

# AGENDA

NEVADA DEPARTMENT OF TRANSPORTATION (NDOT)

STATEWIDE TRANSPORTATION TECHNICAL ADVISORY COMMITTEE (STTAC)

MEETING

February 2, 2015  
10:00 a.m.

**Meeting Location(s)**  
**NDOT Headquarters**  
**Third Floor Conference Room**  
**1263 S. Stewart Street**  
**Carson City, Nevada**

**NDOT/RTC**  
**Conference Room #127**  
**600 S. Grand Central Parkway**  
**Las Vegas, Nevada**

**NDOT District III**  
**District Conference Room**  
**1951 Idaho Street**  
**Elko, Nevada**

**NOTIFICATION.** The STTAC reserves the right to take items out of order, combine two or more agenda items for consideration, may remove an item from the agenda or delay discussion relating to an item on the agenda at any time.

Regular STTAC Meeting

1. **(For Possible Action) Call to order and determination of quorum for the Regular STTAC meeting**

2. **Public Comment**

The STTAC is prohibited by law from taking immediate action on or discussing issues raised by the public that are not listed on this Agenda. Members of the public are allowed a maximum of three minutes to discuss an issue.

At this time any citizen in the audience may address the STTAC on any matter within the jurisdiction of the STTAC. No vote can be taken on a matter not listed on the posted agenda; however, the STTAC can direct that the matter be placed on a future agenda.

Each citizen must be recognized by the Chairman before speaking. The citizen is then to approach the microphone to state his or her name, and to spell the last name for the record. The Chairman may limit remarks to less than three minutes' duration, if such remarks are disruptive to the meeting or not within the STTAC's jurisdiction.

The Nevada Department of Transportation keeps the official record of all proceedings of the meeting. In order to maintain a complete and accurate record, copies of documents used during presentations must be submitted to the Recording Secretary.

The Nevada Statewide Transportation Technical Advisory Committee appreciates the time citizens devote to be involved in this important process.

3. **(For Possible Action) Approval of the December 1, 2014 STTAC meeting minutes**
  
4. **Briefing on NDOT's Policies and Procedures on Construction Traffic Control (Jeff Shapiro)**  
 Traffic control on NDOT transportation construction projects is developed and implemented in accordance with the Work Zone Safety and Mobility Implementation Guide (Guide). The purpose of the Guide is to establish principles, roles, responsibilities and procedures for addressing safety and mobility in NDOT work zones and develop strategies to manage and mitigate impacts, if any, on the roadway. A briefing will be provided on NDOT's Policy and Procedures in terms of Construction Traffic Control.
  
5. **NDOT Planning**
  - a. **(For Discussion and Possible Action) Briefing on Possible STTAC Direction and Workshop (Sondra Rosenberg)**  
 Staff has been reviewing the history of this committee, including its purpose and membership, and will summarize those findings. In addition, staff will describe a proposal to have a workshop with members to facilitate a discussion of potential future responsibilities of the committee.
  
  - b. **(For Discussion and Possible Action) Briefing on Proposed Revisions to the NDOT Transportation Alternatives Program (TAP) (Sondra Rosenberg)**  
 Staff is working on revising the TAP process and would like input from the STTAC. The potential revisions include criteria that allows for a wider range of TAP projects to be considered, a schedule that would allow for more internal review to ensure the proposal has realistic cost and schedule assumptions and for applicant assistance from NDOT staff. Staff would like acceptance from the STTAC before proceeding with the proposed change.
  
  - c. **Briefing on DRAFT USA Parkway (SR 439) Project Impact List (Sondra Rosenberg)**  
 The acceleration of the USA Parkway (SR 439) project may result in the delay of other Northern Nevada NDOT projects. The draft impact project list that was provided to the State Transportation Board in October will be provided for information. Staff will be on hand to take questions and/or provide additional information.
  
  - d. **Update on the FY 2015-2024 Transportation System Projects (TSP) (Coy Peacock)**  
 Update on the TSP FY 2015-2024 that includes: the Statewide Transportation Improvement Program FY 2015-2018, Work Program FY 2015, Short Range Element FY 2016-2017 and Long Range Element 2018-2024.
  
6. **(For Possible Action) Future Agenda Item Discussion**  
 Discussion of items to be placed on future agendas.
  
7. **Public Comment**  
 The STTAC is prohibited by law from taking immediate action on or discussing issues raised by the public that are not listed on this Agenda. Members of the public are allowed a maximum of three minutes to discuss an issue within the jurisdiction of the STTAC as described in Item 2 above.

8. **(For Possible Action) Adjournment of Regular STTAC meeting**

NOTE: Reasonable efforts will be made to assist and accommodate physically handicapped persons desiring to attend the meeting. Requests for auxiliary aids or services to assist individuals with disabilities or limited English proficiency must be made with as much advance notice as possible to Tim Mueller, NDOT Planning Division at (775) 888-7351 or email [tmueller@dot.state.nv.us](mailto:tmueller@dot.state.nv.us).

Posting: This notice has been posted on/or before 9:00 a.m. on or before the third working day before the meeting at the following locations:

Carson City Library	Elko County Courthouse	Clark County Library
RTC of Southern Nevada	Washoe County Library	Washoe County RTC
TRPA	NDOT District I Office	NDOT District III Office
NDOT District III Office	NDOT Headquarters	<a href="http://www.nevadadot.com">www.nevadadot.com</a>

# Copies of the FY 2015-2024 Transportation System Projects-STIP Document are available for inspection and copying at the Headquarters Planning Administration and NDOT District Offices listed below:

Nevada Department of Transportation  
Planning Administration Office  
1263 S. Stewart St., Room 206  
Carson City, NV 89712

NDOT District I Office  
123 East Washington Avenue  
Las Vegas, NV 89101

NDOT District II Office  
310 Galletti Way  
Sparks, NV 89431

NDOT District III Office  
1951 Idaho Street  
Elko, NV 89801

Note: **BOLD type** signifies the title of each agenda item. Discussion information is provided for additional clarification and/or background on each agenda item.

STTAC website: [http://www.nevadadot.com/About\\_NDOT/NDOT\\_Divisions/Planning/STTAC.aspx](http://www.nevadadot.com/About_NDOT/NDOT_Divisions/Planning/STTAC.aspx)

**DRAFT**

**STATEWIDE TRANSPORTATION TECHNICAL ADVISORY COMMITTEE**

Physical Meeting Location: NDOT Headquarters Third Floor Conference Room 1263 So. Stewart Street Carson City, Nevada	Video-Conference Site #1: NDOT /RTC Conference Room #127 600 S. Grand Central Pkwy. Las Vegas, Nevada	Video-Conference Site #2: NDOT District III District Conference Room 1951 Idaho Street Elko, Nevada
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December 1, 2014  
10:00 a.m.

**MINUTES**

**Members in Attendance:**

Steve Bunnell, City of Reno	Clara Lawson, Washoe County
Yazdini Kaizad, Clark County (video-conf/Dist I)	Keith Norberg, TMPO
Jon Ericson, City of Sparks	Dan Doenges, CAMPO
Scott Jarvis, City of Henderson (video-conf/Dist I)	Bobbi Thompson, NATAC
Raymond Hess, RTC of So. Nevada (video-conf/Dist I)	Debra Goodwin, Washoe RTC
Brita Tryggvi, State Energy Office	Leo Drumm, BLM
Wes Henderson, NV League of Cities & Municipalities	Sarah Hills, NDEP
Dale Daffern, City of North Las Vegas (video-conf/Dist I)	Traci Pearl, DPS/OTS
Mike Janssen, City of Las Vegas (video-conf/Dist I)	Christina Leach, FHWA

**NDOT Attendees:**

Tim Mueller, Program Development	Nancy Carnahan, Planning Admin.
Melvin McCallum, Program Develop. L.V. (video-conf/Dist I)	Bill Story, Bicycle/Pedestrian Mgr.
Peter Aiyuk, Performance Analysis	Joseph Spencer, Program Development
Ken Mammen, Traffic-Safety	

**Others in Attendance:**

Peter Vander Aa, OTS	John Fairman, Office of Energy
Mark Mutchler, KLAS-TV (video-conf/Dist I)	Brian Reeder, AGC

**STTAC MEETING -**

**Item 1: Call to Order and Determination of Quorum\***

Chairman Wes Henderson called the STTAC meeting to order at 10:04 a.m. Tim Mueller called roll and it was determined that a quorum was present.

**Item 2: Public Comment**

Tim Mueller introduced and welcomed new STTAC members Raymond Hess representing the RTC of Southern Nevada, Traci Pearl representing the Office of Traffic Safety (OTS), and Mike Janssen representing the City of Las Vegas.

**Item 3: Approval of the October 6, 2014 and October 20, 2014 STTAC Meeting Minutes\***

Steve Bunnell made a motion to approve the October 6, 2014 and October 20, 2014 STTAC meeting minutes. Brita Tryggvi seconded the motion. A vote was taken and the motion carried unanimously.

**Item 4: BLM Update on Resource Management Plans and Introduction of BLM's "Planning 2.0" Process (Leo Drumm)**

Leo Drumm, Travel and Transportation Lead for the Bureau of Land Management (BLM), provided a PowerPoint presentation on the Resource Management Plans and Introduction of BLM's "Planning 2.0" process. A Resource Management Plan (RMP) is a blueprint that describes how the BLM will manage areas of public land over a period of time. It is required under the Federal Land Management and Policy Act (FLPMA) under the principals of multiple use and sustained yield. Mr. Drumm explained the desired outcomes, allowable uses and management actions, the RMP process, the estimated completion dates of each area, alternatives and analysis, the Planning 2.0 initiative to improve the resource management planning process and its goals, the current RMPs structure by program and the integrated RMP landscape approach, and a possible revised process. The update concluded. Discussion followed.

**Item 5: Update on FHWA's Every Day Counts Initiative (Christina Leach)**

Christina Leach, Planning and Research Program Manager for FHWA, provided a video presentation and update on the Every Day Counts 3 Initiative (EDC-3) for 2015-2016. Christina explained that Every Day Counts is an initiative lead by FHWA to promote best practices and innovation in transportation projects. The purpose is to work with state and local transportation agencies to collaboratively select innovations to champion every two years. During the two-year process, about a dozen technologies or process improvements are selected with the idea that these technologies and improvements will improve project delivery as well as save time and money on transportation projects. The EDC is currently in its third round of projects for 2015-2016. The initiative will shorten project development and delivery, improve mobility, safety and the quality of projects. The FHWA Division office will work with NDOT to develop technically diverse teams to develop implementation plans, establish performance goals, and commit to funding. EDC-3 officially begins January 1, 2015. The presentation concluded.

**Item 6: NDOT Planning**

**Item 6a: Recommend approval of the "Final Draft" FY 2012-2013 Transportation System Projects (TSP) document (Coy Peacock)**

Coy Peacock was not present. Joseph Spencer of NDOT Program Development provided an update on the Transportation System Projects (TSP). Joseph stated that the STTAC reviewed and approved the TSP in September/October prior to it going before the State Transportation Board in November. At the State Transportation Board meeting, they felt that it was a large and confusing document and requested additional funding information. Some Board members will meet with Joseph to go over the information. It will then be presented to the State Transportation Board on December 15 with the requested information included. Joseph stated that there were no modifications to the document that was approved by the STTAC. The update concluded. Discussion followed.

**Item 6b: Update on Motorcycle Safety Efforts (Ken Mammen and Peter Vander Aa)**

Ken Mammen, Chief of NDOT Traffic-Safety Engineering, provided a PowerPoint presentation on the Strategic Highway Safety Plan (SHSP). The Strategic Highway Safety Plan has five areas of concern; Seat Belts, Impaired Driving, Lane Departures, Intersections and Pedestrians and most recently added Motorcycles. The emphasis areas meet quarterly with the pedestrian area meeting more frequently. The SHSP is made up of the Nevada Executive Committee on Traffic Safety (NECTS), NDOT SHSP, Technical Working Group (TWG), Data Team and SCA. Motorcycles have been included in the SHSP and will be taken to the NECTS for inclusion. Ken announced the Nevada Safety Summit will be held March 24-25, 2015 in Reno. Ken introduced Peter Vander Aa, Program Administrator – Nevada Rider Motorcycle Safety Program, Chairman Motorcycle CEA. Mr. Vander Aa stated that motorcycles are 2.95% of the total registered vehicles in Nevada and as of November 18, 2014, motorcyclist fatalities are 21% of the total FARS fatalities. Motorcyclist fatalities year-by-year numbered; 2011 – 41, 2012 – 42,

2013 – 57 and 2014 (YTD) – 53. Mr. Vander Aa discussed the age and factor of crashes, the role of the Nevada rider, a comprehensive program, key elements of program management, and moving forward with creating a sixth Critical Emphasis Area (CEA) to combat motorcyclist fatalities and serious injuries. The first meeting was held on October 29, 2014. The next steps include recruiting additional stakeholders and partners to fill the Team, set goals, obtain additional data to further identify the “problem,” and identify strategies and activities. Key elements include a collaborative relationship between OTS and NDOT to address highway engineering and issues, and evaluate the SHSP to determine how motorcycle characteristics related to engineering and design can be considered. NDOT funds a large portion of the motorcycle media budget. Mr. Vander Aa provided contact information of (775) 684-7480 – office and [pvanderaa@dps.state.nv.us](mailto:pvanderaa@dps.state.nv.us) – e-mail address. The presentation concluded.

**Item 6c: Update of the NDOT Transportation Alternatives Program (TAP) (Tim Mueller)**

Tim Mueller of NDOT Program Development distributed a handout, *TAP Project Status as of 11/21/14*. Tim stated that per a request from the last STTAC meeting, the handout depicts the current project status for FY 2013-2014. Tim commented that there are various project “types” which are mainly focused on bicycles and pedestrians. These project “types” may be revised and updated in the future. The Scoring Committee met and ranked and prioritized projects for FY 2015. Due to the situation of funding and the continued resolution, the call for projects for FY 2016 is still unsure. The update concluded. Discussion followed.

**Item 7: Future Agenda Item Discussion**

The next STTAC meeting is scheduled for Monday, February 2, 2015. The following agenda items were requested by members:

- NDOT overview of transportation bills introduced
- STTAC Mission and Goals
- Performance Measures
- Construction Management Practices

**Item 8: Public Comment**

Tim Mueller stated that he will provide a list of links available to the Committee.

**Item 9: Adjournment of Regular STTAC Meeting\***

Chairman Wes Henderson adjourned the meeting at 11:10 a.m.

/pm

# NEVADA STATEWIDE TRANSPORTATION TECHNICAL ADVISORY COMMITTEE

## Agenda Item # 4

**Meeting Date:** February 2, 2015

**To:** Statewide Transportation Technical Advisory Committee

**From:** Jeff Shapiro, P.E., Chief Construction Engineer  
Nevada Department of Transportation

**Subject:** NDOT Construction Traffic Control  
Policies and Procedures

### Type of Action

**Required:** Discussion Only

### Discussion:

Traffic control on NDOT transportation construction projects is developed and implemented in accordance with the Work Zone Safety and Mobility Implementation Guide (Guide). The purpose of the Guide is to establish principles, roles, responsibilities and procedures for addressing safety and mobility in NDOT work zones and develop strategies to manage and mitigate impacts, if any, on the roadway. The fundamental principles of the Guide are as follows:

- Provide a safe work zone for all workers and road users
- Mobility and access – Consider all alternatives to minimize delay.
- Plan, design and construct projects for economical and timely delivery.
- Communicate with stakeholders.
- Continuously assess and improve work zone strategies, practices and procedures.

The Guide is used by NDOT project teams as the basis for Traffic Management Plans (TMP) for its construction projects. Development on the TMP begins during the planning phase of a project and continues throughout the design phase and on to construction. This starts with the creation of a well balanced TMP Team consisting of a variety of engineering disciplines and important project stakeholders. Depending on the type and complexity of a project the TMP Team could include Design Engineers, Traffic Engineers, construction representatives from NDOT Headquarters and local representatives including the District Engineer and the Resident Engineer. Stakeholders on the TMP Team may include representatives from the Federal Highway Administration, local public agencies, railroads, state and local law enforcement agencies, local emergency services, home owner associations, community groups, schools and others necessary to provide input to assure success of the project. Lead by the Design Project Manager, the TMP Team works together to develop a specific TMP for the construction project that meets the needs of a project based on the principles outlined in the Guide. On complex projects NDOT will also develop specific Temporary Traffic Control (TTC) plans for the project.

NDOT uses the Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways, published by the US Department of Transportation as the basic guideline for work zone traffic control on all its projects. The purpose of the MUTCD is to provide a uniform standard for traffic control devices throughout the nation. With over 800 pages the MUTCD provides guidance and

standards for traffic control devices for roadways and bicycle and pedestrian facilities. Part 6, Temporary Traffic Control, provides guidance and standards for work zone traffic control. In addition to the MUTCD, the TMP Team will use NDOT's Standard Plans for Road and Bridge Construction, the Standard Specifications for Road and Bridge Construction and local input to develop a project specific TMP and TTC Plan, as appropriate, for construction plans to be advertised for bidding. Once construction bids are received and awarded and the construction contract executed, the TTC Plans in the plan bid set become contract requirements for the contractor.

Each NDOT construction project is assigned a local Resident Engineer to serve as the construction project manager. By the terms of NDOT construction contracts the Resident Engineer has immediate charge of the engineering details, and is responsible for the administration and satisfactory completion of each assigned construction project. The Resident Engineer begins discussing the traffic control requirements with the contractor before construction starts at the Pre-Construction Conference. Many of the members of the TMP Team including stakeholders will also be invited to participate in the conference. This effort continues throughout construction as the Resident Engineer, and their staff, oversee the work on a daily basis. Throughout the course of the project, the Resident Engineer will bring to the contractor's attention any non-conforming work to be addressed as appropriate. NDOT's Construction Manual serves to assist Resident Engineers on all aspects of overseeing a construction project including addressing general responsibilities and accommodations for public traffic.

- Exhibit A: Links to reference documents
- Exhibit B: Excerpts from MUTCD, Part 6 Temporary Traffic Control
- Exhibit C: Excerpts from the Standard Specifications for Road and Bridge Construction  
Subsection 108.04 Limitation of Operations  
Section 624 Accommodations for Public Traffic
- Exhibit D: Excerpts from NDOT's Construction Manual

**Action Requested:**  
Discussion only



**Exhibit A**

## Links to Reference Documents

### **Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways**

[http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf\\_index.htm](http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm)

### **MUTCD Part 6 Temporary Traffic Control**

<http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part6.pdf>

### **Work Zone Safety & Mobility Implementation Guide**

[http://www.nevadadot.com/uploadedFiles/NDOT/About\\_NDOT/NDOT\\_Divisions/Planning/Work%20Zone%20Safety%20and%20Mobility%20Implementation%20Guide%20March%202012.pdf](http://www.nevadadot.com/uploadedFiles/NDOT/About_NDOT/NDOT_Divisions/Planning/Work%20Zone%20Safety%20and%20Mobility%20Implementation%20Guide%20March%202012.pdf)

### **Road Design Guide - 2010 Edition**

[http://www.nevadadot.com/uploadedFiles/NDOT/About\\_NDOT/NDOT\\_Divisions/Engineering/Design/2010\\_Road\\_Design\\_Guide.pdf](http://www.nevadadot.com/uploadedFiles/NDOT/About_NDOT/NDOT_Divisions/Engineering/Design/2010_Road_Design_Guide.pdf)

### **2014 Standard Specifications for Road and Bridge Construction**

[http://www.nevadadot.com/uploadedFiles/NDOT/About\\_NDOT/NDOT\\_Divisions/Engineering/Specifications/2014,%20Standard%20Specifications%20for%20Road%20and%20Bridge%20Construction.pdf](http://www.nevadadot.com/uploadedFiles/NDOT/About_NDOT/NDOT_Divisions/Engineering/Specifications/2014,%20Standard%20Specifications%20for%20Road%20and%20Bridge%20Construction.pdf)

### **2010 Standard Plans for Road and Bridge Construction**

[http://www.nevadadot.com/uploadedFiles/NDOT/About\\_NDOT/NDOT\\_Divisions/Engineering/Specifications/english\\_2010sm.pdf](http://www.nevadadot.com/uploadedFiles/NDOT/About_NDOT/NDOT_Divisions/Engineering/Specifications/english_2010sm.pdf)

### **Construction Manual**

[http://www.nevadadot.com/About\\_NDOT/NDOT\\_Divisions/Operations/Construction/Construction\\_Manual.aspx](http://www.nevadadot.com/About_NDOT/NDOT_Divisions/Operations/Construction/Construction_Manual.aspx)

**Exhibit B**

# PART 6

## TEMPORARY TRAFFIC CONTROL

### CHAPTER 6A. GENERAL

#### Section 6A.01 **General**

##### Support:

- 01 Whenever the acronym “TTC” is used in Part 6, it refers to “temporary traffic control.”

##### Standard:

- 02 **The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, or on private roads open to public travel (see definition in Section 1A.13), including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.**

##### Support:

- 03 When the normal function of the roadway, or a private road open to public travel, is suspended, TTC planning provides for continuity of the movement of motor vehicle, bicycle, and pedestrian traffic (including accessible passage); transit operations; and access (and accessibility) to property and utilities.
- 04 The primary function of TTC is to provide for the reasonably safe and effective movement of road users through or around TTC zones while reasonably protecting road users, workers, responders to traffic incidents, and equipment.
- 05 Of equal importance to the public traveling through the TTC zone is the safety of workers performing the many varied tasks within the work space. TTC zones present constantly changing conditions that are unexpected by the road user. This creates an even higher degree of vulnerability for the workers and incident management responders on or near the roadway (see Section 6D.03). At the same time, the TTC zone provides for the efficient completion of whatever activity interrupted the normal use of the roadway.
- 06 Consideration for road user safety, worker and responder safety, and the efficiency of road user flow is an integral element of every TTC zone, from planning through completion. A concurrent objective of the TTC is the efficient construction and maintenance of the highway and the efficient resolution of traffic incidents.
- 07 No one set of TTC devices can satisfy all conditions for a given project or incident. At the same time, defining details that would be adequate to cover all applications is not practical. Instead, Part 6 displays typical applications that depict common applications of TTC devices. The TTC selected for each situation depends on type of highway, road user conditions, duration of operation, physical constraints, and the nearness of the work space or incident management activity to road users.
- 08 Improved road user performance might be realized through a well-prepared public relations effort that covers the nature of the work, the time and duration of its execution, the anticipated effects upon road users, and possible alternate routes and modes of travel. Such programs have been found to result in a significant reduction in the number of road users traveling through the TTC zone, which reduces the possible number of conflicts.
- 09 Operational improvements might be realized by using intelligent transportation systems (ITS) in work zones. The use in work zones of ITS technology, such as portable camera systems, highway advisory radio, variable speed limits, ramp metering, traveler information, merge guidance, and queue detection information, is aimed at increasing safety for both workers and road users and helping to ensure a more efficient traffic flow. The use in work zones of ITS technologies has been found to be effective in providing traffic monitoring and management, data collection, and traveler information.

##### Standard:

- 10 **TTC plans and devices shall be the responsibility of the authority of a public body or official having jurisdiction for guiding road users. There shall be adequate statutory authority for the implementation and enforcement of needed road user regulations, parking controls, speed zoning, and the management of traffic incidents. Such statutes shall provide sufficient flexibility in the application of TTC to meet the needs of changing conditions in the TTC zone.**

##### Support:

- 11 Temporary facilities, including pedestrian routes around worksites, are also covered by the accessibility requirements of the Americans with Disabilities Act of 1990 (ADA) (Public Law 101-336, 104 Stat. 327, July 26, 1990. 42 U.S.C. 12101-12213 (as amended)).

**Guidance:**

- 12 *The TTC plan should start in the planning phase and continue through the design, construction, and restoration phases. The TTC plans and devices should follow the principles set forth in Part 6. The management of traffic incidents should follow the principles set forth in Chapter 6I.*

**Option:**

- 13 TTC plans may deviate from the typical applications described in Chapter 6H to allow for conditions and requirements of a particular site or jurisdiction.

**Support:**

- 14 The provisions of Part 6 apply to both rural and urban areas. A rural highway is normally characterized by lower volumes, higher speeds, fewer turning conflicts, and less conflict with pedestrians. An urban street is typically characterized by relatively low speeds, wide ranges of road user volumes, narrower roadway lanes, frequent intersections and driveways, significant pedestrian activity, and more businesses and houses.
- 15 The determination as to whether a particular facility at a particular time of day can be considered to be a high-volume roadway or can be considered to be a low-volume roadway is made by the public agency or official having jurisdiction.

## CHAPTER 6B. FUNDAMENTAL PRINCIPLES

### Section 6B.01 Fundamental Principles of Temporary Traffic Control

#### Support:

- 01 Construction, maintenance, utility, and incident zones can all benefit from TTC to compensate for the unexpected or unusual situations faced by road users. When planning for TTC in these zones, it can be assumed that it is appropriate for road users to exercise caution. Even though road users are assumed to be using caution, special care is still needed in applying TTC techniques.
- 02 Special plans preparation and coordination with transit, other highway agencies, law enforcement and other emergency units, utilities, schools, and railroad companies might be needed to reduce unexpected and unusual road user operation situations.
- 03 During TTC activities, commercial vehicles might need to follow a different route from passenger vehicles because of bridge, weight, clearance, or geometric restrictions. Also, vehicles carrying hazardous materials might need to follow a different route from other vehicles. The Hazardous Materials and National Network signs are included in Sections 2B.62 and 2B.63, respectively.
- 04 Experience has shown that following the fundamental principles of Part 6 will assist road users and help protect workers in the vicinity of TTC zones.

#### Guidance:

- 05 *Road user and worker safety and accessibility in TTC zones should be an integral and high-priority element of every project from planning through design and construction. Similarly, maintenance and utility work should be planned and conducted with the safety and accessibility of all motorists, bicyclists, pedestrians (including those with disabilities), and workers being considered at all times. If the TTC zone includes a grade crossing, early coordination with the railroad company or light rail transit agency should take place.*

#### Support:

- 06 Formulating specific plans for TTC at traffic incidents is difficult because of the variety of situations that can arise.

#### Guidance:

- 07 *The following are the seven fundamental principles of TTC:*
1. *General plans or guidelines should be developed to provide safety for motorists, bicyclists, pedestrians, workers, enforcement/emergency officials, and equipment, with the following factors being considered:*
    - A. *The basic safety principles governing the design of permanent roadways and roadsides should also govern the design of TTC zones. The goal should be to route road users through such zones using roadway geometrics, roadside features, and TTC devices as nearly as possible comparable to those for normal highway situations.*
    - B. *A TTC plan, in detail appropriate to the complexity of the work project or incident, should be prepared and understood by all responsible parties before the site is occupied. Any changes in the TTC plan should be approved by an official who is knowledgeable (for example, trained and/or certified) in proper TTC practices.*
  2. *Road user movement should be inhibited as little as practical, based on the following considerations:*
    - A. *TTC at work and incident sites should be designed on the assumption that drivers will only reduce their speeds if they clearly perceive a need to do so (see Section 6C.01).*
    - B. *Frequent and abrupt changes in geometrics such as lane narrowing, dropped lanes, or main roadway transitions that require rapid maneuvers, should be avoided.*
    - C. *Work should be scheduled in a manner that minimizes the need for lane closures or alternate routes, while still getting the work completed quickly and the lanes or roadway open to traffic as soon as possible.*
    - D. *Attempts should be made to reduce the volume of traffic using the roadway or freeway to match the restricted capacity conditions. Road users should be encouraged to use alternative routes. For high-volume roadways and freeways, the closure of selected entrance ramps or other access points and the use of signed diversion routes should be evaluated.*
    - E. *Bicyclists and pedestrians, including those with disabilities, should be provided with access and reasonably safe passage through the TTC zone.*
    - F. *If work operations permit, lane closures on high-volume streets and highways should be scheduled during off-peak hours. Night work should be considered if the work can be accomplished with a series of short-term operations.*
    - G. *Early coordination with officials having jurisdiction over the affected cross streets and providing emergency services should occur if significant impacts to roadway operations are anticipated.*
  3. *Motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing TTC zones and incident sites. The following principles should be applied:*

- A. *Adequate warning, delineation, and channelization should be provided to assist in guiding road users in advance of and through the TTC zone or incident site by using proper pavement marking, signing, or other devices that are effective under varying conditions. Providing information that is in usable formats by pedestrians with visual disabilities should also be considered.*
  - B. *TTC devices inconsistent with intended travel paths through TTC zones should be removed or covered. However, in intermediate-term stationary, short-term, and mobile operations, where visible permanent devices are inconsistent with intended travel paths, devices that highlight or emphasize the appropriate path should be used. Providing traffic control devices that are accessible to and usable by pedestrians with disabilities should be considered.*
  - C. *Flagging procedures, when used, should provide positive guidance to road users traversing the TTC zone.*
4. *To provide acceptable levels of operations, routine day and night inspections of TTC elements should be performed as follows:*
    - A. *Individuals who are knowledgeable (for example, trained and/or certified) in the principles of proper TTC should be assigned responsibility for safety in TTC zones. The most important duty of these individuals should be to check that all TTC devices of the project are consistent with the TTC plan and are effective for motorists, bicyclists, pedestrians, and workers.*
    - B. *As the work progresses, temporary traffic controls and/or working conditions should be modified, if appropriate, in order to provide mobility and positive guidance to the road user and to provide worker safety. The individual responsible for TTC should have the authority to halt work until applicable or remedial safety measures are taken.*
    - C. *TTC zones should be carefully monitored under varying conditions of road user volumes, light, and weather to check that applicable TTC devices are effective, clearly visible, clean, and in compliance with the TTC plan.*
    - D. *When warranted, an engineering study should be made (in cooperation with law enforcement officials) of reported crashes occurring within the TTC zone. Crash records in TTC zones should be monitored to identify the need for changes in the TTC zone.*
  5. *Attention should be given to the maintenance of roadside safety during the life of the TTC zone by applying the following principles:*
    - A. *To accommodate run-off-the-road incidents, disabled vehicles, or emergency situations, unencumbered roadside recovery areas or clear zones should be provided where practical.*
    - B. *Channelization of road users should be accomplished by the use of pavement markings, signing, and crashworthy, detectable channelizing devices.*
    - C. *Work equipment, workers' private vehicles, materials, and debris should be stored in such a manner to reduce the probability of being impacted by run-off-the-road vehicles.*
  6. *Each person whose actions affect TTC zone safety, from the upper-level management through the field workers, should receive training appropriate to the job decisions each individual is required to make. Only those individuals who are trained in proper TTC practices and have a basic understanding of the principles (established by applicable standards and guidelines, including those of this Manual) should supervise the selection, placement, and maintenance of TTC devices used for TTC zones and for incident management.*
  7. *Good public relations should be maintained by applying the following principles:*
    - A. *The needs of all road users should be assessed such that appropriate advance notice is given and clearly defined alternative paths are provided.*
    - B. *The cooperation of the various news media should be sought in publicizing the existence of and reasons for TTC zones because news releases can assist in keeping the road users well informed.*
    - C. *The needs of abutting property owners, residents, and businesses should be assessed and appropriate accommodations made.*
    - D. *The needs of emergency service providers (law enforcement, fire, and medical) should be assessed and appropriate coordination and accommodations made.*
    - E. *The needs of railroads and transit should be assessed and appropriate coordination and accommodations made.*
    - F. *The needs of operators of commercial vehicles such as buses and large trucks should be assessed and appropriate accommodations made.*

**Standard:**

- 08 **Before any new detour or temporary route is opened to traffic, all necessary signs shall be in place.**
- 09 **All TTC devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, TTC devices that are no longer appropriate shall be removed or covered.**



## CHAPTER 6C. TEMPORARY TRAFFIC CONTROL ELEMENTS

### Section 6C.01 Temporary Traffic Control Plans

#### Support:

- 01 A TTC plan describes TTC measures to be used for facilitating road users through a work zone or an incident area. TTC plans play a vital role in providing continuity of effective road user flow when a work zone, incident, or other event temporarily disrupts normal road user flow. Important auxiliary provisions that cannot conveniently be specified on project plans can easily be incorporated into Special Provisions within the TTC plan.
- 02 TTC plans range in scope from being very detailed to simply referencing typical drawings contained in this Manual, standard approved highway agency drawings and manuals, or specific drawings contained in the contract documents. The degree of detail in the TTC plan depends entirely on the nature and complexity of the situation.

#### Guidance:

- 03 *TTC plans should be prepared by persons knowledgeable (for example, trained and/or certified) about the fundamental principles of TTC and work activities to be performed. The design, selection, and placement of TTC devices for a TTC plan should be based on engineering judgment.*
- 04 *Coordination should be made between adjacent or overlapping projects to check that duplicate signing is not used and to check compatibility of traffic control between adjacent or overlapping projects.*
- 05 *Traffic control planning should be completed for all highway construction, utility work, maintenance operations, and incident management including minor maintenance and utility projects prior to occupying the TTC zone. Planning for all road users should be included in the process.*
- 06 *Provisions for effective continuity of accessible circulation paths for pedestrians should be incorporated into the TTC process. Where existing pedestrian routes are blocked or detoured, information should be provided about alternative routes that are usable by pedestrians with disabilities, particularly those who have visual disabilities. Access to temporary bus stops, travel across intersections with accessible pedestrian signals (see Section 4E.09), and other routing issues should be considered where temporary pedestrian routes are channelized. Barriers and channelizing devices that are detectable by people with visual disabilities should be provided.*

#### Option:

- 07 Provisions may be incorporated into the project bid documents that enable contractors to develop an alternate TTC plan.
- 08 Modifications of TTC plans may be necessary because of changed conditions or a determination of better methods of safely and efficiently handling road users.

#### Guidance:

- 09 *This alternate or modified plan should have the approval of the responsible highway agency prior to implementation.*
- 10 *Provisions for effective continuity of transit service should be incorporated into the TTC planning process because often public transit buses cannot efficiently be detoured in the same manner as other vehicles (particularly for short-term maintenance projects). Where applicable, the TTC plan should provide for features such as accessible temporary bus stops, pull-outs, and satisfactory waiting areas for transit patrons, including persons with disabilities, if applicable (see Section 8A.08 for additional light rail transit issues to consider for TTC).*
- 11 *Provisions for effective continuity of railroad service and acceptable access to abutting property owners and businesses should also be incorporated into the TTC planning process.*
- 12 *Reduced speed limits should be used only in the specific portion of the TTC zone where conditions or restrictive features are present. However, frequent changes in the speed limit should be avoided. A TTC plan should be designed so that vehicles can travel through the TTC zone with a speed limit reduction of no more than 10 mph.*
- 13 *A reduction of more than 10 mph in the speed limit should be used only when required by restrictive features in the TTC zone. Where restrictive features justify a speed reduction of more than 10 mph, additional driver notification should be provided. The speed limit should be stepped down in advance of the location requiring the lowest speed, and additional TTC warning devices should be used.*
- 14 *Reduced speed zoning (lowering the regulatory speed limit) should be avoided as much as practical because drivers will reduce their speeds only if they clearly perceive a need to do so.*



**Support:**

- 15 Research has demonstrated that large reductions in the speed limit, such as a 30 mph reduction, increase speed variance and the potential for crashes. Smaller reductions in the speed limit of up to 10 mph cause smaller changes in speed variance and lessen the potential for increased crashes. A reduction in the regulatory speed limit of only up to 10 mph from the normal speed limit has been shown to be more effective.

**Section 6C.02 Temporary Traffic Control Zones****Support:**

- 01 A TTC zone is an area of a highway where road user conditions are changed because of a work zone, an incident zone, or a planned special event through the use of TTC devices, uniformed law enforcement officers, or other authorized personnel.
- 02 A work zone is an area of a highway with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last TTC device.
- 03 An incident zone is an area of a highway where temporary traffic controls are imposed by authorized officials in response to a traffic incident (see Section 6I.01). It extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where road users return to the original lane alignment and are clear of the incident.
- 04 A planned special event often creates the need to establish altered traffic patterns to handle the increased traffic volumes generated by the event. The size of the TTC zone associated with a planned special event can be small, such as closing a street for a festival, or can extend throughout a municipality for larger events. The duration of the TTC zone is determined by the duration of the planned special event.

**Section 6C.03 Components of Temporary Traffic Control Zones****Support:**

- 01 Most TTC zones are divided into four areas: the advance warning area, the transition area, the activity area, and the termination area. Figure 6C-1 illustrates these four areas. These four areas are described in Sections 6C.04 through 6C.07.

**Section 6C.04 Advance Warning Area****Support:**

- 01 The advance warning area is the section of highway where road users are informed about the upcoming work zone or incident area.

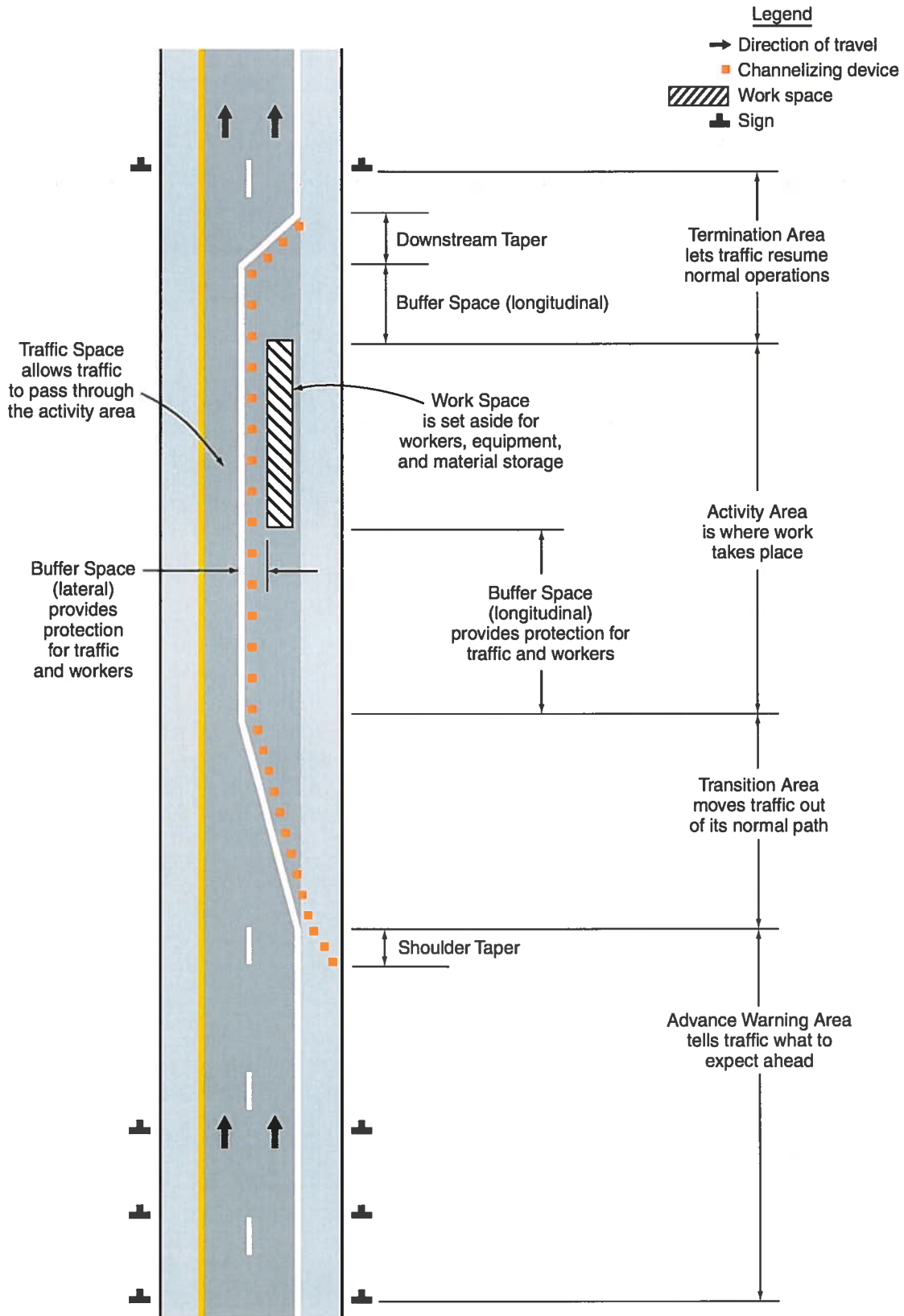
**Option:**

- 02 The advance warning area may vary from a single sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to a series of signs in advance of the TTC zone activity area.

**Guidance:**

- 03 *Typical distances for placement of advance warning signs on freeways and expressways should be longer because drivers are conditioned to uninterrupted flow. Therefore, the advance warning sign placement should extend on these facilities as far as 1/2 mile or more.*
- 04 *On urban streets, the effective placement of the first warning sign in feet should range from 4 to 8 times the speed limit in mph, with the high end of the range being used when speeds are relatively high. When a single advance warning sign is used (in cases such as low-speed residential streets), the advance warning area can be as short as 100 feet. When two or more advance warning signs are used on higher-speed streets, such as major arterials, the advance warning area should extend a greater distance (see Table 6C-1).*
- 05 *Since rural highways are normally characterized by higher speeds, the effective placement of the first warning sign in feet should be substantially longer—from 8 to 12 times the speed limit in mph. Since two or more advance warning signs are normally used for these conditions, the advance warning area should extend 1,500 feet or more for open highway conditions (see Table 6C-1).*
- 06 *The distances contained in Table 6C-1 are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted for field conditions, if necessary, by increasing or decreasing the recommended distances.*

Figure 6C-1. Component Parts of a Temporary Traffic Control Zone



**Table 6C-1. Recommended Advance Warning Sign Minimum Spacing**

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	100 feet	100 feet	100 feet
Urban (high speed)*	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

\* Speed category to be determined by the highway agency

\*\* The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

#### Support:

- 07 The need to provide additional reaction time for a condition is one example of justification for increasing the sign spacing. Conversely, decreasing the sign spacing might be justified in order to place a sign immediately downstream of an intersection or major driveway such that traffic turning onto the roadway in the direction of the TTC zone will be warned of the upcoming condition.

#### Option:

- 08 Advance warning may be eliminated when the activity area is sufficiently removed from the road users' path so that it does not interfere with the normal flow.

### Section 6C.05 Transition Area

#### Support:

- 01 The transition area is that section of highway where road users are redirected out of their normal path. Transition areas usually involve strategic use of tapers, which because of their importance are discussed separately in detail.

#### Standard:

- 02 **When redirection of the road users' normal path is required, they shall be directed from the normal path to a new path.**

#### Option:

- 03 Because it is impractical in mobile operations to redirect the road user's normal path with stationary channelization, more dominant vehicle-mounted traffic control devices, such as arrow boards, portable changeable message signs, and high-intensity rotating, flashing, oscillating, or strobe lights, may be used instead of channelizing devices to establish a transition area.

### Section 6C.06 Activity Area

#### Support:

- 01 The activity area is the section of the highway where the work activity takes place. It is comprised of the work space, the traffic space, and the buffer space.

- 02 The work space is that portion of the highway closed to road users and set aside for workers, equipment, and material, and a shadow vehicle if one is used upstream. Work spaces are usually delineated for road users by channelizing devices or, to exclude vehicles and pedestrians, by temporary barriers.

#### Option:

- 03 The work space may be stationary or may move as work progresses.

#### Guidance:

- 04 *Since there might be several work spaces (some even separated by several miles) within the project limits, each work space should be adequately signed to inform road users and reduce confusion.*

#### Support:

- 05 The traffic space is the portion of the highway in which road users are routed through the activity area.

06 The buffer space is a lateral and/or longitudinal area that separates road user flow from the work space or an unsafe area, and might provide some recovery space for an errant vehicle.

*Guidance:*

07 Neither work activity nor storage of equipment, vehicles, or material should occur within a buffer space.

*Option:*

08 Buffer spaces may be positioned either longitudinally or laterally with respect to the direction of road user flow. The activity area may contain one or more lateral or longitudinal buffer spaces.

09 A longitudinal buffer space may be placed in advance of a work space.

10 The longitudinal buffer space may also be used to separate opposing road user flows that use portions of the same traffic lane, as shown in Figure 6C-2.

11 If a longitudinal buffer space is used, the values shown in Table 6C-2 may be used to determine the length of the longitudinal buffer space.

*Support:*

12 Typically, the buffer space is formed as a traffic island and defined by channelizing devices.

13 When a shadow vehicle, arrow board, or changeable message sign is placed in a closed lane in advance of a work space, only the area upstream of the vehicle, arrow board, or changeable message sign constitutes the buffer space.

*Option:*

14 The lateral buffer space may be used to separate the traffic space from the work space, as shown in Figures 6C-1 and 6C-2, or such areas as excavations or pavement-edge drop-offs. A lateral buffer space also may be used between two travel lanes, especially those carrying opposing flows.

*Guidance:*

15 The width of a lateral buffer space should be determined by engineering judgment.

*Option:*

16 When work occurs on a high-volume, highly congested facility, a vehicle storage or staging space may be provided for incident response and emergency vehicles (for example, tow trucks and fire apparatus) so that these vehicles can respond quickly to road user incidents.

**Table 6C-2. Stopping Sight Distance as a Function of Speed**

Speed*	Distance
20 mph	115 feet
25 mph	155 feet
30 mph	200 feet
35 mph	250 feet
40 mph	305 feet
45 mph	360 feet
50 mph	425 feet
55 mph	495 feet
60 mph	570 feet
65 mph	645 feet
70 mph	730 feet
75 mph	820 feet

\* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed

**Section 6C.07 Termination Area**

*Support:*

01 The termination area is the section of the highway where road users are returned to their normal driving path. The termination area extends from the downstream end of the work area to the last TTC device such as END ROAD WORK signs, if posted.

*Option:*

02 An END ROAD WORK sign, a Speed Limit sign, or other signs may be used to inform road users that they can resume normal operations.

03 A longitudinal buffer space may be used between the work space and the beginning of the downstream taper.

**Section 6C.08 Tapers**

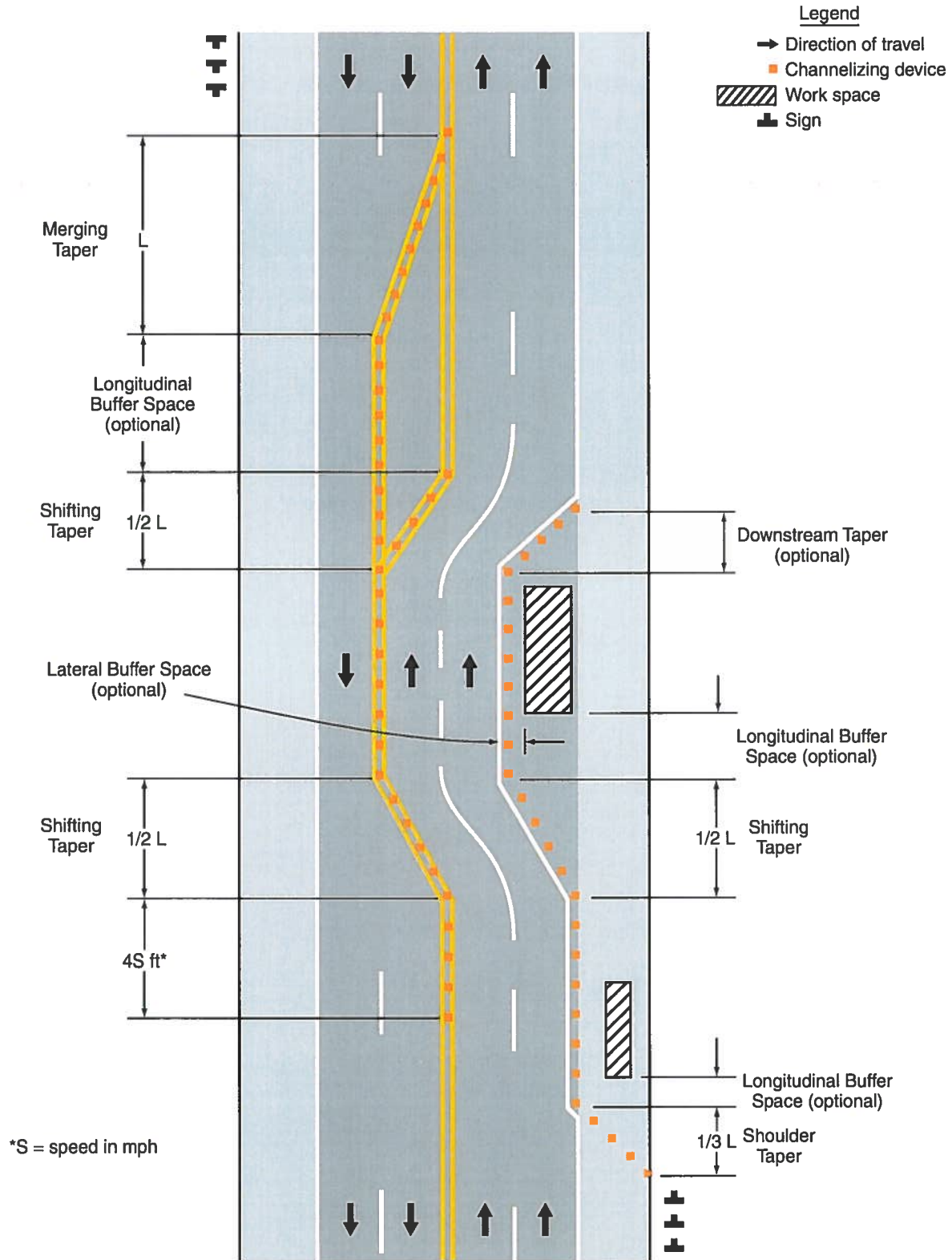
*Option:*

01 Tapers may be used in both the transition and termination areas. Whenever tapers are to be used in close proximity to an interchange ramp, crossroads, curves, or other influencing factors, the length of the tapers may be adjusted.

*Support:*

02 Tapers are created by using a series of channelizing devices and/or pavement markings to move traffic out of or into the normal path. Types of tapers are shown in Figure 6C-2.

Figure 6C-2. Types of Tapers and Buffer Spaces



03 Longer tapers are not necessarily better than shorter tapers (particularly in urban areas with characteristics such as short block lengths or driveways) because extended tapers tend to encourage sluggish operation and to encourage drivers to delay lane changes unnecessarily. The test concerning adequate lengths of tapers involves observation of driver performance after TTC plans are put into effect.

*Guidance:*

04 *The appropriate taper length (L) should be determined using the criteria shown in Tables 6C-3 and 6C-4.*

05 *The maximum distance in feet between devices in a taper should not exceed 1.0 times the speed limit in mph.*

**Support:**

06 A merging taper requires the longest distance because drivers are required to merge into common road space.

*Guidance:*

07 *A merging taper should be long enough to enable merging drivers to have adequate advance warning and sufficient length to adjust their speeds and merge into an adjacent lane before the downstream end of the transition.*

**Support:**

08 A shifting taper is used when a lateral shift is needed. When more space is available, a longer than minimum taper distance can be beneficial. Changes in alignment can also be accomplished by using horizontal curves designed for normal highway speeds.

*Guidance:*

09 *A shifting taper should have a length of approximately 1/2 L (see Tables 6C-3 and 6C-4).*

**Support:**

10 A shoulder taper might be beneficial on a high-speed roadway where shoulders are part of the activity area and are closed, or when improved shoulders might be mistaken as a driving lane. In these instances, the same type, but abbreviated, closure procedures used on a normal portion of the roadway can be used.

*Guidance:*

11 *If used, shoulder tapers should have a length of approximately 1/3 L (see Tables 6C-3 and 6C-4). If a shoulder is used as a travel lane, either through practice or during a TTC activity, a normal merging or shifting taper should be used.*

**Support:**

12 A downstream taper might be useful in termination areas to provide a visual cue to the driver that access is available back into the original lane or path that was closed.

*Guidance:*

13 *If used, a downstream taper should have a minimum length of 50 feet and a maximum length of 100 feet with devices placed at a spacing of approximately 20 feet.*

**Support:**

14 The one-lane, two-way taper is used in advance of an activity area that occupies part of a two-way roadway in such a way that a portion of the road is used alternately by traffic in each direction.

*Guidance:*

15 *Traffic should be controlled by a flagger or temporary traffic control signal (if sight distance is limited), or a STOP or YIELD sign. A short taper having a minimum length of 50 feet and a maximum length of 100 feet with channelizing devices at approximately 20-foot spacing should be used to guide traffic into the one-lane section, and a downstream taper should be used to guide traffic back into their original lane.*

**Table 6C-3. Taper Length Criteria for Temporary Traffic Control Zones**

Type of Taper	Taper Length
Merging Taper	at least L
Shifting Taper	at least 0.5 L
Shoulder Taper	at least 0.33 L
One-Lane, Two-Way Traffic Taper	50 feet minimum, 100 feet maximum
Downstream Taper	50 feet minimum, 100 feet maximum

Note: Use Table 6C-4 to calculate L

**Table 6C-4. Formulas for Determining Taper Length**

Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet  
 W = width of offset in feet  
 S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph



## CHAPTER 6G. TYPE OF TEMPORARY TRAFFIC CONTROL ZONE ACTIVITIES

### Section 6G.01 Typical Applications

#### Support:

- 01 Each TTC zone is different. Many variables, such as location of work, highway type, geometrics, vertical and horizontal alignment, intersections, interchanges, road user volumes, road vehicle mix (buses, trucks, and cars), and road user speeds affect the needs of each zone. The goal of TTC in work zones is safety with minimum disruption to road users. The key factor in promoting TTC zone safety is proper judgment.
- 02 Typical applications (TAs) of TTC zones are organized according to duration, location, type of work, and highway type. Table 6H-1 is an index of these typical applications. These typical applications include the use of various TTC methods, but do not include a layout for every conceivable work situation.
- 03 Well-designed TTC plans for planned special events will likely be developed from a combination of treatments from several of the typical applications.

#### Guidance:

- 04 *For any planned special event that will have an impact on the traffic on any street or highway, a TTC plan should be developed in conjunction with and be approved by the agency or agencies that have jurisdiction over the affected roadways.*
- 05 *Typical applications should be altered, when necessary, to fit the conditions of a particular TTC zone.*

#### Option:

- 06 Other devices may be added to supplement the devices shown in the typical applications, while others may be deleted. The sign spacings and taper lengths may be increased to provide additional time or space for driver response.

#### Support:

- 07 Decisions regarding the selection of the most appropriate typical application to use as a guide for a specific TTC zone require an understanding of each situation. Although there are many ways of categorizing TTC zone applications, the four factors mentioned earlier (work duration, work location, work type, and highway type) are used to characterize the typical applications illustrated in Chapter 6H.

### Section 6G.02 Work Duration

#### Support:

- 01 Work duration is a major factor in determining the number and types of devices used in TTC zones. The duration of a TTC zone is defined relative to the length of time a work operation occupies a spot location.

#### Standard:

- 02 **The five categories of work duration and their time at a location shall be:**
- A. Long-term stationary is work that occupies a location more than 3 days.
  - B. Intermediate-term stationary is work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 1 hour.
  - C. Short-term stationary is daytime work that occupies a location for more than 1 hour within a single daylight period.
  - D. Short duration is work that occupies a location up to 1 hour.
  - E. Mobile is work that moves intermittently or continuously.

#### Support:

- 03 At long-term stationary TTC zones, there is ample time to install and realize benefits from the full range of TTC procedures and devices that are available for use. Generally, larger channelizing devices, temporary roadways, and temporary traffic barriers are used.

#### Standard:

- 04 **Since long-term operations extend into nighttime, retroreflective and/or illuminated devices shall be used in long-term stationary TTC zones.**

#### Guidance:

- 05 *Inappropriate markings in long-term stationary TTC zones should be removed and replaced with temporary markings.*

**Support:**

06 In intermediate-term stationary TTC zones, it might not be feasible or practical to use procedures or devices that would be desirable for long-term stationary TTC zones, such as altered pavement markings, temporary traffic barriers, and temporary roadways. The increased time to place and remove these devices in some cases could significantly lengthen the project, thus increasing exposure time.

**Standard:**

07 **Since intermediate-term operations extend into nighttime, retroreflective and/or illuminated devices shall be used in intermediate-term stationary TTC zones.**

**Support:**

08 Most maintenance and utility operations are short-term stationary work.

09 As compared to stationary operations, mobile and short-duration operations are activities that might involve different treatments. Devices having greater mobility might be necessary such as signs mounted on trucks. Devices that are larger, more imposing, or more visible can be used effectively and economically. The mobility of the TTC zone is important.

**Guidance:**

10 *Safety in short-duration or mobile operations should not be compromised by using fewer devices simply because the operation will frequently change its location.*

**Option:**

11 Appropriately colored or marked vehicles with high-intensity rotating, flashing, oscillating, or strobe lights may be used in place of signs and channelizing devices for short-duration or mobile operations. These vehicles may be augmented with signs or arrow boards.

**Support:**

12 During short-duration work, it often takes longer to set up and remove the TTC zone than to perform the work. Workers face hazards in setting up and taking down the TTC zone. Also, since the work time is short, delays affecting road users are significantly increased when additional devices are installed and removed.

**Option:**

13 Considering these factors, simplified control procedures may be warranted for short-duration work. A reduction in the number of devices may be offset by the use of other more dominant devices such as high-intensity rotating, flashing, oscillating, or strobe lights on work vehicles.

**Support:**

14 Mobile operations often involve frequent short stops for activities such as litter cleanup, pothole patching, or utility operations, and are similar to short-duration operations.

**Guidance:**

15 *Warning signs and high-intensity rotating, flashing, oscillating, or strobe lights should be used on the vehicles that are participating in the mobile work.*

**Option:**

16 Flags and/or channelizing devices may additionally be used and moved periodically to keep them near the mobile work area.

17 Flaggers may be used for mobile operations that often involve frequent short stops.

**Support:**

18 Mobile operations also include work activities where workers and equipment move along the road without stopping, usually at slow speeds. The advance warning area moves with the work area.

**Guidance:**

19 *When mobile operations are being performed, a shadow vehicle equipped with an arrow board or a sign should follow the work vehicle, especially when vehicular traffic speeds or volumes are high. Where feasible, warning signs should be placed along the roadway and moved periodically as work progresses.*

20 *Under high-volume conditions, consideration should be given to scheduling mobile operations work during off-peak hours.*

21 *If there are mobile operations on a high-speed travel lane of a multi-lane divided highway, arrow boards should be used.*



**Standard:**

- 22 **Mobile operations shall have appropriate devices on the equipment (that is, high-intensity rotating, flashing, oscillating, or strobe lights, signs, or special lighting), or shall use a separate vehicle with appropriate warning devices.**

**Option:**

- 23 For mobile operations that move at speeds of less than 3 mph, mobile signs or stationary signing that is periodically retrieved and repositioned in the advance warning area may be used.

**Section 6G.03 Location of Work****Support:**

- 01 Chapter 6D and Sections 6F.74 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.
- 02 The choice of TTC needed for a TTC zone depends upon where the work is located. As a general rule, the closer the work is to road users (including bicyclists and pedestrians), the greater the number of TTC devices that are needed. Procedures are described later in this Chapter for establishing TTC zones in the following locations:
- A. Outside the shoulder,
  - B. On the shoulder with no encroachment,
  - C. On the shoulder with minor encroachment,
  - D. Within the median, and
  - E. Within the traveled way.

**Standard:**

- 03 **When the work space is within the traveled way, except for short-duration and mobile operations, advance warning shall provide a general message that work is taking place and shall supply information about highway conditions. TTC devices shall indicate how vehicular traffic can move through the TTC zone.**

**Section 6G.04 Modifications To Fulfill Special Needs****Support:**

- 01 The typical applications in Chapter 6H illustrate commonly encountered situations in which TTC devices are employed.

**Option:**

- 02 Other devices may be added to supplement the devices provided in the typical applications, and device spacing may be adjusted to provide additional reaction time. When conditions are less complex than those depicted in the typical applications, fewer devices may be needed.

**Guidance:**

- 03 *When conditions are more complex, typical applications should be modified by giving particular attention to the provisions set forth in Chapter 6B and by incorporating appropriate devices and practices from the following list:*

**A. Additional devices:**

1. Signs
2. Arrow boards
3. More channelizing devices at closer spacing (see Section 6F.74 for information regarding detectable edging for pedestrians)
4. Temporary raised pavement markers
5. High-level warning devices
6. Portable changeable message signs
7. Temporary traffic control signals (including pedestrian signals and accessible pedestrian signals)
8. Temporary traffic barriers
9. Crash cushions
10. Screens
11. Rumble strips
12. More delineation

**Exhibit C**

percentage of the work actually completed and scheduled, the remaining duration, and the progress along the critical path in terms of days ahead or behind the allowable dates as of the report date. Indicate any changes made to the baseline schedule.

In the event that an early completion schedule is submitted, either party may request a contract change order to modify Subsection 108.02 to reflect the early completion. If a contract change order is not executed the parties agree that the "slack" or "float" shown by the early completion schedule remains with the project and to waive rights to any damages for failing to complete the project in the time shown on the early completion schedule.

(e) Supplemental Schedule. Submit a supplemental schedule if, the project is determined to be behind schedule as requested by the Engineer. Include a revised network diagram and mathematical analysis showing the proposed revised baseline schedule. The conditions under which revisions of the baseline schedule will be required include the following:

1. When delay in completion of any work item or sequence of work items results in an estimated extension of project completion by either 20 working days or 5% of the remaining duration of time to complete the project, whichever is less.
2. When delays in submittals or deliveries make replanning or rescheduling of the work necessary.
3. When the schedule does not represent actual prosecution and progress of the work.
4. When any change to the sequence of activities, the completion date for major portions of the work, or changes occur which affect the critical path.
5. When contract modification necessitates schedule revision.

**108.04 Limitation of Operations.** Conduct the work at all times in such a manner and in such sequence as will assure the least interference with traffic. Provide due regard to the location of detours and to the provisions for handling traffic. Do not open up work to the prejudice or detriment of work already started. Finishing a section on which the work is in progress may be required before work is started on any additional sections if the opening of such section is essential to public convenience.

No work will be required on Saturdays, Sundays, or State recognized holidays. If, however, electing to work on such days, those days worked will be charged as working days. Give notice of intention to work on the aforementioned days at least 48 hours in advance of such work. State recognized holidays are enumerated in Subsection 101.03, for "Holidays."

The Engineer may give notification in writing and require cessation of construction operations the day before, during, and the day after said holidays, or at any other time if operations are of such nature, the project is so located, and traffic is of such volume that it is deemed expedient to do so.

Give notification in writing 48 hours prior to beginning night shift work (8:00 p.m. to 6:00 a.m.) or double shift operations.

Do not permit traffic on any part of the completed prime coat, plantmix bituminous surface, plantmix bituminous open-graded surface, seal coat, cement treated base or Portland cement concrete pavement until authorized.

During nonworking hours, park vehicles and equipment a minimum of 9 m (30 ft) from the pavement edge of the traveled way over which public traffic is directed unless separated by guardrail or concrete barrier rail.

Locate employee parking within "cleared" right of way and a minimum of 9 m (30 ft) from the pavement edge of the traveled way over which public traffic is directed unless separated by guardrail or concrete barrier rail.

Do not store or stockpile materials and supplies within 9 m (30 ft) of a travel lane unless separated by guardrail or concrete barrier rail.

Do not dispose of concrete slabs, concrete foundations, old bituminous surfacing, or other debris in median or interchange quadrant areas.

Do not remove existing fence until new or temporary fences have been constructed in a manner that will prevent pedestrians, children, livestock, or pets from entering upon or crossing the right of way or straying from their

appointed area. Provide such additional temporary fencing and gates as may become necessary to properly control such movement during construction. Such temporary fencing and gates will not be measured for payment but the cost thereof shall be considered as included in the contract unit price bid for other items of work.

Carry out installation of cross drainage pipe which carry water for irrigation or stockwater purposes so as to provide for a minimum delay of water service. Make satisfactory arrangements with the users of the water relative to their needs for such purposes.

Sequence construction activities to perpetuate historic flow patterns and conveyances for both temporary and permanent flow. Temporary conveyance is at the expense of the Contractor and shall be safely conveyed to a reasonable and safe outfall location.

Give notification in writing 18 hours in advance of any major deck pour. At this time the portion of the deck to be poured shall be complete and ready to accept concrete. At the discretion of the Engineer, minor deficiencies may be corrected during this 18 hour period.

Before placing any plantmix bituminous material, deliver and place shouldering material on the shoulders ahead of the paving operation. Spread and compact shouldering material in a manner that will accommodate emergency parking for public traffic.

Limit paving operation so that the shouldering up operation is not more than one day behind the placement of the final lift of dense-graded plantmix bituminous surface. To accomplish this, place shouldering material to the finished side slopes so that the shouldering material is flush with the top of the new dense-graded plantmix bituminous surface. If more than 2 lifts of dense-graded bituminous surface are to be placed, and traffic is allowed to use the roadway, blade up shouldering material flush with the top of the second lift of the new dense-graded bituminous surface within one day after the placement of the second lift of the dense-graded bituminous surface.

Shoulder up again after placement of the plantmix bituminous open-graded surface.

See Section 624 regarding accommodations for public traffic.

Remove existing mailboxes and install new mailboxes in a manner that will not disrupt or prevent the U.S. Postal Service from mail pick up or delivery.

During the removal and installation of cattle guards and culvert pipes, maintain access for public traffic.

Remove and install cattle guards and culvert pipes one-half roadway width at a time. Once the work is started on the removal and/or installation of the cattle guard and culvert pipe, work diligently and continuously until all lanes of traffic can safely accommodate public traffic.

Remove only as much guardrail as can be replaced during the same shift, or protect the area with portable precast concrete barrier rail at no direct payment.

Place plantmix ramps with a minimum of 1:50 (50:1) transition before opening to public traffic where cold milling is adjacent to cross streets and permitted approaches.

Perform concrete work prior to cold milling/paving adjacent travel lanes.

During removal and reconstruction of the curb ramps, maintain alternate pedestrian access at all times. Backfill all drop offs at excavations for the curb ramps with aggregate base in the event the concrete is not replaced within the next day. Complete the curb ramps at the intersections one quadrant at a time, so that pedestrian traffic is allowed at the other three quadrants. Do not work on more than 4 consecutive sidewalk ramps at one time. Complete and reopen the ramp to the public within 2 days following the removal. Failure to comply with this time constraint will result in the assessment of liquidated damages according to Subsection 108.09.

**108.05 Character of Workers; Methods and Equipment.** At all times employ sufficient labor and equipment for prosecuting the several classes of work to full completion in the manner and time required by these specifications.

Use workmen of sufficient skill and experience to perform properly the work assigned to them. Provide workmen engaged in special or skilled work of sufficient experience in such work and in the operation of the equipment required to perform all work properly and satisfactorily.

## SECTION 624

### ACCOMMODATIONS FOR PUBLIC TRAFFIC

#### DESCRIPTION

**624.01.01 General.** This work consists of providing for traffic by constructing detours, using existing streets and roads as detours permitting traffic to pass through construction, and using flaggers, traffic control supervisor, and pilot cars, or a combination of these methods.

#### MATERIALS

**624.02.01 General.** The materials shall conform to the MUTCD, if applicable, and the requirements herein.

#### CONSTRUCTION

**624.03.01 General.** While undergoing improvements, keep the road open to all traffic unless otherwise provided for in the contract documents. If the usable roadway is not sufficient to safely accommodate two-way traffic, adequately maintain one-way traffic. Wherever one-way traffic is in effect, do not exceed 1,800 m (6,000 ft) distance or as otherwise approved in writing. Provide and maintain in a safe condition, temporary approaches or crossings and intersections with trails, roads, streets, businesses, parking lots, residences, garages and farms. Snow removal, however, will not be required. Bear all expense of maintaining the roadway over the section of road undergoing improvement and of constructing and maintaining such approaches, crossings, intersections, and other features as may be necessary, without direct compensation, except as provided in Subsection 107.15.

Maintain the roadway during suspension of the work when such suspensions are due to the Contractor's negligence. See Subsection 108.06. During any other suspension, make passable and open to traffic such portions of the project and temporary roadways or portions thereof as may be agreed upon between the Contractor and the Engineer for the temporary accommodation of traffic during the anticipated period of suspension. Thereafter, and until an issuance of an order for the resumption of construction operations, the maintenance of the temporary route or line of travel agreed upon will be by and at the expense of the Department. Such maintenance and responsibility will include and be restricted to the traveled roadway for the convenience of public travel; opening plugged pipes and roadway ditches and drains; or correcting any other hazard which may be detrimental to adjacent property owners or the traveling public. When work is resumed, replace, renew, and repair any work or materials lost or damaged because of such temporary use of the project regardless of the cause of such damage or loss, except as provided in Subsection 107.15. The Department is in no way responsible to maintain the roadway and appurtenances in any certain condition or state of repair. Complete the project in every respect as though its prosecution had been continuous and without interference.

Maintain public traffic throughout the project by approved methods. Public traffic includes motor vehicles, bicycles, and pedestrians. Pedestrian access shall be the width of the existing sidewalk and shall be ADA compliant. Allow access and passage of bicycle traffic in the travel lanes where bicycle and motor vehicle traffic must share the same lanes. When an approved plan to accomplish this is provided in the contract documents, alternate proposals for handling public traffic through the project may be submitted, and are subject to approval. Furnish alternate proposals containing sufficient detail to determine the appropriate number and placement of traffic control devices. Should approval of an alternate proposal result in additional costs, these costs shall be borne by one of the following:

- (a) The Contractor, when proposed change is deemed by the Engineer to be for sole benefit of the Contractor.
- (b) The Department, when the proposal is in the best interest of the Department and/or the traveling public.
- (c) Both the Contractor and Department, by a negotiated amount, when proposed change is beneficial to both.

Consideration will be given to each such proposal and may be rejected, modified, or accepted as deemed best. Do not proceed with any such change in the staging until permission is granted in writing. Rejection of the Contractor's proposed alternate traffic control plan shall not be considered sufficient cause for additional compensation or an extension of contract time.

Provide and maintain in a safe condition temporary access to business and residence driveways, temporary intersections, and temporary connections with roads, streets, bikeways, sidewalks, and footpaths.

For traffic control limitations see Subsection 108.04.

Existing speed limits shall remain in effect unless written approval is given by the Department.

Comply with all the traffic control requirements shown on the Standard Plans and Traffic Control Plan Sheets.

Install and remove all traffic control devices in accordance with the restrictions as specified herein.

Initial deployment of construction signs and traffic control devices on shoulders may not occur more than 24 hours in advance of work activities.

The project superintendent shall verify with the Engineer that necessary labor, equipment and materials for the planned work activities are on site prior to placing traffic control devices. Do not begin placing traffic control devices until necessary labor, equipment and materials are on-site to perform planned work activities.

Place work zone traffic control for the anticipated work shift activities. Move tapers ahead throughout the shift to ensure that the lag behind work activities does not exceed 1.6 km (1 mi). Adjust speed reduction signs with work zone and cover or remove when no longer appropriate.

Upon completion of a specific work activity or item as identified in the project schedule, remove traffic control devices from the project roadway and stockpile at an approved staging area if subsequent work is not scheduled in the same project phase, stage, or location within 5 working days (or 7 calendar days for calendar day or completion date projects). In addition, prior to holidays or special events, remove all traffic control devices which no longer apply to existing conditions, as directed. Traffic control devices must be removed from the roadway and stockpiled a minimum of 9 m (30 ft) from the pavement edge at an approved staging area.

During non-working hours, place a traffic cone immediately in front of any construction sign that is located within 3 m (10 ft) of the travelway and whenever practical, move the traffic control signs from the plantmix surface onto the gravel shoulder.

Place and remove construction signs and traffic control devices daily for striping operations. Stockpile signs and devices a minimum of 9 m (30 ft) from the pavement edge at an approved staging area.

Do not remove guideposts until final shouldering-up operation. Install new guideposts within 24 hours of removal. If a guidepost is damaged during preliminary shouldering-up operations, replace it in like kind within 24 hours.

Cover "Double Penalty," "Begin Work Zone," and "End Work Zone" signs during non-working hours.

After presumptive completion of all pay items and at such time as contract time is suspended for final clean up, as defined in Subsections 104.05 and 108.09, remove all traffic control devices daily from the roadway and stockpile a minimum of 9 m (30 ft) from the pavement edge at an approved staging area. All traffic control devices necessary for final clean up work shall be placed and removed from the project right-of-way on a daily basis.

Failure to comply with any of the requirements specified herein will be considered a traffic control deficiency and subject to the liquidated damages as specified below.

If two violations of the traffic control requirements specified herein are observed by the Engineer, work may be suspended. If work is suspended, submit a written revised construction plan, which addresses the deficiencies. Upon written approval of the plan, the construction operations may resume. Working days, or calendar days, will continue to be assessed during the suspension period.

Allow emergency vehicles immediate passage. Notify police and fire departments having jurisdiction over the project when traffic patterns are to be altered due to construction operations. Give such notification in writing with a copy to the Engineer, and except in extreme emergencies, submit the notice at least 24 hours in advance of rerouting public traffic. The notification shall set forth the specific traffic patterns to be provided in lieu of normal routing and the estimated duration of such change(s) together with such additional information which will contribute to the general safety of the public as determined.

Except as hereinafter provided, maintain access to properties abutting the right of way in a manner closely approximating existing access unless otherwise shown on the plans or directed. When access to private driveways must be temporarily denied due to construction operations such as the installation of storm drains, sidewalks, curbs and gutters, etc., notify the property owner or responsible party of such closure not less than 24 hours in advance of closure. Give the notification in writing and include the estimated duration of the closure.

When equipment is crossing or using any portion of the travelled way over which public traffic is directed, clean up and remove all debris dropped by the equipment at frequent intervals as directed.

Notify adjacent residents, homeowners, businesses, and schools along each side of the project limits that are being affected by construction work and disruption of normal traffic patterns. Written notification shall be distributed at least 20 days prior to commencing work. The notification shall include, but not be limited to, the approximate work schedule, road closures, detours, delays, suggested alternate routes, and description of traffic control. Submit the notification for approval 7 days prior to distribution.

In the event a routine traffic control deficiency, including maintenance of traffic control items, is not corrected within 2 hours after notification, a deduction in the amount of \$100.00 per deficiency per device will be made from monies due for each 15 minute increment the deficiency remains, not as a penalty, but as liquidated damages. Failure to address the deficiency may also be cause for withholding progress payments and suspension of work until the issue is resolved.

**624.03.02 Detours.** Construct detours as shown on the plans or as specified. Exact location will be as staked.

Grading shall consist largely of motor grader work, supplemented where necessary by other mechanical equipment. Grade to provide the specified roadbed width and a grade line free from breaks or rolls of sufficient magnitude to be hazardous to traffic.

If required, after the grading has been satisfactorily completed, place surfacing materials of the kind and type specified, by the requirements for the particular materials used.

Apply water to detours in amounts necessary to attain compaction of graded sections and surfacing materials.

Maintain detours by filling holes as they develop, adding surfacing and applying cutback asphalt, blading, watering, and performing any other work necessary to maintain the detour satisfactorily.

Eradicate detours when no longer needed. Eradicate so that the ground will be restored as nearly as feasible to the original condition, and dispose of materials as directed.

To request a detour, submit a written request for the establishment of a detour around all or certain designated sections of work. If arrangements for such a detour can be made which are satisfactory to the Department, the Contractor, and the governmental agency having jurisdiction over the road to be used, the road will be designated as a detour, subject to the following conditions:

1. Provide and maintain the necessary route marking signs.
2. Construct and maintain the detour in good condition. Failure to maintain the detour in such a satisfactory condition, will cause the Department to make such repairs as is deemed suitable and deduct the cost thereof from money due or to become due.
3. When abandoning the detour, obliterate and dispose of such detour and satisfactorily restore as nearly as possible the condition of the ground to its original form.

**624.03.03 Flaggers.** Employ flaggers at places as designated. Use additional flaggers, at own expense, whenever seeing fit to do so.

Flaggers shall have completed an approved instructional course in flagger procedures. Prospective flaggers shall possess a valid flagger card attesting that they have satisfactorily completed said instructional course conducted by the Department or some other course approved by the Department.

Personnel who attend an approved instructional course in flagger procedures shall be a minimum of 18 years of age and shall be able to clearly communicate.

The time required to instruct employees who are proposed flagger candidates will be reimbursed as follows:

- (a) Attendance must be to a course approved by the Department.
- (b) Employee must be on the Contractor's payroll for the hours of reimbursement.
- (c) Reimbursement will be for the actual instruction period required or a maximum of 4 hours, whichever is less.
- (d) Reimbursement shall be at the contract unit price bid per hour for flagger.

Supply each flagger with an orange or yellow green hard hat and an orange or yellow green soft cap. Use of hard hats is mandatory in any area designated by the Contractor or the Engineer as a hard hat area.

Flaggers shall use a combination "STOP" and "SLOW" sign paddle. The paddles shall be a minimum of 450 mm (18 in.) wide, with 150 mm (6 in.) series "C" letters and have a rigid fixed handle approximately 1.5 m (5 ft) in length, from the bottom of the paddle to ground level. Fabricate the combination sign paddle from sheet metal or other light semirigid material. The background of the "STOP" face shall be red with white letters and border. The background of the "SLOW" face shall be fluorescent orange with black letters and border. Use Type IX or XI reflective sheeting conforming to Subsection 716.03.01 for the background, letters, and borders on the faces of the Stop/Slow paddles.

Adequately illuminate flagger stations at night at own expense. Use flood lights, approved by the Engineer, to illuminate flagger stations.

During daytime operations, flaggers shall wear vests meeting Vest Pattern 3 (Performance Class 2) requirements set forth in ANSI/ISEA 107-2004 "American National Standard for High-Visibility Safety Apparel and Headwear" and the requirements specified herein.

During nighttime operations, flaggers shall wear either jackets or coveralls/jumpsuits meeting Performance Class 3 requirements set forth in ANSI/ISEA 107-2004 and the requirements specified herein. These garments are optional for daytime use.

The color of the background material shall be fluorescent yellow-green. Stripes shall consist of retroreflective material of a contrasting color of silver, white, or fluorescent yellow-green.

The apparel shall bear the manufacturer's marking label according to the requirements set forth in ANSI/ISEA 107-2004.

Furnish certificates of compliance executed by the manufacturer's of such high visibility work zone apparel attesting that the garments furnished meet the specifications described herein.

**624.03.04 Pilot Cars.** Use a pilot car and driver when directed.

Pilot cars shall be suitable vehicles in good mechanical condition and shall carry a sign which complies with the design shown in the "Standard Highway Signs" manual. All pilot car drivers must have a valid flagging card.

**624.03.05 Equipment Rental.** Use equipment rental for incidental construction as directed or as indicated on the plans.

Equip all equipment rented with buckets, scrapers, and other required accessories that do not exceed the power unit manufacturer's recommended maximum capacity for the particular power unit involved.

Equipment shall conform to the following minimum requirements:

Motor Grader .....	75 kW (100 h.p.), Blade Length 4.2 m (14 ft)
Loader .....	3.8 m <sup>3</sup> (5 yd <sup>3</sup> ) Capacity
Dump Truck .....	9 m <sup>3</sup> (12 yd <sup>3</sup> ) Struck
Rubber-Tired Tractor with Scraper .....	215-260 kW (290-350 h.p.) with Manufacturer's Rated Capacity Scraper, equip tractor with all necessary accessories to operate scraper
Tractor-Crawler with Dozer and/or Ripper .....	Manufacturer's Rated 275 kW (370 h.p.), equip tractor with all necessary accessories to operate bulldozer and ripper
Elevating Scraper .....	120 kW (160 h.p.), 7.6 m <sup>3</sup> (10 yd <sup>3</sup> ) Struck, fully equip with all accessories for scraper operations
Backhoe .....	60 kW (75 h.p.), equip with front end loader and all necessary back accessories to operate hoe and front end loader

Use approved equipment in good operating condition.

**624.03.06 Traffic Control Supervisor.** Designate a traffic control supervisor who shall be responsible for initiating, installing and maintaining all traffic control devices as shown on the plans, as specified in the MUTCD and these specifications, or as directed. The persons so designated shall have at least one year of experience directly related to worksite traffic control in a supervisory or responsible capacity and shall be certified as a worksite traffic supervisor by ATSSA. Submit the name and qualifications of this person 7 days in advance of the date set for the preconstruction conference in order to review said qualifications.



The traffic control supervisor shall be an employee of the Contractor, under the direct supervision of the Superintendent, and dedicated solely to the contract.

The traffic control supervisor shall be available to be contacted by the Engineer 24 hours a day for the life of this contract and shall be capable of being on-site within 45 minutes of notification. The traffic control supervisor shall make at least 4 inspections of all traffic control devices each day as follows:

1. Before beginning work.
2. At mid-shift.
3. Half an hour after the end of the shift.
4. A minimum of once during the period of non-working hours. The time between inspections shall not exceed 12 hours.

The traffic control supervisor shall make a record of each traffic control inspection using the Department furnished "Work Zone Traffic Control Checklist," Form # 040-056B. Each review shall include traffic control activities, the time the traffic control supervisor reviewed the traffic control, any actions taken, and any other pertinent information. Submit completed forms within 24 hours.

**METHOD OF MEASUREMENT**

**624.04.01 Measurement.** Construction, maintenance, and removal of detours will be measured under appropriate bid items as indicated herein and on the plans.

Flaggers will be measured by the number of hours that authorized flaggers are actually used to direct traffic within the right of way limits of the project, or at points where hauling equipment enters and leaves the public traffic stream while hauling from deposits (except commercial sources), outside or within the project limits, as approved.

Traffic control supervisor will be measured by the day, for each eligible working day assessed to the contract, not to exceed the number of working days specified in Subsection 108.02, plus or minus any authorized changes.

Pilot car will be measured by the number of hours that the pilot car and driver are actually used.

Rent equipment will be measured by the number of hours actually used.

**BASIS OF PAYMENT**

**624.05.01 Payment.** The accepted quantities, measured as provided above, will be paid for at the contract price per unit of measurement for the pay items listed below that are shown in the proposal. Payment will be full compensation for the work prescribed in this Section.

When a traffic control plan is furnished by the Department as part of the bid documents and the items of flaggers or pilot car do not appear in the proposal, then one or both of these items are deemed necessary, furnish flaggers or pilot cars and payment therefore will be made according to Section 104.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Detours .....	Appropriate Bid Items or Force Account
Flagger .....	Hour
Traffic Control Supervisor .....	Day
Pilot Car .....	Hour
Rent Equipment (type) .....	Hour

**Exhibit D**

### 2-300 DISTRICT ENGINEER RESPONSIBILITIES

The District Engineer directs the operations within the boundaries of a district. Assistant District Engineers support the District Engineer in accomplishing the NDOT transportation program. Typically, one Assistant District Engineer manages construction and another manages maintenance and related operations. In districts that cover large geographical areas, the District Engineer may assign additional Assistant District Engineers to outlying locations that manage construction and maintenance activities for that area. Each Assistant District Engineer reports directly to the District Engineer.

The District Engineer manages the overall administration of construction projects assigned to the district, from providing input regarding the scope of a project through completion of construction. The District Engineer also maintains a staff capable of carrying out the Department's policies and procedures efficiently and effectively.

District Engineers delegate authority to Resident Engineers to supervise personnel and maintain a field office and equipment needed for administration of construction projects. The District Engineers evaluate, process, and recommend approval of change orders, and resolve disputes and claims within the limits of their authority. In cases that exceed allowable authority—through cost, scope, or complexity—the District Engineer will recommend decisions, based on a Resident Engineer's recommendation, on project issues before forwarding them to the Chief Construction Engineer.

The District Engineer is responsible for apprising the Chief Construction Engineer on the status of work. Common status issues include problems or issues encountered on projects, decisions that have been made, and recommendations for improvements in construction practices. The District Engineer is also responsible for conforming to NDOT and Construction Division policies and directives, and coordinating construction activities with other district operations. The District Engineer also manages the project's final inspection and recommends final acceptance.

Because each district is unique in topography, climate, population, and industry, districts must be involved in the scoping, design, and construction phases of a project. The District Engineer's input is crucial in describing the impacts—such as traffic delay and business disruption—that the project may have on the local communities within the district.

**2-400 RESIDENT ENGINEER  
RESPONSIBILITIES**

The Resident Engineer is responsible for the management, administration, and successful completion of an NDOT construction project. The Resident Engineer is a direct representative of the Director and reports directly to the District Engineer.

The Director delegates authority to the Resident Engineer to administer construction projects. A project's successful completion depends on the Resident Engineer's positive leadership of the project crew and a professional relationship with the contractor.

By building and maintaining trust and teamwork on the project, the Resident Engineer creates a collaborative environment with the contractor, NDOT field crew, and other NDOT divisions. Additionally, being knowledgeable of project-related issues allows the Resident Engineer to respond quickly. To maintain a high level of involvement, the Resident Engineer must frequently visit the project site and review the work. Constant and accurate communication enhances the collaborative environment among team members.

In addition to establishing and maintaining a positive relationship with the contractor, the Resident Engineer provides leadership to the staff assigned by the District Engineer. The Resident Engineer builds an effective staff by emphasizing communication and learning. When the staff communicates well among themselves—sharing knowledge and experience—they can quickly and confidently address situations that arise on a project.

In addition to working with the contractor and supervising the field crew, the Resident Engineer has specific project-related responsibilities that include the following:

- Providing input on development of project plans and specifications
- Assessing the compatibility of the design with site conditions
- Administering the project in accordance with established policies and procedures
- Monitoring projects to confirm compliance with the plans and specifications
- Overseeing documentation, surveying, inspection, and testing
- Ensuring proper documentation
- Preparing contractor pay estimates
- Resolving issues and disputes with the contractor within the Resident Engineer's authority
- Negotiating and preparing contract change orders
- Minimizing construction impacts to the public
- Protecting the state from harm or damage during construction of the project

- Providing guidance and training to the field crew
- Communicating with the District Engineer and Chief Construction Engineer on major issues that have immediate and significant public impact
- Oversee implementation of NDOT's Work Zone Safety and Mobility Policy 07-02 plan, which addresses the flow of traffic and the safety of workers and the public in the construction project

When conflicts occur, a quick resolution is critical to maintaining project progress. The Resident Engineer is the first level of authority in resolving issues or conflicts. The Resident Engineer typically resolves issues, such as non-conforming materials, disputes, and plan errors. If the Resident Engineer desires guidance on resolving issues or conflicts, the Resident Engineer consults with the District Engineer or Construction Division. If guidance on resolving an issue or conflict is unavailable, the Resident Engineer should make a decision instead of allowing the project to be adversely affected.

NDOT may retain engineering consultants to administer construction projects. When a consultant performs the duties of a Resident Engineer, the responsibilities are identical, except a consultant cannot do the following:

- Obligate funds
- Authorize payment on behalf of NDOT

As NDOT's most visible representative on a project, the Resident Engineer frequently communicates with the public, government representatives, and motorists. The Resident Engineer's professionalism often establishes the public's image of NDOT. The Resident Engineer's conduct should be a credit to both the individual, to NDOT, and to all state employees.

#### 2-401 OFFICE PERSONNEL RESPONSIBILITIES

Office personnel manage the administrative activities under the supervision of the Resident Engineer. Administrative responsibilities span project matters, as well as NDOT-related administrative matters. Principal responsibilities include the following:

- Maintaining project files, field books, general files, personnel files, and documents
- Preparing field books, measurement and payment books, calculation sheets, and forms
- Maintaining inventory of survey field books prepared by the survey crew chief
- Checking test reports and calculations
- Preparing contractor pay estimates
- Performing preliminary calculations for liquidated damages
- Reviewing prior approvals, change orders, and letters of authorization for completeness
- Reviewing force account computations for completeness and accuracy
- Ensuring conformance with Construction Division administrative policies and procedures

Office personnel are the primary resource in the Resident Engineer's office for implementing the requirements of the *Documentation Manual*.

## 6-624 ACCOMMODATIONS FOR PUBLIC TRAFFIC

## 6-624.1 GENERAL

This section provides guidance on worker protection and the safe passage of public traffic through and around construction with as little inconvenience and delay as possible. Refer to the current version of the *Manual on Uniform Traffic Control Devices (MUTCD)* and the plans for details on signs, lights, and traffic control devices used on construction projects. An electronic version of the MUTCD is found at the following web site: <http://mutcd.fhwa.dot.gov/kno-2003r1.htm>.

A traffic control plan addresses management of public traffic in and around a construction project. When NDOT prepares the traffic control plan, the designer, in consultation with the District, Construction Division, and Safety/Traffic Division, develops a plan to accommodate public traffic during construction. If the plans and specifications require the contractor to prepare the traffic control plan, the contractor, in consultation with the Resident Engineer, develops a plan to accommodate public traffic during construction, as required in Section 625 of the specifications. The purpose of the plan is to provide safe passage of traffic as well as to create and maintain safe work areas for construction personnel. When the plan is prepared by NDOT, it is based on a logical sequence of operations. When submitted by the contractor, the plan is based on the contractor's scheduled construction operations.

Traffic control plans have the following basic objectives:

- Protect the traveling public
- Protect construction workers
- Reduce traffic delays in work zones
- Channelize traffic
- Provide directional information to drivers
- Provide an acceptable level of service during construction operations
- Provide for pedestrian and bicycle traffic

Because NDOT places importance on traffic flow and safety in work zones, it has developed Policy 07-02 on *Work Zone Safety and Mobility*, and the *Work Zone Safety and Mobility Implementation Guide*. The traffic control plan may be included in the plans and specifications, or the specifications may require the contractor to prepare traffic control plans.

Traffic control plans developed by the contractor are reviewed and either accepted or rejected by the Resident Engineer. The Resident Engineer works with the contractor and project stakeholders in reviewing the contractor's traffic control plans. The Resident Engineer confirms that the contractor's traffic control plans comply with Policy 07-02, and the plans and specifications. The Resident Engineer may confer with the District Engineer or the Safety/Traffic Division for assistance.

The Resident Engineer may propose changes to traffic control plans included in the plans or developed by the contractor. Typically, changes to traffic control plans are considered when field conditions are different from those contained in the plans. The traffic control plan must be appropriate for expected conditions during construction. If the traffic control plan is included in the project plans and specifications, the traffic control may require modification to address the contractor's proposed operations. The Resident Engineer documents the proposed traffic control changes and submits them to the District Engineer and the Safety/Traffic Division for review and approval.

#### 6-624.2 BEFORE CONSTRUCTION

The Resident Engineer should perform the following duties:

- Compare the project traffic control plan to jobsite conditions. Note any unusual local traffic movements and the movements of emergency vehicles. Discuss the traffic control plan at the preconstruction conference.
- Review the specifications for operations limitations as related to traffic control.
- Review proposed changes to traffic control plans with the Safety/Traffic Division and the District traffic engineer.

#### 6-624.3 DURING CONSTRUCTION

During construction, the Resident Engineer assigns an inspector to monitor and document traffic control activities. The inspector must be certified by the American Traffic Safety Services Association (ATSSA) as a traffic control supervisor. The inspector should consider the following:

- Observe installation of specified signs and traffic control devices. Signs, barricades, drums, cones, and flagger paddles must meet specified retro-reflectivity requirements described in Section 625 of the specifications.
- To document the markings, devices, and signs that exist during the project, maintain a detailed record of the placement and spacing of signs and other traffic control devices on the inspector's daily inspection report.
- On the back of each sign, print the assigned installation number, contract number, date of installation, and inspector initials. Also enter this number in the appropriate field book.
- Regularly drive through the project and review the traffic control installed to confirm continued conformance with the traffic control plan. Monitor the effectiveness of the traffic control while driving through the project. Discuss ideas for improving the traffic control with the Resident Engineer. Note deficiencies and immediately notify the contractor to take corrective action.
- Regularly monitor the retro-reflectivity of signs, barricades, drums, cones, and flagger paddles. The contractor may be required to clean or replace devices with unacceptable retro-reflectivity.



- The contractor's traffic control supervisor must submit the original and copies of completed NDOT form 040-056B, "Work Zone Traffic Control Checklist," as required by the specifications. If documentation is not provided by the contractor, the Resident Engineer may withhold payment to the contractor for the Traffic Control Supervisor bid item.
- Verify flaggers are at designated locations and that they meet the requirements of the specifications. Flaggers must have certifications in their possession. Flagger qualification is obtained through the following approved instructional courses: NDOT in-house flagger training, University of Nevada, RenoT2 program, American Traffic Signing and Safety Association (ATSSA), and National Safety Council.
- Record work hours for all flaggers on the project using NDOT form 040-036, "Flagging Hours," for proper payment.
- When unpredictable situations occur, a formally approved traffic control plan is not required, but written documentation is required to record actions taken and directions given.
- If the contractor's operations interfere with or cause potential safety problems with vehicular or pedestrian traffic, notify the contractor to correct the deficiency immediately. If the notification to the contractor is verbal, document the notification in writing to the contractor.
- Because the safety of the traveling public is of the utmost concern, NDOT maintenance forces may need to correct traffic control deficiencies when the contractor is physically unable or refuses to act. The Resident Engineer may terminate the contractor's work operations if the contractor fails to perform. Keep the Resident Engineer informed of traffic control deficiencies. If danger persists, take immediate action.

To reduce the impacts to existing traffic, NDOT may require the contractor to conduct construction activities when traffic volumes are low. These low volume periods typically occur at night. Although nighttime construction can reduce traffic impacts in the work zone, it can also create situations that require diligent attention to worker and motorist safety.

The contractor's traffic control supervisor is responsible for initiating, installing, and maintaining all traffic control devices. A uniformed traffic control officer is required when a signalized intersection is interrupted for construction activities. Uniformed traffic control officers are city, county, or state police officers. The specifications will state if a uniformed traffic control officer is required.

The effectiveness of handling traffic through night construction depends upon the plans and upon the details of the contractor's operations. Consider the following during nighttime operations:

- Light the immediate work area and flagger stations with floodlights, taking care to not blind drivers.
- Require workers to wear bright colored clothing with reflective material that conforms to the specifications.
- Ensure that signs, barricades, and traffic control devices are clean and have proper retro-reflectivity.



- Confine the work area to the shortest practical distance.
- Verify the contractor's operation plan provides sufficient room for construction vehicle access with the least impact to traffic.
- Either through illumination or suitable marking, all construction equipment should be visible to traffic.

In the event of an accident within the work zone, the traffic control inspector must document the traffic control devices in use at the time of the accident on NDOT form 040-056, "Daily Construction Report." Photos are useful additions to written records. For information on other required accident documentation, refer to Section 3-404, Safety, of this *Construction Manual*.

Although a traffic control plan reflects the contractor's operations and traffic conditions during construction, setting up the various elements of the plan at the appropriate time is also important. The traffic control measures must address current activities and conditions. For example, a flagger may or may not be present. If the flagger is not present, "Flagger Ahead" signs should not be visible to traffic. Traffic control measures create driver expectation of upcoming conditions. When traffic control measures do not accurately reflect upcoming conditions, drivers tend to disregard signage and other traffic control devices.

Timely publicity can significantly improve traffic behavior on a construction project. A motorist who is forewarned of construction conditions will be more tolerant of delay and inconvenience and probably will be more alert and responsive to construction zone traffic control. The Resident Engineer must verify that information on project road closures, new road openings, traffic rerouting, and changes in traffic conditions is made available before such changes.

#### 6-624.4 MEASUREMENT AND PAYMENT

Measurement and payment are described in the specifications and the *Documentation Manual*.

### 6-625 CONSTRUCTION SIGNS

#### 6-625.1 GENERAL

Construction signs are a part of accommodating public traffic through a construction project. The project plans and specifications address requirements for construction signing, temporary traffic control devices, and traffic control plans. General guidance relating to construction signs is included in Section 6-624, Accommodations for Public Traffic.

When the specifications require the contractor to develop a traffic control plan, the Resident Engineer reviews and either accepts or rejects the contractor's traffic control plan. The contractor must submit a traffic control plan that complies with the specifications at least seven days before the preconstruction conference. The Resident Engineer works with the contractor and project stakeholders in reviewing the contractor's traffic control plans. The Resident Engineer confirms that the contractor's traffic control plans comply with Policy 07-02, and the plans and specifications. The Resident Engineer may confer with the District Engineer or the Safety/Traffic Division for assistance.

The Resident Engineer may propose changes to the contractor's traffic control plan. Typically, changes to traffic control plans are considered when field conditions are different from those contained in the plans. The traffic control plan must be appropriate for conditions that will be encountered during construction.

# NEVADA STATEWIDE TRANSPORTATION TECHNICAL ADVISORY COMMITTEE

## Agenda Item #5a

**Meeting Date:** February 2, 2015

**To:** Statewide Transportation Technical Advisory Committee

**From:** Sondra Rosenberg

**Subject:** Briefing on Possible STTAC Direction and Workshop

**Type of  
Action**

**Required:** For information/discussion and possible action

**Discussion:**

Staff has been reviewing the history of this committee, including purpose and membership and will summarize those findings. In addition, staff will describe a proposal to have a facilitated workshop with members to facilitate a discussion of potential future responsibilities of the committee.

**Action Requested:**

For information/discussion and possible action

# NEVADA STATEWIDE TRANSPORTATION TECHNICAL ADVISORY COMMITTEE

## Agenda Item #5b

**Meeting Date:** February 2, 2015

**To:** Statewide Transportation Technical Advisory Committee

**From:** Sondra Rosenberg

**Subject:** Briefing on Proposed Revisions to the Nevada Transportation Alternatives Program (TAP)

**Type of  
Action**

**Required:** For discussion and possible action

**Discussion:**

Staff is working on revising the TAP process and would like input from the STTAC. The potential revisions include criteria that allow for a wider range of TAP projects to be considered, a schedule that would allow for more internal review to ensure the proposal has realistic cost and schedule assumptions and for applicant assistance from NDOT staff.

Staff would like acceptance from the STTAC before proceeding with the proposed change.

**Action Requested:**

Acceptance of Proposed changes; or hold for a future meeting



Transportation Alternatives Program Scoring Criteria

(Statewide Flex INFRASTRUCTURE Projects only)

Summary Sheet

Project Name \_\_\_\_\_

Project Sponsor \_\_\_\_\_

Evaluator \_\_\_\_\_ Total Score \_\_\_\_\_

<i>Criteria</i>	<i>Possible Points (70 max.)</i>	<i>Points Awarded</i>
<b>1. Vehicle Dependence</b>	10	
<b>2. Improving Mobility</b>	10	
<b>3. Public Support</b>	10	
<b>4. Community Values</b>	10	
<b>5. Improve Connectivity</b>	10	
<b>6. Safety</b>	10	
<b>7. Project Readiness</b>	10	
	TOTAL POINTS >>>	

Instructions: Please use whole numbers. Zero can be used and 10 points is the maximum awarded per question.

Additional information can be found on the TAP webpage at [www.nevadadot.com/tap](http://www.nevadadot.com/tap)

Transportation Alternatives Program Scoring Criteria

Worksheets

<b>Criteria <u>Infrastructure</u></b>	Points
<p><b>1) Vehicle Dependence</b></p> <p><b>Does the project reduce the community’s dependence of motorized vehicles?</b></p> <p>The proposed project <u>will</u> reduce the dependence upon the automobile (8-10 points).</p> <p>The proposed project <u>may</u> reduce the dependence upon the automobile (4-7 points).</p> <p>The proposed project <u>will not</u> reduce the dependence upon the automobile (0-3 points).</p>	
<p><b>2) Improving Mobility</b></p> <p><b>Does the proposed project enhance non-motorized mobility?</b></p> <p>The proposed project <u>will</u> enhance non-motorized mobility (8-10points).</p> <p>The proposed project <u>may</u> enhance non-motorized mobility (4-7 points).</p> <p>The proposed project <u>will not</u> enhance non-motorized mobility (0-3 points).</p>	
<p><b>3) Public Support</b></p> <p><b>Has there been documented community support through a public process (i.e. with support letters, through meetings, included in studies/plans etc.)?</b></p> <p>The proposed project is <u>strongly</u> supported by the public (8-10 points).</p> <p>The proposed project is <u>moderately</u> supported by the public (4-7 points).</p> <p>The proposed project is <u>minimally</u> supported by the public (0-3 points).</p>	
<p><b>4) Community Values</b></p> <p><b>Does this project provide for improved community quality of life, health or environment?</b></p> <p>The proposed project <u>will</u> provide for improved community values listed above (8-10 points).</p> <p>The proposed project <u>may</u> provide improved community values listed above (4-7 points).</p> <p>The proposed project <u>will not</u> provide improved community values listed above (0-3 points).</p>	
<p><b>5) Improve Connectivity</b></p> <p><b>Will the project provide connectivity between destinations for non-motorized users?</b></p> <p>The proposed project <u>will</u> improve connectivity (8-10 points).</p> <p>The proposed project <u>may</u> improve connectivity (4-7 points).</p> <p>The proposed project <u>will not</u> improve connectivity (0-3 points).</p>	

Criteria <b>Infrastructure</b>	Points
<p><b>6) Safety</b></p> <p><b>Will the project enhance the safety of non-motorized users?</b></p> <p>The proposed project <u>will</u> enhance safety (8-10 points).</p> <p>The proposed project <u>may</u> enhance safety (4-7 points).</p> <p>The proposed project <u>will not</u> enhance safety (0-3 points).</p>	
<p><b>7) Project Readiness</b></p> <p><b>The project will be advertised for construction within:</b></p> <p>12 months or less (8-10 points).</p> <p>24 months (4-7 points).</p> <p>Greater than 36 months (0-3 points).</p>	

DRAFT



Transportation Alternatives Program Scoring Criteria  
 (Statewide Flex NON-INFRASTRUCTURE Projects only)

Summary Sheet

Project Name \_\_\_\_\_

Project Sponsor \_\_\_\_\_

Evaluator \_\_\_\_\_ Total Score \_\_\_\_\_

<i>Criteria</i>	<i>Possible Points (70 max.)</i>	<i>Points Awarded</i>
1. <b>Vehicle Dependence</b>	10	
2. <b>Student Safety</b>	10	
3. <b>Appeal to Students</b>	10	
4. <b>Community Support</b>	10	
5. <b>Potential Mode Shift</b>	10	
6. <b>Knowledge and Skills</b>	10	
7. <b>Project Effectiveness</b>	10	
	TOTAL POINTS >>>	

Instructions: Please use whole numbers. Zero can be used and 10 points is the maximum awarded per question.

Please note: Non-infrastructure funding may only be used for projects affecting students in grades K-8. Funding is not eligible for any other age group. In addition, funding is only allowed for activities related to education, encouragement, enforcement and evaluation.

Additional information can be found on the TAP webpage at [www.nevadadot.com/tap](http://www.nevadadot.com/tap)

Transportation Alternatives Program Scoring Criteria

Worksheets

<b>Criteria <u>Non-Infrastructure</u></b>	Points
<p><b>1) Vehicle Dependence</b></p> <p><b>Does this project reduce the number of vehicular trips to and from school (grades K-8 students)?</b></p> <p>The proposed activities <u>will</u> reduce the number of vehicular trips to and from school (8-10 points).</p> <p>The proposed activities <u>may</u> reduce the number of vehicular trips to and from school (4-7 points).</p> <p>The proposed activities <u>will not</u> reduce the number of vehicular trips to and from school (0-3 points).</p>	
<p><b>2) Safety</b></p> <p><b>Will the proposed activities significantly improve the safety of non-motorized students (grades K-8)?</b></p> <p>The proposed activities <u>will</u> significantly improve safety, either real or perceived, of students walking or bicycling to/from school (8-10 points).</p> <p>The proposed activities <u>may</u> significantly improve safety, either real or perceived, of students walking or bicycling to/from school (4-7points).</p> <p>The proposed activities <u>will not</u> significantly improve safety, either real or perceived, of students walking or bicycling to/from school (0-3 points).</p>	
<p><b>3) Appeal</b></p> <p><b>Will this project make walking and bicycling to school a more appealing alternative for students (grades K-8), thereby encouraging a healthy and active lifestyle from an early age?</b></p> <p>The proposed activities <u>will</u> make walking and bicycling to school a more appealing alternative (8-10 points).</p> <p>The proposed activities <u>may</u> make walking and bicycling to school a more appealing alternative (4-7 points).</p> <p>The proposed activities <u>will not</u> make walking and bicycling to school a more appealing alternative (0-3 points).</p>	
<p><b>4) Community Support</b></p> <p><b>Does this project have documented support (i.e. from schools, advocacy groups, etc.)?</b></p> <p>The proposed activities have <u>strong</u> support from the community (8-10 points).</p> <p>The proposed activities have <u>limited</u> support from the community (4-7 points).</p> <p>The proposed activities have <u>minimal</u> support from the community (0-3 points).</p>	



<b>Criteria <u>Non-Infrastructure</u></b>	Points
<p><b>5) Potential Mode Shift</b></p> <p><b>Will this project increase the number of students (grades K-8) walking and bicycling to/from school?</b></p> <p>The proposed activities <u>will</u> increase the number of students walking and bicycling to/from school (8-10 points).</p> <p>The proposed activities <u>may</u> increase the number of students walking and bicycling to/from school (4-7 points).</p> <p>The proposed activities <u>will not</u> increase the number of students walking and bicycling to/from school above (0-3 points).</p>	
<p><b>6) Knowledge and Skills</b></p> <p><b>Will the project improve the knowledge and skills needed for students to safely walk and bike to school?</b></p> <p>The proposed activities <u>will</u> improve knowledge and skills to create a better walking and bicycling environment (8-10 points).</p> <p>The proposed activities <u>may</u> improve knowledge and skills to create a better walking and bicycling environment (4-7 points).</p> <p>The proposed activities <u>will not</u> improve knowledge and skills to create a better walking and bicycling environment (0-3 points).</p>	
<p><b>7) Project Effectiveness</b></p> <p><b>Will the results of this project be evaluated and documented?</b></p> <p>The proposed activities <u>will</u> provide for a process to determine project effectiveness (8-10 points).</p> <p>The proposed activities <u>may</u> provide for a process to determine project effectiveness (4-7 points).</p> <p>The proposed activities <u>will not</u> provide for a process to determine project effectiveness (0-3 points).</p>	

# NEVADA STATEWIDE TRANSPORTATION TECHNICAL ADVISORY COMMITTEE

## Agenda Item #5c

**Meeting Date:** February 2, 2015

**To:** Statewide Transportation Technical Advisory Committee

**From:** Sondra Rosenberg

**Subject:** Briefing on USA Parkway (SR 439) Project Impact List

**Type of  
Action**

**Required:** Information Only

**Discussion:**

The acceleration of the USA Parkway (SR 439) project may result in the delay of other Northern Nevada NDOT projects. The draft impacted project list that was provided to the State Transportation board in October will be provided for information. Staff will be on hand to take questions and/or provide additional information.

**Action Requested:**  
Information Only



## DRAFT - SR 439 PROJECT IMPACT LIST (\$70M in 2016/2017)

COUNTY	PROJECT NAME	ESTIMATED COST	CURRENT PLANNED YR	MOVED TO YR
<b>ROADWAY (3R) PROJECTS</b>				
<b>DISTRICT - 2</b>				
LY	US 50A, Lyon Co, FM the Jct w/ US 50/US 95A in Silver Springs to SR 427. MP LY 0.000 to 14.119 (includes truck lane and passing lane)	\$10,900,000	2016	2017
LY	180 fm 0.419 ME of the East Fernley Grade Sep to the LY/CH Co Ln. MP LY 5.844 to 15.912	\$13,600,000	2017	2018
WA	180 fm the CA/NV St Ln to 0.023 MW of Keystone Intch. Includes frontage road FRWA03 at Garson Rd Intch. MP WA 0.00 to 12.445	\$13,400,000	2017	2018
CC	US 395, Carson City, US 50/Williams St to 0.661 MS of the CC/WA Co Ln. MP CC 5.254 to 8.950	\$4,900,000	2017	2018
<b>DISTRICT - 3</b>				
LA	US 50 fm CH/LA Co Ln to 0.508 MW of the W Boundary of the Toiyabe National Forest. MP LA 0.000 to LA 25.408	\$14,500,000	2016	2017
HU	180 fm 0.345 ME of the trailing edge of H-1256 at the West Strip Grade Sep to 0.549 ME of the East Winnemucca Intch. MPHU 12.023 to 17.354	\$8,400,000	2017	2018
EL	180 fm 0.363 MW of the West Carlin Intch to 0.274 MW of the West Portal of the Carlin Tunnels, the beginning of the PCCP. MP EL 1.097 to 7.512	\$5,600,000	2017	2018
		SubTotal =	\$71,300,000	

# NEVADA STATEWIDE TRANSPORTATION TECHNICAL ADVISORY COMMITTEE

## Agenda Item #5d

**Meeting Date:** February 2, 2015

**To:** Statewide Transportation Technical Advisory Committee

**From:** Coy Peacock

**Subject:** Update on the FY 2015-2024 Transportation System Projects (TSP)

### **Type of Action**

**Required:** Update on the Transportation System Projects FY 2015-2024 that includes: the Statewide Transportation Improvement Program FY 2015-2018, Work Program FY 2015, Short Range Element FY 2016-2017, and the Long Range Element FY 2018-2024.

### **Discussion:**

Each year the Program Development Division meets with all 17 counties throughout the state including the four MPO's to present a "Draft" Transportation System Projects (TSP) document. Tribal meetings were also conducted with the Te-Moak Band of Western Shoshone, Pyramid Lake Paiute, Fort Mc Dermitt Paiute and Shoshone, Yerington Paiute, Las Vegas Paiute, and Moapa Band of Paiutes Tribes. This serves as an opportunity for the Commissioners, Regional Transportation Commissions (RTC), local governmental entities and the public to comment on and to ask questions about the proposed transportation projects in their area. NDOT meets with the RTC/MPO boards in the designated Metropolitan Planning Organizations (MPO) areas (Clark County, Washoe County, Lake Tahoe and the Carson Area). In the balance of the state, NDOT meets with the County Commissioners at their monthly Commission meeting. Public comments on the proposed projects are accepted in either written format or oral format at all "County Consultation" meetings. At each meeting NDOT requests acceptance of the TSP in its entirety or with noted exceptions.

The FY 2015 County Consultation process was completed on July 11, 2014. All agencies and counties have been presented with a draft work program and have taken official action accepting the draft document. A "Final Draft" has been prepared and distributed to all 17 counties for final 30 day review and comment period. This draft was submitted to the Governor and the State Transportation Board of Directors on November 10, 2014 for approval of the Work Program (WP) and acceptance of the Statewide Transportation Improvement Program (STIP). The Board did not approve the TSP in November and requested additional information be brought back to them. The TSP and additional information was brought back to the Board in December and at their December 15, 2014 meeting they approved the FY 2015 – 2024 TSP. The Statewide

Transportation Improvement Program (STIP) was submitted to the Federal Highway Administration, Federal Transit Administration for approval and Environmental Protection Agency for review. On January 13, 2015 it was officially approved by the FHWA.

**Action Requested:**

Update on the “Final Draft” Transportation System Projects FY 2015-2024 that includes: the Statewide Transportation Improvement Program FY 2015-2018, Work Program FY 2015, Short Range Element FY 2016-2017, and the Long Range Element FY 2018-2024.