsible for completion of TMP – typically a Manager I) should have knowledge of construction procedures and be able to coordinate input from other resources (from within and outside TDOT) to progress through the TMP structure. The manager should also have the authority to make decisions on certain aspects of the work zone management plan and document the strategies to be used in the TMP. The TMP Manager will be the facilitator of the TMP process and will oversee all activities.

Some examples of internal TDOT coordination required from the TMP manager might include:

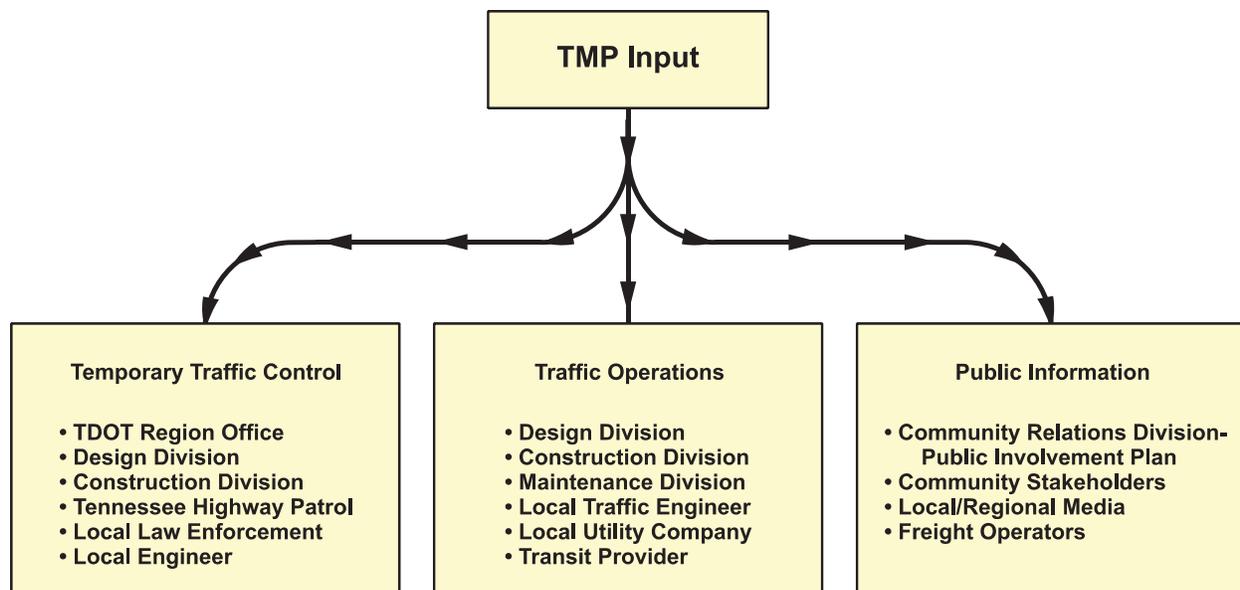
- Coordination with the Construction Division to determine effective channelization devices
- Coordination with the Design Division to determine the possible use of shoulders as temporary traffic lanes

- Coordination with the Materials and Tests Division to determine the availability of precast members to speed construction
- Coordination with the Community Relations Division to determine the appropriate avenues to inform the public of project information

Some examples of external coordination required from the TMP manager might include:

- Coordination with local law enforcement for availability of a presence vehicle
- Coordination with local authorities to authorize retiming of a signal adjacent to the project
- Coordination with a local school to determine access needs and times
- Coordination with a local newspaper to disseminate construction schedules

Figure 4.1 shows how a TMP will incorporate other resources to ensure a comprehensive and effective work zone management plan.



**Figure 4.1  
TMP Diagram**

## 4.2 TMP Strategy Guidance

TMP strategies are divided into three groups and each group has a variety of individual strategies that should be considered. Those responsible for creating and managing TMPs are to be mindful of the following Final Rule requirements:

- Roadside safety hardware implemented as part of the TTC shall be maintained at equivalent or better levels than existed prior to the project.
- Construction plans and documents shall include the use of pay item provisions (individual or lump sum) to procure the implementation of the TMP strategies. These provisions may be implemented through use of method or performance-based specifications. Examples of performance-based requirements include, but are not limited to, incident response times, vehicle queue lengths, and work duration.

### Temporary Traffic Control (TTC) Strategies

- Work Zone Construction Strategies
- Traffic Control and Safety Device Strategies
- Coordination and Contracting Strategies
- Advanced Material and Methodology Strategies

### Transportation Operations (TO) Strategies

- Travel Demand Management Strategies
- Corridor/Network Management Strategies
- Work Zone Safety Management Strategies
- Traffic/Incident Management Strategies
- Enforcement Strategies
- Personnel/Stakeholder Utilization Strategies

### Public Information (PI) Strategies

- Public Awareness Strategies
- Motorist Information Strategies

Each of the individual strategies listed above is discussed in detail in the following sections. Where applicable, references are noted for each of the individual strategies. A Significant TMP shall have strategies from each of the three strategy groups, while an Intermediate TMP shall have strategies from the TTC group and at least one from either the TO or PI strategies, or both.

A TMP workbook has been developed (included as Appendix B) to guide the drafting of the plan and encourage consideration of various types of impact mitigation strategies. Once complete, the TMP Workbook becomes the official documentation of the project's

TMP decision making process. A copy of the entire Workbook shall be filed for future reference. The TMP then exists within and becomes part of the project as the TMP strategies shall be incorporated into and made part of the project's construction plans and contract documents.

In completing the TMP, the TMP manager should carefully consider, in addition to the standard TDOT procedures, each of the strategies presented for applicability and effectiveness. Many of the strategies presented will not be applicable. The various strategies are not intended to be all inclusive, but rather provide a range of possible strategies which might be considered.

*The following sections provide guidance for the completion of the TMP. A TMP shall be developed in accordance with the following references:*

- *Manual on Uniform Traffic Control Devices (MUTCD)*
- *American Association of State and Highway Transportation Officials - A Policy on Geometric Design of Highways and Streets ("Green Book")*
- *AASHTO Roadside Design Guide*
- *TDOT Design Guidelines*
- *TDOT Public Involvement Plan*
- *TDOT Circular letters (those referenced are included as Appendix C)*

Sample completed TMP Workbooks are included as Appendix D.

## **4.2A Temporary Traffic Control (TTC) Strategies**

### WORK ZONE CONSTRUCTION STRATEGIES

**Construction phasing and/or equipment staging:** Using a thoughtful approach to positioning equipment and materials and sequencing construction tasks can prevent unnecessary traffic impacts. Use this strategy to specify special staging areas, construction phasing, warnings against careless material placement, etc.

**Full roadway closure:** This strategy trades a shorter-term full road closure for a longer-term partial road closure. Work can usually be completed more quickly and in a safer way, but with significant short-term impacts to traffic. A full closure requires extraordinary coordination with other stakeholders and consideration of detour routes. Except for extremely short closure durations, this strategy should not be specified as part of a Basic TMP. If used, specify closure limits, duration, and reference coordination strategies in detail.

**Narrow lane/shoulder widths to maintain existing number of lanes:** Consider that while the number of through lanes remains unchanged, capacity through the work zone will likely drop due to narrowing lane widths, associated lane shifts, and other work zone features. Lanes should not be narrowed so as to create unsafe conditions or unduly restrict capacity. If shoulder is removed for long distances, consider incorporating emergency pull-outs.

**Full closure of lane/shoulder:** The impact to the roadway is appreciable, but this strategy provides a high degree of worker safety and is relatively easy to implement.

*Reference: Current TDOT Instructional Bulletin and Design Guidelines*

**Lane shift to shoulder/median:** Generally used where an improved median or shoulder exists, a shoulder or median may also be constructed as part of the project to allow its use as a temporary traffic lane. Project officials should recognize the potential localized loss of capacity due to a lane shift.

**One-lane, two-way operation:** Generally used on two-lane roadways where one lane requires closure, this strategy is best for short-term projects. Give special attention to advance motorist warning of such a condition, particularly in areas of limited sight distance.

**Two-way traffic on one side of divided roadway:** Used for major maintenance or reconstruction efforts, capacity of the roadway should be expected to drop to less than one-half. Special consideration should be given to transition areas at project termini, driveways, and public street intersections. Additional construction may be required to maintain access along the divided roadway. Communication of the two-way operation on the typically one-way roadway is also of high importance.

**Reversible lanes:** This strategy might be used in areas having a high directional distribution during predictable periods of the day. This would likely be used on projects of longer duration due to the signal equipment needing to be installed along the project limits.

**Ramp closure/relocation:** When warranted by substantial ramp work, these ramp modifications will significantly impact the controlled-access roadway. A high degree of information must be communicated to the motorist regarding the ramp status. If closed, traffic may be rerouted to another ramp in the intersection (ramp intersection modifications would be required), or rerouted to another interchange altogether. If the ramp to be closed is part of a directional interchange on the interstate system, substantial off-interstate detour routing should be planned.

**Directional interchange closure:** This strategy would likely require large scale detour planning off of the interstate system. Local transportation officials should be consulted in determining detour routes.

**Work hour restrictions (off-peak, night, weekend):** Working during periods having lower traffic demand can benefit mobility and safety. TDOT's *Freeway Work Zone Capacity Tables* should be consulted. Derived from the Highway

Capacity Manual, traffic capacity limits have been developed based on AADT volumes and the number of original and proposed lane closures. The reference charts provide guidance in determining when it may be necessary to restrict lane closures to certain times of day (i.e. weekend only, night only, etc.).

*Reference: Current TDOT Instructional Bulletin and Design Guidelines*

**Bike/Ped access maintenance:** Temporary facilities may be required to be constructed. Particular attention should be paid to proper management of sidewalk closures and accessible navigation.

**Private property/business access maintenance:** The TMP may require construction of temporary private property access and/or special information to direct motorists to relocated access points. Communication with local businesses to better understand how work zones affect their interests and incorporation of work zone elements into the TMP to address those issues should be considered.

**Off-site detour/alternate routes:** Routing traffic onto roadways maintained by other agencies should be done in coordination with those affected agencies. An additional operational assessment of the detour route(s) should be made. Also, temporary traffic control plans should identify detour signing throughout the limits of the detour and utilize appropriate advance notice techniques.

## TRAFFIC CONTROL AND SAFETY DEVICE STRATEGIES

All strategies in this section identified by the TMP should conform to Part 6 of the MUTCD.

**Temporary guidance/informational signs:** Temporary signing will be used in most projects. Special applications or specific considerations should be included as part of the TMP. Temporary signing typically includes the following sign types: Warning, Regulatory and Guide/Informational. TDOT standard drawings and standard notes should be reviewed for necessary applications. TDOT also provides specific guidance in the current instructional bulletin for the use of guidance and directional signing on temporary traffic control plans.

*Reference: Current TDOT Instructional Bulletin and Design Guidelines  
TDOT Standard Drawings and Notes  
Part VI of the MUTCD*

**Portable changeable message signs:** These may be portable or fixed as part of an ITS system in an urban area. Note in the TMP the expected location of the sign(s) and the type of message(s) to be displayed. Portable changeable message signs should be located far enough in advance to provide sufficient warning and/or notice.

**Flashing arrow boards:** Used in merging situations, these panels may be free standing or truck mounted. Note in the TMP the expected location of the panel(s).

**Flaggers/uniformed traffic control personnel:** The position and duty of such personnel should be considered and noted in the TMP when proposed.

**Temporary traffic signals:** Perhaps used in lieu of flagging personnel, this strategy calls for either fixed or portable temporary signals. Location of the temporary signal should be noted. This may also include the use of special traffic signal technology conducive for temporary installations, i.e. video detection actuation in lieu of pre-timed operation. Appropriate signing should also be used in conjunction with these signals, i.e. "Maintain 20 mph", "Stop Here on Red".

**Warning lighting devices:** The specific type and purpose of lighting to be used should be included. These may be utilized for both daytime and night work.

*References: TDOT Supplemental Standard Specifications - Section 712.04  
TDOT Roadway Design Guidelines - Section 4-712.00*

## COORDINATION AND CONTRACTING STRATEGIES

**Coordination with other construction projects:** This strategy involves coordination, scheduling, and sequencing of nearby projects to minimize associated impacts. References to other projects and details on different aspects of coordination should be included. Particular emphasis should be made toward coordinating construction signing between adjacent work zones.

**Coordination with other utility projects:** By involving area utility providers in project planning, impacts from repetitive work zones can be avoided. Another aspect of utility coordination is to include future roadway needs (i.e. spare conduit and easement needs) into the current project.

**Coordination of existing/future right-of-way needs:** If phased or future improvements would require additional right-of-way, this consideration should be made as part of the current project.

**Coordination with other non-highway transportation facilities:** Where roadway projects affect transit centers, airports, rail stations, or other transportation facilities, care should be taken to avoid undue impact. Agencies having oversight of these non-highway facilities should be part of the work zone planning.

**Incentive/disincentive:** Either used as a reward or punitive treatment, monetary amounts may be stipulated to encourage projects to be completed within a

certain timeframe or deadline. This is utilized in an attempt to minimize the duration of a work zone.

#### ADVANCED MATERIAL AND METHODOLOGY STRATEGIES

**Innovative construction techniques/materials:** This may include the use of special, new or innovative materials or construction methods to reduce construction time. The TMP may suggest or propose certain methods to be considered (i.e. quick cure concrete or pre-cast elements).

### 4.2B Transportation Operations Strategies

#### TRAVEL DEMAND MANAGEMENT STRATEGIES

**Transit service addition/improvement:** This technique attempts to alleviate the impact of work zones by more efficiently managing the vehicular demand traveling through the area. Where appropriate, the temporary creation or modification of existing transit service may aid in this effort. This may include the promotion and implementation of express bus routes or park-and-ride lots. It may also entail the re-routing of existing transit routes outside the work zone influence area.

**Transit incentives:** Transit incentives could include financial incentives or reimbursement if certain ridership benchmarks are proposed and met during construction. This may also include subsidies for employer-sponsored transit programs or guaranteed ride home programs. It may be advantageous to seek partnerships with existing local programs.

**Shuttle services:** This strategy may include commuter focused to/from work initiatives or possibly the introduction of lunch-time shuttles to move persons within high-density employment areas for those eating meals and/or running midday errands.

**Ridesharing/car pooling incentives:** Another potential strategy to decrease the number of vehicles traveling through work zones during peak hours. Consider partnerships with private businesses where businesses may distribute special offers/discounts for using the program.

**Park-and-ride promotion:** A directed campaign to provide new or encourage increased use of existing park-and-ride locations. Funding to supplement equipment or operations costs may be considered.

**HOV lane addition/promotion:** The TMP may include the dedication of new or preservation of existing HOV lanes. These high-occupancy lanes may be only temporary during construction or may become permanent at the conclusion of the project.

**Ramp metering:** This demand management tool regulates the introduction of vehicles into free-flow traffic through the use of signalization. Typically located on on-ramps to freeway or expressway facilities, this strategy attempts to preserve free-flow conditions on the main highway. Its desired effects are to decrease demand on a higher functional roadway by controlling entering vehicles while matching the flow of entering traffic to the availability of gaps on the mainline facility.

**Variable work hour incentives:** This strategy attempts to reduce peak hour demand by encouraging commuters and employers to stagger or offset work times.

## CORRIDOR/NETWORK MANAGEMENT STRATEGIES

**Signal timing/coordination improvements:** The TMP development process should consider the benefit of implementing updated signal timing and/or coordinated signal timing plans. When work zones are located within signalized corridors, provisions to implement signal coordination may significantly improve traffic flow and reduce driver delay. Including temporary signal equipment (video actuation, radio-based signal communication) in a TMP to facilitate efficient signal operation and/or coordination may be a viable option. In addition, signal timing parameters (i.e. phase splits and clearance intervals) should be reviewed.

**Temporary traffic signals:** This strategy employs the use of traffic signals to manage intersection traffic flow during construction. This may be a preferred method over stop signs or the use of flaggers. The need to interconnect new, temporary signals with existing ones should be considered. In addition to intersections, this strategy is often utilized during bridge construction/rehabilitation projects where only one lane is open to traffic flow.

**Other street/intersection improvements:** Temporary work zones may require geometric improvements to maintain efficient traffic flow. Elements such as additional turn lanes, shoulders or improved turning radii are examples. These measures could significantly improve a roadway's capacity and operational performance.

**Bus/delivery turnouts:** Vehicle turnouts, or pull-over areas, provide a refuge for these vehicles by removing them from the traffic stream. In addition to improved traffic flow, these elements may provide a safety benefit for drivers and passengers. These may be located in close proximity to existing bus stops or loading zones, particularly where work zones may disrupt their existing use or location.

**Turn restrictions:** Turning movements at intersections or driveways may be prohibited to allow for construction activities. This may be completed in

combination with detours. Turn restrictions may be implemented on a short-term (staged or phased) basis or throughout the duration of the work zone.

**Parking restrictions:** This strategy involves the removal of parking within a work zone to allow for construction work and/or for the benefit of worker or driver safety. Temporary removal of on-street parking may be implemented to preserve the use of a travel lane for traffic flow.

**Truck/heavy vehicle restrictions:** Due to either safety precautions or construction management strategies, large vehicles may be prohibited and/or detoured around the work zone. Roadway geometrics during construction may restrict the ability for oversized vehicles or large trucks from safely traveling through the work zone. Sufficient warning and advance notice is recommended in these cases.

**Separate truck lanes:** For worker safety, geometric limitations or other reasons, it may be advantageous to restrict trucks to certain lanes. The provisions listed in 23 CFR Part 658.11 (d) (1) and (g) must be followed under these conditions.

**Reversible lanes:** Sometimes referred to as contra-flow lanes, this strategy utilizes the same lane but for different directions of travel during different times of the day. Usually implemented during peak periods, a lane may be utilized for inbound travel in the morning and then outbound for the evening commute. Proper signing and signalization need to be considered.

**Ramp closures:** The closure of existing ramps may be necessary to allow for access to the work zone area or improve performance of the mainline flow. This may be completed in coordination with detours. Sufficient warning and advanced notice is recommended in these cases.

**Railroad crossing controls:** Where a railroad crossing is located within or near a work zone, special attention may be required to preserve traffic flow and address safety concerns. Coordination should be maintained with the railroad owner. Signal preemption, signing and pavement markings are some of the issues that should be considered.

## WORK ZONE SAFETY MANAGEMENT STRATEGIES

**Speed limit reduction/variable speed limits:** The reduction of speed limits within work zones is a common strategy to promote safety and driver awareness with road work areas. The TMP may consider implementing speed reduction zones throughout the entire work area, or only within areas of the work zone where active work is taking place. Work zone speed limit advisories require appropriate signage and advance driver notice. TDOT addresses establishment of work zone speed limits in a memorandum entitled *Guidelines for Establishing*

*Work Zone Speed Limits* dated February 25, 2002. This guidance should be utilized to formulate a project's TMP speed limit recommendations.

*References: TDOT Work Zone Speed Limit Memo*  
*"TDOT Guidelines for Establishing Work Zone Speed Limits"*  
*(02/25/2002)*  
*"Typical Placement for Speed Limit Signs in Work Zones"*  
*NCHRP Research Digest No. 192*  
*TDOT Circular Letter 712.04-01 (05/15/2002)*

**Temporary Traffic Signal:** A temporary traffic signal may be implemented as part of a work zone. Based on changes in alignment, geometric or traffic control circumstances, a traffic signal may be an advantageous safety measure (i.e. traffic control for one-lane bridge conditions). Also see temporary traffic signal strategy under Temporary Traffic Control plan strategies.

**Temporary movable/traffic barrier system:** Traffic barriers provide a significant and rigid barrier of protection for workers and motorists. They may be installed adjacent to the work area or to separate opposing lanes of traffic. Required delineation and shoulder space should also be considered when using the barriers. Moveable barrier systems allow for a quick change or adjustment to the barrier system.

**Crash cushions:** This strategy is a safety device mounted on fixed or mobile objects to protect both motorists and construction personnel. Also known as impact attenuators, these instruments are a proven safety device by transferring the kinetic energy of moving objects (vehicles) to the crash cushion. These devices are most commonly used at the terminal ends of rigid barrier walls and also mounted on the rear of moving (mobile) work vehicles.

**Temporary rumble strips:** This strategy may be implemented to better gain motorists' attention to changing conditions. They are used to alert motorists that they are approaching a traffic control device or change in the work zone layout (i.e. presence of downstream work zones, traffic signal, stop signs or speed limit reductions). They may also be used longitudinally to delineate edges of the travel way, barriers or other roadside obstacles.

**Intrusion alarms:** In areas where it is desired to provide additional safety measures to work zone personnel, an intrusion alarm is an additional measure that may be used. Sensors are placed in locations where vehicles could potentially leave the designated travel way and enter the work zone. When the sensors detect an intrusion, audible alarms and/or lights are triggered alerting workers of the situation.

**Warning lights:** Warning lights may be used to delineate or alert motorists to work zone signs, barriers or other elements. TDOT standard specifications and

design guidelines on the application and implementation of lighting devices shall be followed when deploying this strategy.

**Automated flagger assistance devices (AFAD's):** These instruments allow for remotely controlling the assignment of vehicle right-of-way during short-term lane closures on two-lane highways. MUTCD provisions on the use of AFAD's should be strictly followed.

**Road safety audits:** Qualified personnel may perform a road safety audit prior to or during an active work zone. The audit may outline or highlight previously unknown safety issues that may be remedied through corrective measures or strategies implemented through the project planning and design process.

**On-site safety training:** Safety of workers and travelers within work zones may be enhanced by conducting safety training in the field. As part of the work zone management plan, training may be held to update workers on new technology or practices. Training may also be conducted as part of an on-going training requirement.

**Safety award/incentives:** This strategy utilizes awards, rewards or other recognition for the use of or successful completion of safety measures. Employees or contractors may be recognized for meeting specified safety goals or performance measures.

**Windshield safety surveys:** This strategy could involve the use of trained department staff or consultants in making on-site field visits (scheduled or random) to review performance of work zone traffic control and its adherence to project and contract standards and specifications. This could coincide as part of a regular work zone inspection program for the duration of the project or work zone event.

## TRAFFIC/INCIDENT MANAGEMENT STRATEGIES

**ITS for traffic monitoring/management:** The implementation of ITS field devices may be included in a project TMP to promote real-time identification and mitigation of incidents within work zones. If a work zone occurs within an area already covered by an ITS system, provisions should be made for the existing ITS system to be incorporated and utilized within the work zone. Measures may be taken to relocate or install temporary instruments as needed. Conversely, a temporary, stand-alone ITS system may be included as part of the TMP. Items like traffic flow detectors and closed-circuit television (CCTV) cameras could be deployed to assist in the surveillance and communication of work zone conditions.

**Transportation management centers:** Often used in conjunction with ITS field devices, a management center could be used to accommodate personnel

overseeing the ITS equipment. Often an existing center may be used to organize and operate the system. In other situations, it may be desirable to establish a temporary location (i.e. a leased trailer) near the work zone site.

**Traffic surveillance:** This strategy is a subset of the overall ITS monitoring strategy and is used specifically for the monitoring of traffic flow and real-time conditions. Field devices such as CCTV cameras, loop detectors, video detection equipment as well as other technology may be deployed.

**Traffic screens:** Traffic screens may be installed within work zones to help prevent motorists from being distracted by the work zone. The intent of the screens is to aid in keeping motorists' focus on the roadway. They are typically mounted on the rigid traffic barriers. They may also be used to minimize glare from headlights of opposing traffic.

**Assistance call boxes:** The use of existing or installation of temporary call boxes may be included in the TMP. They provide travelers a way to contact officials for assistance. This would aid in the removal of blockages or incidents in work zones. These may be used in combination with vehicle "pull over" or refuge areas designated along a work zone.

**Temporary location mile markers:** These signs enable drivers to accurately report their location in the event of an incident. Mile markers are typically located outside the shoulder or within the median. Adjustments should be allowed as construction activities change.

**Tow/freeway service patrol:** This strategy uses on-site or nearby patrol vehicles or service vehicles that are given the primary objective of responding to needs within the work zone. This is particularly beneficial in aiding vehicle breakdowns or aiding in crashes. The patrol could be very helpful in work zones where significant congestion or delay could result due to lane blockages.

**Incident detour routing:** If deemed applicable, the TMP might include a pre-planned detour route that could be efficiently implemented when needed. Arrangements should be made during project development where viable detour entry and exit points may be established and what parties are responsible for initiating an emergency detour. The TMP should include specific detour routing and signing plans.

**Contract support for incident management:** This strategy allows for the contracting of outside, private service providers to operate identified incident response measures. The TMP should identify the services that might be provided by an outside service. Typical services may include police agencies (off-duty), towing, ITS equipment service/management and sign maintenance.

**Incident/emergency response plan:** Where more sophisticated emergency plans are needed, the TMP may include a comprehensive incident plan consisting of specific contacts and measures to be taken in response to certain situations. The plan could identify detour routing, contact information, location of staging areas and personnel roles.

## ENFORCEMENT STRATEGIES

**Dedicated (paid) police enforcement:** This measure may be included in a project TMP to allow for the presence of dedicated police enforcement. Police presence may be called for at all times, during a specific time or specific construction activities. The scope and payment of these services may be handled through a contractual agreement. This police presence may begin with the onset of work or as-needed based on driver behavior.

**Cooperative police enforcement:** This strategy is meant to achieve the same objectives as the dedicated police enforcement except that there is not a separate or exclusive contract agreement. In this case, police enforcement is secured through a cooperative agreement between the police and work zone agency.

**Automated enforcement:** This provides an option to utilize technology as the means to assisting enforcement and communicating driver behavior back to travelers. The types of automated strategies may range from automatic speed radar/displays to traffic signal violations. The TMP should specifically identify what is to be measured or enforced.

## PERSONNEL/STAKEHOLDER UTILIZATION STRATEGIES

**Project task force/committee:** The TMP may include a recommendation to assign and dedicate an individual or group to oversee and manage specific strategies to be deployed. The TMP should outline the objectives and role of the task force.

**Construction safety supervisor/inspector:** This strategy utilizes and dedicates an individual or team to conduct regular safety review or inspections of the work zone. The inspection would ensure proper work zone implementation or provide a mechanism to take corrective action in a timely manner.

**Incident/emergency management coordinator:** A TMP may include the use of an individual to oversee incident management operations. This person could coordinate and prepare for emergency situations as well as on-going incident management strategies (on-site service patrols).

**TMP monitor/inspection team:** The TMP may include a recommendation to assign and dedicate an individual or group to oversee and manage the implementation and management of the TMP through the life of the work zone.

This would most likely only occur for the most critical or sophisticated projects. The TMP might recommend team leaders or potential TMP contacts.

**Team meetings:** The TMP may recommend that project task forces and/or TMP teams meet on a regular basis to evaluate all aspects of the work zone and address any issues or previously unidentified elements. TDOT currently holds a post-construction briefing meeting on projects having an original contract amount of \$10 million.

*Reference:* TDOT Circular Letter 105.15-02 (07/01/2004)

## 4.2C Public Information Strategies

TDOT's "Public Involvement Plan" outlines the Department's official process and procedures for public information strategies. The following presentation and discussion of public information strategies is to be considered in tandem and in reference to TDOT's official public information guidance document.

### PUBLIC AWARENESS STRATEGIES

**Brochures and mail-outs:** Distribution of printed material may be used to reach large numbers of people. The TMP should specifically identify the desired content of the publications, the intended audience and who might be responsible for developing and distributing the material. Example content may include project schedule, project location, contact information where persons may obtain more information, detour routes or description of expected work zone activities. The brochures may be mailed to specific addresses near the work zone or left at area public locations (schools, libraries, post offices, stores, etc.). This strategy may only be done once at the beginning of the project or may be repeated as a mechanism to update the public on the project and/or changing aspects of the work zone.

**Press releases/media alerts:** This strategy uses the broadness and availability of the television and print media to spread information about specific project information. The TMP should identify what information might be included in the press release and who (division, office or individual) might be responsible for doing these tasks. Existing TDOT protocol and policies should be followed.

**Paid advertisements:** Paid advertisements or announcements may also be used to broadcast public information on upcoming projects. This may include using radio, television or newspapers. The TMP should identify the content, method and parties responsible for implementing this task.

**Public information center:** This is a physical building or facility where the public could obtain brochures, information or speak with project officials. In some cases, it may be possible to utilize a nearby public building or office for this

purpose. It is typically located near or adjacent to the work site. The TMP should suggest possible locations and the type of material or information to be made available.

**Telephone hotline:** This strategy would initiate a toll-free or local telephone number that would broadcast work zone information. Typically, it includes a pre-recorded message that is updated on a regular basis. Sometimes, it allows the public to leave recorded messages. Consideration should be given to if and how the agency will respond to comments. The use of TDOT's "Record-A-Comment" hotline and its associated roadway signage is an example of this.

**General TDOT website:** The TMP may recommend the use of TDOT's web site and/or TDOT SmartWay to disseminate information. Existing TDOT protocols should be used. The TMP may suggest the content and any schedule of information to be posted on the web site.

**Project-specific web site:** A web site specific to the project may be created. The TMP should consider the type and organization of the information to be displayed. It is recommended that an individual or committee be established or assigned to manage this task. It may also be preferable to seek an outside contractor to oversee the web site's development and management.

**Public meetings/public hearings:** The TMP may recommend that public meetings/hearings be held leading up to or during work zone activities. This is an effective way to reach out to the public, especially in the areas immediately in and around the work zone. This may be a tool to identify and address community concerns and input. In this context, the public meetings are held specifically to address work zone issues, not the overall need or scope of the project.

**Community task force:** This strategy utilizes input from community leaders and concerned citizens likely to be impacted by the work zone. The task force may be used to get feedback on how well certain aspects may or may not be working. Based on this information and public interaction, work zone elements may be fine-tuned or altered. The TMP should state what portions of the community may be most concerned about the impacts of the work zone (i.e. business community, schools, etc.)

**Coordination with media/schools/businesses:** This TMP strategy focuses on creating a relationship with specific community outlets to spread work zone information. This may include the use of e-mail lists, faxes, community access television channels, telephone calls or mass mailings to these pre-defined target audiences. The intent is to open and maintain channels of communication of ongoing construction activities and make those aware of work zone schedules and activities that might affect them.

**Work zone education/safety campaigns:** This is a widely used public information strategy. TDOT is currently active in its “Get In the Zone” and “Be Alert, Arrive Unhurt” campaigns. Through media campaigns, driver outreach programs and work zone awareness programs, greater attention may be brought to work zone safety and conditions. The TMP may recommend a specific education or safety outreach for a particular project based on the type of project proposed.

**Visual presentation materials:** This strategy incorporates the use of visual presentations or videos as part of public meetings or informational sessions. These may be used in conjunction with any of the other suggested strategies such as a repeating video shown at a public information center.

## MOTORIST INFORMATION STRATEGIES

**Traffic radio broadcasts:** The TMP may recommend coordination with local companies responsible for broadcasting traffic reports on local radio stations. The TMP may describe points of contact between the department and the traffic radio providers.

**Advance placement, changeable message signs:** These may be mobile or fixed, existing or temporary dynamic message signs. Placement of mobile signs and the type of messages should be considered in the TMP. Coordination with local ITS management centers should be sought.

**Temporary motorist information signs:** These signs include temporary, traditional signs used to alert the motorist of potential hazards or provide information of detours or guidance through the work zone. The signs may be ground-mounted, overhead or on vehicles. The TMP should suggest potential sign needs and possible locations.

**Dynamic speed message sign:** Either fixed-mounted on the ground or on a portable trailer, this device may be used to enforce reductions of speed limits. Typically these signs are positioned at the beginning of the work zone and also may be located within the work zone. The TMP may recommend the use and placement of these to supplement police enforcement measures.

**Highway advisory radio:** The TMP may suggest that a local highway advisory radio (HAR) broadcast be implemented. This would alert drivers to information about impending work zone activities, like scheduled lane closures or rolling road blocks. The TMP should state possible responsible parties and typical information to be broadcast.

**Listing on Tennessee 511:** This strategy would direct work zone coordination with TN 511. Depending on the scope of the work zone, the traveler information system should be identified as a stakeholder in disseminating project information. The TMP may also list points of contact to allow coordination with TN 511.

**Freight information:** This strategy may be used where there may be an impact to or interaction with freight traffic, including truck companies, parcel companies, etc. The TMP may suggest a recommendation on how to contact and communicate with these groups. Coordination may be implemented through wireless communications or information posted at rest areas, truck stops, etc.

*Reference: TDOT Circular Letter 104.04-01 Structure Width Restrictions  
(07/01/1992)*