



Idaho Transportation Department

Idaho's Work Zone Safety and Mobility Program

April 2018

PREFACE

In September 2004, the Federal Highway Administration (FHWA) published updates to the work zone regulations at 23 CFR 630 Subpart J. This updated regulation, referred to as the Work Zone Safety and Mobility Rule, applies to all State and local governments on projects that receive Federal-aid highway funding. Transportation agencies were required to comply with the provisions of the Rule by October 12, 2007. The changes made to the regulations broaden the former Rule to better address the work zone issues of today and the future. On December 5, 2007 the FHWA added a new Subpart K to 23 CFR 630 to supplement the other regulations that govern work zone safety and mobility. The effective date of this regulation was December 4, 2008.

The Idaho Transportation Department first published this Work Zone Safety and Mobility program in December 2008 and has updated the program periodically thereafter. The Design/Traffic Services Section reviews, modifies, and makes updates to the Work Zone Safety and Mobility program.

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WORK ZONE SAFETY AND MOBILITY PROGRAM

I. Policy Statement

The Idaho Transportation Department's (ITD) policy is to plan, design, construct, evaluate, maintain, and operate safe and efficient work zones on ITD projects. The Work Zone Safety and Mobility Program, extends this practice to include all federal-aid funded projects including locally administered projects. The needs and the control of road users (as defined by MUTCD Section 1A.13) through a work zone is an essential part of ITD highway projects.

II. Objectives

- A. Provide a safe environment for highway workers and road users.
- B. Work "Toward Zero Deaths" in work zones.
- C. Maintain a crash rate that is equal to or less than the crash rate that existed prior to implementation of the work zone.
- D. Maintain or reduce project maximum travel delays in work zones.
- E. Utilize appropriate Intelligent Transportation Systems (ITS) technologies that reduce delays, improve safety, or both.
- F. Implement training programs for those involved in planning, designing, constructing, maintaining, or providing Law Enforcement in work zones and managing incidents.
- G. Maintain a Work Zone Safety and Mobility Process Review Team.

III. Work Zone Safety And Mobility program

Use this Work Zone Safety and Mobility program on projects funded with Federal-aid. The WZSM program applies to Federal-aid highway projects that are executed through State/Local Agreements and on project-related utility work. For utility work, the WZSM program applies whether the work is at project expense or at the utility company's expense.

A. Temporary Traffic Control Plans

ITD or the local agency having jurisdiction for guiding road users is responsible for clearly defining the expectations and requirements for managing traffic through the work zone within the Temporary Traffic Control (TTC) plans. TTC plans describe TTC measures to be used for facilitating road users through a work zone. Start project TTC plans in the planning phase and continue through the design, construction, and restoration phases. The TTC plan is constituted of the TTC specifications and TTC plan sheets, but may not require both elements to define ITD's TTC expectations and requirements.

B. Work Zone Safety and Mobility Process Reviews

Work Zone Safety and Mobility Process Reviews (see Chapter 4) assess the effectiveness of work zone safety and mobility procedures. The results of the review are intended to lead to improvements in work zone processes and procedures, data and information resources, and training programs to enhance efforts to address safety and mobility on current and future projects.

C. Speed Zone Design

Limit reduced speed limits to only the specific portion of the work zone where conditions or restrictive features are present. Reduced speed zoning should be avoided as much as practical because drivers will reduce their speeds only if they perceive a need to do so.

Include the lengths, locations, and circumstances on TTC plans where a reduced speed limit reduction may be desired.

D. Law Enforcement

Law enforcement assistance in work zones may be useful in enforcing traffic laws or affecting driver behavior. Identify funding and make plans to involve law enforcement agencies in work zones early in the planning process. Costs associated with law enforcement personnel performing work zone related work may be eligible for Federal-aid participation. Payment for law enforcement services may be included in a construction contract or by direct interagency payment.

An interagency agreement between ITD or local highway agencies and the law enforcement agency must be approved in advance of the start of law enforcement involvement to be reimbursable. Agreements should:

1. Address work zone enforcement needs
2. Address interaction between ITD or local highway agencies and law enforcement during project planning and development
3. Address conditions where law enforcement involvement in work zone TTC may be needed or beneficial, and criteria to determine the project specific need
4. Describe the general nature of services to be provided and procedures to determine the project specific services
5. Require and define appropriate work zone safety and mobility training for officers
6. Describe procedures for communications between ITD and law enforcement
7. Include agreements on how the law enforcement agency will be reimbursed

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WORK ZONE SAFETY AND MOBILITY PROGRAM**

CHAPTER 1

WORK ZONE ASSESSMENT AND IMPACT MANAGEMENT

I. Requirements of the Work Zone Safety and Mobility program

- A. Develop a TTC plan for highway construction projects, utility work, maintenance operations, right-of-way use permits, and management of traffic incidents that impact road users.
- B. Develop a Transportation Management Plan (TMP) that consists of a TTC plan and addresses both Transportation Operations (TO) and Public Information (PI) components, for projects that have been identified as Significant Projects, as defined in Section III – Significant Projects of this chapter. A TMP for a Significant Project lays out a set of strategies for managing the work zone impacts of a project. Contractor proposed TMPs shall be reviewed and approved by the contract administrator prior to implementation.
- C. Ensure that TTC plans:
 1. Are sufficiently detailed to convey requirements and expectations of the contractor in managing traffic through the work zone.
 2. Are consistent with Part 6 of the MUTCD as adopted by the State.
 3. Are consistent with the principles contained in the American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide
 4. Maintain pre-existing roadside devices at an equivalent or better level than existed prior to project implementation
 5. Consider the use of temporary traffic barriers or other Positive Protection Devices in work zones where workers are vulnerable on or near the roadway. (See Section II.C on page six for additional information on evaluation procedures.) Situations to evaluate include:
 - a) Work zones that provide workers no escape from motorized traffic (tunnels, bridges, etc.)
 - b) Work zones with durations of two weeks or longer
 - c) Operating speeds of 45 mph or greater
 - d) Work operations that place workers within twelve feet of travel lanes open to traffic
 - e) Work zones with roadside hazards, such as drop-offs or unfinished bridge decks, that will remain in place overnight or longer
 6. Consider use of crossovers on multi-lane divided highways (refer to the Chief Engineer's, "Median Crossovers on Divided Highways Construction Projects," procedures document; available on the Division of Engineering Products and Plans, Chief Engineer SharePoint site under [Median Crossover Waivers](#)).
- D. Place TTC devices in accordance with the TTC plan before work begins.
- E. When applicable (Significant Projects or as required by the District Engineer), the TO component includes the identification of strategies that will be used to mitigate impacts of the work zone on the operation and management of the transportation system within the work zone impact area. TO strategies may include: demand management, corridor/network management, safety management and enforcement, and work zone traffic management.
- F. When applicable (Significant Projects or as required by the District Engineer), the PI component includes communication strategies that seek to inform affected road users, the general public, area residences and businesses, and appropriate public entities about the project, the expected work zone impacts, and the changing conditions on the project. This may include traveler information strategies.

- G. Include a TMP or provisions for contractors to develop a TMP in the agreement with the contractor. ITD or local highway agencies will approve contractor-developed TMPs prior to implementation.
- H. Include pay items for implementing the TMP, which may only include the TTC plan, in the contract documents. TTC devices, temporary traffic barriers, and uniformed law enforcement, are examples of separate pay items.
- I. The Contractor and ITD or local highway agency will each designate an appropriately trained person at the project level to implement the TMP. Implementation tasks may include inspection and maintenance of elements of the TMP.
- J. Train personnel involved in the development, design, implementation, operation, inspection, and enforcement of work zone related transportation management and traffic control to the level that is appropriate to the job decisions each individual is expected to make. See Chapter 3.
- K. ITD and FHWA partner to ensure compliance with 23 CFR 630 Subpart J and Subpart K and to improve work zone safety and mobility through their Stewardship and Oversight Agreement.

II. Guidance for Implementation

- A. Work Zone Assessment and Impact Management procedures can provide a framework within existing project development and construction processes to:
 - Identify and understand the work zone safety and mobility implications of alternative project options and design strategies.
 - Allocate work zone management resources to those projects that are likely to have greater work zone impacts.
 - Identify transportation management strategies to manage the expected work zone impacts of a project.
 - Estimate costs and allocate appropriate resources for the implementation of the work zone management strategies.
 - Monitor and manage work zone impacts during Federal-aid highway projects and adjust the TMP as needed.
- B. Work Zone Crash and Delay data are useful to make an informed assessment of the success of efforts to manage work zones and their impacts. Work zone field data also enables ITD or local highway agencies to assess how well planning and design estimates of anticipated impacts correspond with field conditions. Collected data can provide the basis for assessing performance and taking appropriate actions to improve performance on individual projects as well as statewide processes and procedures.
 - Crash data: As necessitated by traffic operations through the work zone, comparisons should be made between pre-work zone and work zone crash rates within the project limits. Monitor work zone crashes and make modifications to the TMP if the crash rate during construction exceeds the pre-existing rate.
 - Delay Data: As necessitated by traffic flow through the work zone. Comparisons should be made between appropriate measure of effectiveness (MOE) between pre-work zone and work zone traffic data. MOEs may include level of service (LOS),

travel time, travel reliability, or others. MOEs can be estimated for proposed TTC plans through an engineering study. Methods for evaluating delay include use of Bluetooth/Wi-Fi technology to monitor traffic flows, mobile device traffic flow applications, travel time measurements, etc.

Conduct work zone mobility assessments during the construction of Federal-aid highway projects. The assessment can consist of a drive through of the work zone, detour routes, or both to measure the TTC delays. Make adjustments to the TTC plan and TMP as necessary.

Maintain documentation associated with the work zone mobility assessment as part of the construction project records.

C. Consider the use of longitudinal traffic barriers. ITD Form 283, Work Zone Positive Protection Guide (available through ITD's [Form Finder](#) SharePoint site) is a spreadsheet tool developed to assist with this evaluation; providing a step-by-step process for determining whether barrier should be considered for a particular project. The process is based on an engineering assessment of the costs of providing positive protection versus the crash cost reduction benefits that may be achieved by providing the positive protection. If the expected benefits approach exceeds the costs of providing protection, use of such protection is recommended. However, engineering judgment should still be used because unique situations and conditions may exist at sites that are not considered in these guidelines. The spreadsheet tool data inputs include:

- Type of hazard (no worker escape, work in close proximity to travel lanes, roadside hazards)
- Roadway Average Annual Daily Traffic
- Distance between traffic and work activities
- Operating speed of traffic
- Value of Statistical Life
- Number of work shifts or time of day when work is performed
- Project duration
- Length of need
- Cost of barrier

D. Examples of TTC strategies implemented to address specific project concerns:

- US-20 Broadway Bridge replacement: Broadway Avenue being a key gateway into the Capital city and access to St. Luke's hospital and Boise State University, the closure required in-depth public involvement and input and an extensive detour plan accommodating the needs of all users (cars, bikes, and pedestrians). To minimize project duration and impacts, Broadway Avenue was closed enabling demolition and replacement to be completed in nine months during the football offseason.
- SH-55, Payette River bridge replacement in McCall. Due to a lack of roadway connectivity to establish a viable detour, the new bridge was constructed adjacent to the existing bridge and when completed slid into place minimizing any inconvenience to the travelling public.
- I-84 resurfacing between Caldwell and Nampa. Due to heavy weekday commuter traffic, the resurfacing of the interstate was scheduled over four weekends with crossovers while maintaining two lanes each direction during the weekdays.

- I-90 resurfacing between Mulan and Montana border. Due to the high number of bicyclists using the interstate to access the Northern Pacific Trail head at Lolo Pass, D1 set up a service to shuttle bicyclist through the project while lanes were narrow with no safe accommodations for bicycles.
- D1 & D6 used Bluetooth and Wi-Fi technology to monitor traffic delays along project route and made adjustments to the traffic control scheme based on data collected.
- Rolling closures – use of pace vehicles to slow traffic in advance of the work area to create a gap in traffic sufficient to accomplish a short duration work task (e.g. running utility lines across the highway and raising to safe height, change in temporary traffic control phasing, equipment moves, blasting) without a road closure. May be an effective strategy on full access control facilities.

III. Significant Projects

A significant project is one that, alone or in combination with other concurrent projects nearby is anticipated to cause sustained [work zone impacts](#) that are greater than what is considered tolerable.

All Interstate system projects within the boundaries of a Transportation Management Area (TMA) that occupy a location for more than three days with either intermittent or continuous lane closures shall be considered as significant projects.

TMA's are urbanized areas with a population over 200,000 (as determined by the latest decennial census) or other areas when [TMA](#) designation is requested by the Governor and Metropolitan Planning Organization (MPO), or affected local officials; and officially designated by the [Administrators](#) of the FHWA and the FTA. The [TMA](#) designation applies to the entire metropolitan planning area(s).

On significant projects that do not cause sustained [work zone impacts](#), ITD may request from the FHWA an exception which may be granted based on ITD's ability to show that the specific Interstate system project or categories of Interstate system projects do not have sustained [work zone impacts](#).

Districts at their discretion may choose to treat non-qualifying projects as significant. Such projects should be identified in the ITIP as early as possible in the project development process.

Project types that may be candidates for significant project designation:

- Work on Interstate and multilane highway facilities located within the boundaries of an MPO.
- Work on interstate and highway facilities within the areas of impact of incorporated municipalities when such facilities operate at Level of Service E or F during certain periods of the day.
- Highway facilities with heavy recreational use and work coincide with peak recreational traffic.
- Work on interstate and highway facilities where Level of Service during construction is anticipated to be E or F.
- Projects with planned detours requiring over 20 miles of out-of-direction travel (over 50 miles for trucks).

The TMP for a Significant Project includes a TTC plan, a TO component, and a PI component. The TMP should begin during the planning phase of a project and continue through the design and construction phases.

Strategies that may be included in the TMP for a Significant Project are shown in Table 1.1 for Temporary Traffic Control and Table 1.2 for Transportation Operations. Chapter 2 contains additional information about the PI component.

IV. Other Projects

The TMP for other projects may consist of a TTC plan only, but consideration should be given to including TO and PI components.

TABLE 1.1: Work Zone Assessment and Impact Management Strategies

| Temporary Traffic Control (TTC) | | |
|--|---|--|
| Control Strategies | Traffic Control Devices * | Project Coordination, Contracting and Innovative Construction Strategies |
| <ul style="list-style-type: none"> • Construction phasing • Full roadway closures • Lane shifts or closures/shoulder closure • Lane or shoulder width reduction • One-lane, two-way operation • Two-way traffic on one side divided facility (crossover) • Reversible lanes • Ramp closures/relocation • Freeway-to-freeway interchange closures • Night work • Weekend work • Work hour restrictions for peak travel • Pedestrian/bicycle access improvements • Business access improvements • Off-site detours • Mobile Operations • Rolling Closures | <ul style="list-style-type: none"> • Temporary signs <ul style="list-style-type: none"> – Regulatory – Warning – Guide • Channelizing devices • Temporary traffic barriers • Temporary pavement markings • Arrow panels • Changeable Message Signs (CMS) • Flaggers and uniformed traffic control officers • Temporary traffic signals • Lighting devices • Temporary crash cushion • Shadow Vehicle with truck mounted attenuator (TMA) | <ul style="list-style-type: none"> • Project coordination <ul style="list-style-type: none"> – Coordination with other projects – Utility coordination – Right-of-way coordination – Coordination with other transportation infrastructure • Contracting strategies <ul style="list-style-type: none"> – Design build – A+B bidding – Incentive/disincentive clauses – Lane rental • Innovative construction techniques (precast members, rapid cure materials) |

* This is not intended to be a complete list. A wide range of TTC devices are described in part 6 of the Manual on Uniform Traffic Control Devices (MUTCD).

TABLE 1.2: Work Zone Assessment and Impact Management Strategies

| Transportation Operations (TO) | | | |
|--|--|--|---|
| Demand Management Strategies | Corridor/Network Management Strategies | Work Zone Management Strategies | Incident Management and Enforcement Strategies |
| <ul style="list-style-type: none"> • Transit service improvements • Transit incentives • Park-and-ride promotion • Shuttle services • Parking supply management • Variable work hours • Telecommuting | <ul style="list-style-type: none"> • Signal timing/coordination improvements • Temporary signals • Street/intersection improvements • Turn restrictions • Parking restrictions • Separate truck lanes • Truck/heavy vehicle restrictions • Ramp closures • Bus turnouts • Reversible lanes • Dynamic lane closure system • Railroad crossings controls • Speed limit reduction/variable speed limits • Coordination with adjacent projects | <ul style="list-style-type: none"> • Changeable Message Signs (CMS) • Temporary traffic signals • Temporary traffic barrier • Crash-cushions • Temporary rumble strips • Intrusion alarms • Warning lights • Construction safety supervisor/inspectors • Project task force/committee • Team meetings • TMP monitor/inspection team • Windshield surveys • Project on-site safety training • Safety awards/incentives • Speed Radar Trailers • Traffic Control Review Team | <ul style="list-style-type: none"> • ITS for traffic monitoring/management • Surveillance (Closed-Circuit Television (CCTV), loop detectors, lasers, probe vehicles) • Traffic Screens • Photogrammetry • Changeable Message Signs (CMS) • Highway Advisory Radio (HAR) • Media briefings • CARS 511 information dissemination • Local detour routes • Transportation Management Center (TMC) • Contract support • Incident/emergency management coordinator • Incident/emergency response plan • Dedicated (paid) police enforcement • Cooperative police enforcement • Increased penalties for work zone violations |

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CHAPTER 2

PUBLIC INFORMATION

I. Requirements of the Work Zone Safety and Mobility Program

Develop the PI component of the TMP when a project is identified as a Significant Project. Other projects may include a PI component.

Contact the ITD Public Involvement Coordinator (208-334-8119) for information on ITD's Public Outreach Planner, for assistance to identify potential project stakeholders, and for a list of tools/outreach methods. If there is a team working on a project together, it's recommended that the team jointly go through the POP. It helps generate discussions on how to best inform stakeholders and the traveling public.

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CHAPTER 3

TRAINING

I. Requirements of the Work Zone Safety and Mobility Program

The WZSM program requires personnel involved in the development, design, implementation, operation, inspection, and enforcement of work zone related transportation management and traffic control be trained appropriate to the job decisions each individual is required to make. Periodic training updates that reflect changing industry practices and ITD processes and procedures are also required for these personnel.

II. Job Descriptions/Personnel

Personnel that are involved in the development, design, implementation, operation, inspection, and enforcement of work zone related transportation management and traffic control according to the Work Zone Safety and Mobility program.

A. ITD Designers

Individuals responsible for developing project concepts, designing or reviewing temporary traffic control plans.

B. ITD and Consultant Construction Inspectors

Individuals responsible for inspecting temporary work zone traffic control.

C. ITD Operations

Individuals responsible for designing, inspecting, installing, or maintaining temporary work zone traffic control.

D. Engineers

Any individual possessing a valid license as a Professional Engineer registered in Idaho shall be deemed to have satisfied the training requirements. Individuals supervised by a consultant PE are considered trained under the PE's authority.

E. Peace Officers

Any active Idaho Peace Officer possessing certification as a patrol officer from the Idaho Police Officer Standards and Training (POST) Council shall be deemed to have satisfied the training requirements.

III. Training Courses

ITD's Temporary Traffic Control Certification Oversight Committee (TCOC) provides oversight of the certification and training programs associated with the Work Zone Safety and Mobility program. Approval of courses and materials is the responsibility of the TCOC (see Administrative Policy 5530).

The following is a list and description of required training courses available to ITD employees through the ITD Learning Hub, as well as to non-ITD personnel through approved training programs.

1. Basic Temporary Traffic Control (ITD Course 10.07)

This course is a basic introduction to temporary traffic control for ITD personnel. Upon completion of this course participants will be able to:

- Understand the requirements of the national standards for work zone traffic control.
- Be familiar with work zone traffic control devices.
- Learn the 4 parts of a traffic control zone.

- Learn the 5 categories of work duration.
- Learn to use the handbook Work Zone Safety: Guidelines for Construction, Maintenance, and Utility Operations to set up work zone traffic control for typical short-term stationary, short duration, and mobile operations.
- Learn how pedestrians, workers, and flaggers are addressed in work zone traffic control.
- Be aware of legal liability problems associated with work zone traffic control.

This course is taken only once. No certification is given at the completion of the course. This course can be combined with the Flagging course.

2. Flagging (ITD Course 10.28, ATSSA, Evergreen Safety Council (ESC))

This course provides flaggers with the basic knowledge, information and awareness to perform their jobs safely. Participants that successfully complete the course will receive a certification that is valid for three years. Maintaining a current certification satisfies the requirement for periodic training. ITD does not recognize certifications obtained through online courses.

3. Application of Temporary Traffic Control Plans (ITD Course 10.16) or Traffic Control Technician (TCT) (ATSSA)

The course provides an introduction to temporary traffic control in work zones for individuals who work in the field installing and removing traffic control devices. It teaches concepts, techniques and practices in the installation, and maintenance of traffic control devices.

Maintaining a current certification satisfies the requirement for periodic training.

The ATSSA Traffic Control Technician course provides a certification upon completion.

4. Traffic Control Supervisor (ITD Courses 10.76 and 10.77, ATSSA, ESC)

The course is a 2-day course (1 day course for re-certification) designed for individuals who supervise traffic control technicians and other field personnel. It provides comprehensive training on work zone standards, guidelines, installation and removal procedures, inspection, documentation and supervisory skills.

Participants are taught how to read and interpret traffic control plans for implementation in the field. Several workshops included in this course are designed to provide hands-on experience implementing and modifying temporary traffic control plans for various real life situations. It also teaches how to recognize, analyze correct and document deficiencies. State and local standards and guidelines are discussed.

Participants will complete the course with knowledge needed to interpret and implement temporary traffic control plans in the field to make the project as safe as possible for their fellow workers, motorists and pedestrians.

Certification is valid for 4 years. At the end of the 4 years, certificate holder must recertify. Maintaining a current certification satisfies the requirement for periodic training.

Required Training Courses

| | Basic Traffic Control* (ITD personnel) | Flagging* | Application of TTC Plans or Traffic Control Technician* | Traffic Control Supervisor* | POST Patrol Officer Cert. |
|-----------------------------|---|-----------|---|-----------------------------|---------------------------|
| ITD Designers | ● | | ● | | |
| ITD Construction Inspectors | ● | ● | | | |
| Consultant Inspectors | | | ● | | |
| ITD Operations** | ● | ● | ● | ● | |
| Law Enforcement | | | | | ● |

* Licensure as a Professional Engineer satisfies the training requirements of the WZSM Program.

** ITD Operations personnel will comply with the training requirements in their horizontal career path.

IV. Training Updates and Recertification

Training updates will follow the recertification schedule outlined in Section III – Training Courses. Continuing training for law enforcement personnel shall be as established by the Idaho Peace Officer Standards and Training Council.

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CHAPTER 4

WORK ZONE SAFETY AND MOBILITY PROCESS REVIEW

I. Requirements of the Work Zone Safety and Mobility program

Perform a process review at least every two years to assess the effectiveness of work zone safety and mobility procedures.

Process review reports are posted on the Design/Traffic Services SharePoint site in the [Traffic Documents](#) folder.

II. Guidance for Implementation

The purpose of the process review is to assess the application of this WZSM program on projects, make recommendations for systematic improvements, and identify best practices.

A multi-disciplinary, multi-agency Work Zone Safety and Mobility Process Review team participates in the process review every two years. The team may consist of representatives from the Design/Traffic Services Section, Work Zone Training Specialist, the Employee Safety and Risk Management Program Manager, District Traffic Engineers, District Design and Construction Engineers, District Safety, and the Federal Highway Administration. The scope and methodology of each process review is defined in a Work Zone Safety and Mobility Work Plan. The review may include the evaluation of Idaho work zone data, the review of randomly selected projects throughout Idaho, or both.

The results of the review are intended to lead to improvement in work zone processes and procedures, data and information resources, and training programs to enhance efforts to address safety and mobility on current and future projects.

The process review team may consider the following questions:

- Are good decisions being made in the planning, designing, and implementing of work zone TTC plans?
- How are work zone TTC plans performing with respect to safety and mobility?
- How do work zone TTC plans perform at night?
- Can areas for improvement be identified?
- What has worked and not worked?
- Which strategies have shown to be more or less effective in improving the safety and mobility of work zones?
- Should procedures be adjusted based on what has been observed or measured?
- How have past recommendations been implemented?
- Are customer safety and mobility expectations being met? What other improvements can be implemented?
- Are there combinations of TTC plan components that work well?
- Can work zone safety and mobility trends be identified?