



Method of Handling Traffic (MHT) Manual



**Traffic Services/Public Works Department
February 2021**

Method of Handling Traffic (MHT) Manual

Executive Summary

This City of Greeley's "Method of Handling Traffic" (MHT) Manual is prepared for persons working in and near public right-of-ways in the City of Greeley. The primary function of this *Manual* is to promote the safe and efficient movement of people and goods by providing traffic safety guidelines for persons working in or near the public right-of-way. Providing a safe working environment with minimal disruption to the transportation system during these projects is essential. This *Manual* also provides requirements that meet or exceed those issued by the Federal Highway Administration's "*Manual on Uniform Traffic Control Devices*".

The City's MHT Manual provides clear and standardized information for the proper planning and placement of temporary traffic control devices in the public right-of-way. Inherent in this plan includes the following objectives:

1. Establish a cooperative work environment with contractors and barricade companies to ensure that all traffic control barricading for construction and maintenance within the City's right-of-way are conducted safely with minimal disruption to the transportation system (vehicles, pedestrians, bicyclists, and transit);
2. Provide safe conditions for the contractor
3. Reduce conflicts and coordinate street restrictions between multiple construction projects;
4. Minimizing disruptions to the traveling public including the restriction of peak hour construction
5. Complete projects in a safe and timely manner
6. Minimize prolonged or over deployed barricading
7. Protect the motoring public, pedestrians and bicyclists
8. Provide a safe, orderly flow of traffic
9. Preserve access to neighborhoods & businesses
10. Maintain good public relations

To ensure compliance with this manual and the specific standards for the application and maintenance of temporary traffic control devices for work within the City, please read this document completely. However, in an effort to highlight specific and often overlooked requirements, the Traffic Services Division has provided the following table on the next pages.

Method of Handling Traffic Plans

Work Period Restrictions
<ul style="list-style-type: none"> • Arterial & Collector Streets (Weekdays): <ul style="list-style-type: none"> ○ Morning Peak: 7:00 AM – 8:30 AM ○ Afternoon Peak: 4:00 PM – 6:30 PM (Exceptions may be granted.) • Adjacent to Schools (Weekdays when school is in session): <ul style="list-style-type: none"> ○ Morning: 7:00 AM – 8:30 AM ○ Afternoon: 3:30 PM – 6:30 PM • Within Neighborhoods: <ul style="list-style-type: none"> ○ Restricted during night and early morning: 6:00 PM – 7:00 AM • All Streets (Night-time): <ul style="list-style-type: none"> ○ Restricted from 10:00 PM – 7:00 AM

Temporary Traffic Control

- **Arterial & Collector Streets:**
 - Type C arrow boards **must** be used for all through lane closures.
- **All Streets:**
 - Contractor is responsible for adjusting traffic control devices if conditions change.
 - If traffic control is deemed insufficient, the City will notify the contractor. If the issue isn't corrected within one (1) hour, the City may suspend operations until compliance is achieved.
 - In life or safety circumstances, the City may suspend operations immediately.

Communication & Awareness

- **Arterial Streets (Exceptions may be granted):**
 - For any lane or full closures, variable message boards must be placed **one week in advance** of work.
- **Transit Bus Stops:**
 - 72-hour notice is required for any work that may affect a bus stop.
 - Notification must be provided by calling **970-350-9290** or emailing **tmt@greeleygov.com**.
- **All Streets:**
 - Contractor/Owner must coordinate street and driveway closures with property owners.
 - Written notification is required **one week before construction**.
 - Final approval must be obtained from the **Traffic Services Division**.

Method of Handling Traffic Plans

Permit Timelines

- **All Streets:**

Construction work may experience delays or changes. However, permit holders must keep timelines accurate and timely to prevent traffic flow conflicts.

- Permits must not include an unrealistic amount of time.
- If changes occur, permit holders must adjust timelines accordingly.

Fines

- **All Streets:**

While the City's approach emphasizes education and awareness, repeated violations of traffic control requirements may result in fines.

- Fines will be applied according to the fee schedule.
- Outstanding unpaid fines will block the issuance of future permits.

Context Statement

Greeley is experiencing ongoing growth, with many utility and private development projects in the public right-of-way. Timely and safe project completion is essential to the city's economic health and residents' quality of life.

To minimize disruption, contractors must ensure:

- Safe and coordinated work environments.
- Respect for residents and businesses.
- Projects delivered in ways that protect quality of life and support commerce.

Greeley is constantly growing and evolving, and as such has a large number of utility and private development projects occurring within Greeley at any given time. The successful completion of these projects in the public right-of-way is vital to the economic health and quality of life in Greeley. Providing a safe and coordinated working environment with minimal disruption to the transportation system during these projects is essential. It is also imperative that our projects are delivered in a way that respects the quality of life and the importance of commerce with adjacent residents and business neighbors.

Table of Contents

Contents

PURPOSE.....	7
Goals	7
PERMITTING PROCESS	8
TRAFFIC CONTROL PLANS.....	10
TEMPORARY TRAFFIC CONTROL REQUIREMENTS.....	11
FAILURE TO COMPLY	13
Guideline Policies.....	13
WORKER SAFETY	14
Personnel Considerations.....	14
Vehicle Considerations	14
EXISTING TRAFFIC CONTROL DEVICES	16
Overview	16
Traffic Signs	17
Traffic Signals	17
Conflicting Pavement Markings	18
School Zones.....	18
PEDESTRIAN AND BICYCLIST SAFETY.....	19
Pedestrian Considerations	19
Bicyclist Considerations	21
Transit Considerations	23
TEMPORARY TRAFFIC CONTROL DEVICES	23
Sign Requirements.....	24
Barricades and Other Channelizing Devices	30
MANUAL TRAFFIC CONTROL – POLICE and FLAGGERS	37
Police Control	38
WORK ZONE SPEED LIMIT PROCEDURES.....	39
TEMPORARY TRAFFIC CONTROL ILLUSTRATIONS, REQUIREMENTS and RESTRICTIONS	40
MHT Plans – Double Through Lane Closures on Higher Volume Streets (i.e. Collectors, Arterials, etc.)	42
MHT Plans – Through Lane Closures on Higher Volume Streets (i.e. Collectors, Arterials, etc.) within	



Method of Handling Traffic Plans

Intersections	43
MHT Plans – Left/Right Turn Lane Closures on Higher Volume Streets (i.e. Collectors, Arterials, etc.) within Signalized Intersections (Contact Traffic Signal Staff)	44
MHT Plans – Closures on Lower Volume Streets for Workzones within Intersections	45
MHT Plans – Lane Closures on Lower Volume Streets for Workzones along Corridors with Bike Lanes and On-Street Parking	46
MHT Plans – Full Street Closures on Lower Volume Streets	47
Short Term Maintenance Activities.....	49
MHT Plans – Enlarged Table Showing Taper and Spacing Requirements for Traffic Control Devices ..	50
Appendix A – Summary of Violations and Penalties.....	51

Method of Handling Traffic Plans

PURPOSE

The City of Greeley's Method of Handling Traffic (MHT) Manual serves as a guide to enhance traffic safety and mobility for the public and to better manage temporary encroachments in the City of Greeley (City) right of way. It is intended to help:

- **Expedite construction projects while keeping workers and the public safe**
- **Minimize inconvenience and interference to the public, and**
- **Provide accessible temporary facilities for all users**

This document is consistent with the MUTCD, which specifies in Section 1A.13 that engineers, or those working under the direction of an engineer, may exercise judgment in the applicability, design, operation or installation of a traffic control device. This manual follows the protocols set forth by the Manual on Uniform Traffic Control Devices (MUTCD) and shares the field experience and expertise of the City's traffic control inspectors and professional traffic engineers regarding what techniques have proven to work best on busy city streets.

The purpose of the MHT Manual is to help ensure that during construction, maintenance, and event activities on City streets, reasonably safe conditions are sustained for motorists, bicyclists, pedestrians, transit riders, and workers. This manual illustrates proven procedures that work well on different types of City streets, including arterial, collector, and local streets. When temporary traffic control is managed properly, it reduces congestion and confusion for the public. An additional goal of the MHT Manual is to gain uniformity in implementing temporary traffic control in work zones or special events and promote the use of the most effective and least disruptive methodology. Typical applications of approved devices and procedures are also illustrated.

The provisions established herein apply to all persons occupying space otherwise used for transportation and utilities within Greeley's public right-of-way (ROW). For events, the provisions apply to the event sponsor or promoter. Emergencies and incidents overseen by City of Greeley Police and Fire personnel such as vehicle crashes, hazardous waste emergencies, or other major occurrences often require immediate response without the opportunity to deploy temporary traffic control resources. Nevertheless, even these incidents require use of innovative and effective temporary traffic control strategies including police power, use of emergency vehicles with flashing lights, manual control of traffic, and/or flaggers. Flares and roll-up emergency signs are also commonly used.

Goals

Safety is the primary goal of any traffic control plan. Traffic control devices at work sites are necessary to protect construction workers, motorists, bicyclists and pedestrians from encountering unexpected requirements or difficult maneuvers that could result in an accident. Traffic controls should route traffic through the work area in a manner that is as similar as possible to normal roadway conditions. Any unusual, unrecognized, or unclear traffic control device can have negative results such as drivers choosing an incorrect route or

Method of Handling Traffic Plans

blocking the flow of traffic. Though work site hazards cannot be completely eliminated, they can be reduced through the following methods:

- **Schedule work during off-peak traffic volume hours.**
- **Coordinate work with other agencies to provide fewer traffic interruptions.**
- **Investigate alternate locations for utility installations.**

Consistency in device appearance and use throughout the City will lead to better understanding by the driver and result in fewer accidents. All traffic control devices must meet or exceed the standards in the latest edition of the MUTCD. Traffic control devices must be laid out according in the approved MHT plan.

Maintenance of traffic control devices is very important to their effectiveness. All traffic control devices must be maintained throughout the construction period to provide correct placement and legible faces both day and night. Maintenance includes cleaning or replacing dirty, missing or damaged devices. Routine day and night inspections are necessary; however, no standard schedule can be used for all conditions. Frequency should be based on common sense, with heavy traffic arterials requiring more frequent inspections. If inclement weather, vandalism, or other difficulties occur, more frequent inspections will be required. Follow-up action is required to make sure that any deficiencies have been corrected. The permit holder is responsible for the inspections and the corrective action.

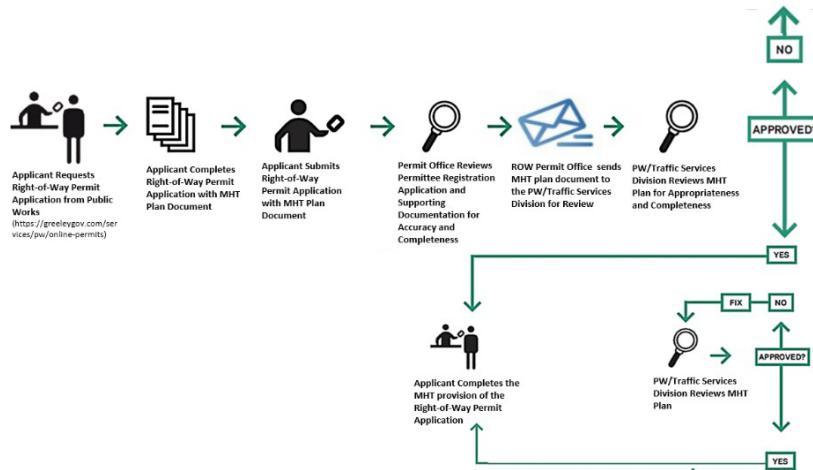
PERMITTING PROCESS

Any work that may impact pedestrian, bicycle, and/or vehicular flow or result in lane closures in streets will require a MHT (Method of Handling Traffic) plan. These plans with the "Temporary Traffic Control Work Zone Review Form" must be submitted through the City of Greeley Right-of-Way permitting process and reviewed by the Traffic Services Division prior to commencing any work in the City of Greeley right-of-way. The "Temporary Traffic Control Work Zone Review Form" is shown in Appendix B.

This permitting process starts by contacting the Public Works permitting staff either by phone (ph. 970-350-9881 and/or via email (PublicWorksPermits@greeleygov.com) to obtain submittal information and registration requirements. After submitting the proper documents, registrants are able to access the City of Greeley's Public Works on-line permit portal at <https://greeleygov.com/services/pw/online-permits>. Registrants can also obtain the right-of-way permit applications by contacting the Public Works permitting staff via fax, email, and phone.

Method of Handling Traffic Plans

Permit Process – Method of Handling Traffic (MHT Plan)



As part of the on-line permitting process, the MHT plan(s) would be attached in the Related Documents section. General information as described below is entered as described below..



The screenshot shows the online permitting system interface. On the left, the 'DataGroup' section lists various permit types and fees, including 'Existing Surface', 'ROW Storm Water System Fees', 'ROW Concrete Improvements Fees', 'ROW Street Construction Fees', 'ROW Dry Utilities Irrigation Fees', 'ROW Water and Sewer Fees', 'Pavement Less Than 5 Years Old', 'Pavement PQI<3.5 OR Non-Paved', 'Pavement PQI>3.5 & Over 5 Years Old', 'ROW Other Fees', 'General Permit Information', 'Work Description', and 'Work Order Number'. The 'General Permit Information' option is highlighted with a red circle. On the right, the 'General Permit Information' dropdown menu is open, showing a list of permit types: 'New Development', 'Infrastructure Improvement', 'Owner', 'Repairs', 'Utility', 'Utility - Atmos', 'Utility - Century Link', 'Utility - Comcast', 'Utility - Water Dept', 'Utility - Xcel Energy', and 'Utility - Zayo'.

Under this General Permit Information, there are prompts asking if a Traffic Control Plan is required. For this prompt, a traffic control plan is required if the work is impacting any type of traffic, bicycle, and or pedestrian (sidewalk) facility. The prompts also ask if the traffic control plans have been submitted through related documents and the number of multiple traffic control plans submitted in the case for phased construction activities.

If the proposed work is in the State Highway right-of-way, then a construction traffic control plan approved by CDOT must also be submitted to the Division prior to commencing any work.

TRAFFIC CONTROL PLANS

It is important that sufficient planning be given to selecting the best temporary traffic control system needed before occupying the temporary traffic control work zone. Additionally, when several work zone activities exist near each other, it is essential that advance coordination efforts take place between ALL projects to ensure that duplicate signing is not used and to ensure compatibility of temporary traffic control systems between projects. The purpose of a MHT is to encourage proper planning as to the time of day, sequence of construction, degree of restriction required, and temporary traffic control needed. Well-thought out advance planning can provide not only efficient and safe results, but also minimize impacts to traffic levels of service, provide access, and maintain mobility for all modes of travel.

In all cases, the required MHT needs to satisfactorily and responsibly address the requirements in this Manual. For large or unusual projects, advance consultation with the Traffic Services Division and review during the planning/design phase is strongly encouraged to avoid delays. Pre-consultation also ensures that projects become a truly cooperative and partnered effort between those working in the ROW and those traveling in the ROW.

Traffic Control Plans must be prepared specific to the work in question and include, at a minimum, the following information in addition to the appropriate traffic control devices necessary for the proposed work zone.

- Plan(s) to be compliant with the Manual on Uniform Traffic Control Devices (MUTCD).
- Permit applicant contact info including: Company Name, Contact Person, Address, and Phone Number.
- Location and dimensions of Work Zone—street(s) to be labeled and posted speed limit(s) to be indicated.
- Total length of proposed closure, including all tapers/buffers/work zone (dimensions for these items shall also be indicated individually for proper review)
- Duration of closure in days
- Number of lanes impacted
- Proposed peak hour impact if proposed. Please note that peak hour is defined as **7:00 a.m. to 8:30 a.m. and 3:30 p.m. to 6:30 p.m. Monday through Friday**. Peak hour lane closures are not typically permitted along arterial and collector streets within the city.
- Sidewalk closures.
- Detour routes required.

Method of Handling Traffic Plans

TEMPORARY TRAFFIC CONTROL REQUIREMENTS

1. Traffic Control must meet MUTCD, CDOT and City of Greeley Standards.
2. Contractors shall receive an approved MHT permit prior to starting construction work within the public right-of-way.
3. The Contractor/Owner shall schedule and expedite the work to cause the least inconvenience to the public.
4. An applicant shall not cause or allow interference with traffic flow on any arterial or collector street during the hours of **7:00 a.m. through 8:30 a.m. and 4:00 p.m. through 6:30 p.m. Monday through Friday**. If construction on a partially closed street stops for the day, all lanes must be reopened to traffic. The Public Works Department may waive these requirements upon a finding of good cause shown by the applicant or public service provider.
5. Construction or repair work will not be permitted at or near the vicinity of schools or school routes and/or along adjacent collector and arterials streets between the hours of **7:00 a.m. to 8:30 a.m. and 3:30 p.m. to 6:30 p.m. Monday through Friday**. (except in the case of an emergency or with approval of the Traffic Services Division.)
6. Except in the case of an emergency, no work shall be performed between the hours of **10:00 p.m. and 7:00 a.m.** unless authorized in writing by the Public Works Department. The Public Works Department shall consider overall convenience to the public and to the service provider's customers when considering to allow work between **10:00 p.m. and 7:00 a.m.**
7. No work shall be performed on the local streets before **7:00 a.m. or after 6:00 p.m.** each workday unless otherwise approved by the City Project Representative.
8. The Public Works Department may require that the work occur overnight and during weekends when necessary to expedite construction and minimize disruption to traffic.
9. All work areas including but not limited to open cuts, trenches, ditches, manholes, and/or other hazards shall be completely surrounded by approved fencing and other appropriate controls to protect and warn pedestrians and persons using bicycles, wheel-chairs, and other vehicles. Temporary walkways must be provided with all-weather surfacing. They also must be constructed using suitable material to support the loads to be imposed upon the structure. Minimum design requirements for the floor and roof shall be 150 pounds per square foot live load uniformly loaded.
10. The Contractor/Owner shall appoint a Traffic Control Supervisor who shall be responsible for the traffic control and who shall be certified by the American Traffic Safety Services Association (ATSSA) and/or the Colorado Contractor's Association (CCA). The Contractor must also provide a Traffic Control Supervisor (TCS) to be on the job site during job set-up.
11. Type C arrow boards MUST be used on ALL Arterial and Collector roadways for through lane closures.

Method of Handling Traffic Plans

12. Variable Message Boards (VMB) MUST be used for ALL Arterial and Collector roadway closures or as specified by Project contracts. Variable Message Boards shall be installed with proper street closure messages a minimum of one week prior to work and is subject to periods established by the Traffic Services Division.
13. Intersections, traffic lanes, streets and driveways shall be closed only for a minimum amount of time. Contractors must adjust their MHT plan accordingly and open closure areas when work activities and/or road hazards do not call for maintaining the closures.
14. The Contractor/Owner shall coordinate street and driveway closures with property owners, one (1) week prior to construction by written notification with final approval by the Traffic Services Division.
15. The Contractor shall maintain responsibility to change or adjust traffic control devices if conditions warrant.
16. All flaggers shall be properly trained according to State and Federal guidelines.
17. The Contractor/Owner shall repair and replace damaged or missing permanent or temporary traffic control devices immediately within job site.
18. The Contractor/Owner shall maintain all necessary barricades, signs, permanent signs, temporary signs, pavement markings, and other traffic control devices between phases of construction even if construction activity ceased for a year or more.
19. All temporary painted lane line shifts shall be permanently removed by means that do not damage existing asphalt by the end of the construction project.
- 20. If the traffic control is deemed insufficient, notice will be given to rectify. If after one (1) hour the deficiencies have not been corrected, the City reserves the right to temporarily suspend operations until traffic control is in compliance. In life/safety circumstances, the City reserves the right to suspend operations immediately.**
21. The Contractor/Owner shall hold harmless the City of Greeley and City staff against claims resulting from accidents involving construction work or construction traffic control.
22. Work within and adjacent to State Highways need to receive CDOT permit approval and must comply with state requirements.

FAILURE TO COMPLY

Guideline Policies

Any person that obtains a Right of Way and/or Traffic Control Permit with the City shall follow all guidelines set forth in the City of Greeley MHT and MUTCD. Any violation of any of these guidelines may result in a cease work order and/or an imposed civil citation according to the schedule shown in Appendix A. This guidelines consist of the following violations:

1. Any party's act, error, or omission within the right-of-way that creates an imminent risk of death or injury
2. Any party that restricts the right-of-way without proper certification or a right-of-way use permit
3. Any party that restricts the right-of-way during peak traffic hours without proper authorization, as such peak traffic hours and authorization are described in the Traffic Barricade Manual
4. Any party that fails to correct or cure a violation of the Traffic Barricade Manual within the time period stated on the notice of violation
5. Any party that improperly closes a sidewalk or closes a sidewalk without proper certification or a right-of-way use permit
6. Any holder of a right-of-way use permit that fails to comply with the conditions, restrictions, limits, times, or location of the right-of-way use permit
7. Any party that fails to install advance warning signs or fails to install advance warning signs that comply with the Traffic Barricade Manual
8. Any party that fails to install traffic barricades or channelizing devices or fails to install traffic barricades or channelizing devices that comply with the Traffic Barricade Manual
9. Any party that fails to remove an advance warning sign leaving the sign facing traffic after the traffic restriction has been removed
10. Any holder of a right-of-way use permit that fails to remove traffic control devices from right-of-way within twenty-four hours after right-of-way use permit expires
11. Any party that fails to install and maintain traffic control devices as described in the Traffic Barricade Manual
12. Any party that renders a bus stop inaccessible without relocating it or taking other actions that maintain access

Funds received from civil citations may be used to conduct training programs and/or enhance enforcement activities to improve temporary traffic control practices for the safety of the motoring public.

WORKER SAFETY

Personnel Considerations

Everybody benefits when workers are able to complete their work in a safe environment. The unexpected nature of work zones and the constantly changing conditions that exist within work zones make workers particularly vulnerable to errant drivers. It is important that workers be trained by their employers to maximize safety when working in or near the roadway. This chapter provides guidance regarding two key components of promoting worker safety:

- **Safety Apparel (Personal Protective Equipment):** Workers exposed to risks of moving roadway traffic or work equipment shall wear high-visibility safety apparel
- **Service Vehicles and Equipment:** Should be planned so as to minimize worker exposure to risk from roadway traffic and work equipment. All vehicles will show the company name and phone number.

All workers exposed to the risks of moving roadway traffic or construction equipment should wear high-visibility safety apparel meeting the requirements of the International Safety Equipment Association (ISEA). For daytime and nighttime activity, flaggers shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled "American National Standards for High-Visibility Apparel and Headwear (see Section 1A.11 of the MUTCD). The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined in the standard. The retro-reflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet (300 m). The retro-reflective safety apparel shall be designed to clearly identify the wearer as a person.

Vehicle Considerations

Worker safety can be enhanced with proper use of service vehicles. Service vehicles covered in this section are those required by the nature of their work to travel slowly, or stop for brief periods on City streets. Some large vehicles that routinely stop on streets, such as sanitation trucks and buses, are not considered service vehicles. They are exempt from the requirements spelled out in this chapter due to their sheer size, design, and/or their alternative provisions for safety. Service vehicle operations are the backbone of the fleet, which allow effective maintenance of utilities, traffic control, pavement, and other roadway infrastructure.

Service vehicle operations are prohibited on arterial and collector streets during peak traffic hours, except when authorized by Traffic Services Division or under emergency and/or disaster conditions governed by Police and Fire personnel. During all other times, service vehicle operators need to plan their work to minimize the extent of restriction.

Method of Handling Traffic Plans

When service vehicles must travel slowly or stop for brief periods, they shall display one of the following operating high-level warning light systems.

- Two Rotating Flashers, Strobe Light High-Level Warning Light Device or LED High Intensity Flashers – These devices are designed to provide 360-degree visibility and may be used in combination with, or incorporated into, a "light bar" for added visibility.
- One Arrow Panel – Approved arrow panels shall be used in combination with rotating flashers or strobe lights to highlight service vehicles and warn motorists of lane shifts or work activities.

Flashing lights on service vehicles need to be located so that they remain in full view, front and rear, and are not obscured by dump beds, vehicle-mounted equipment, or work activities. Minimum mounting height is 7 feet. The arrow panel shall be mounted on a vehicle, trailer, or other suitable support. Minimum mounting height should be 7 feet from the roadway to the bottom of the panel, except on vehicle-mounted panels, which should be as high as practical. Minimum panel size is 48 x 24 inches per the MUTCD Section 6F.61 on Arrow Boards and minimum panel mounting height is 7 feet per the MUTCD Section 6F.60 on Portable Changeable Message Sign.

For slow-speed mobile activities, standard operating procedures are to use special warning devices and the vehicle's four-way hazard warning flashers. On arterial streets, these vehicles must be equipped with one arrow panel to warn motorists of lane shifts or work activities. Mobile operations include pavement marking and street sweeping activities where equipment typically moves along the road at slow speeds.

When service vehicles stop for brief periods, standard operating procedure is to display the special warning devices and the vehicle's four-way hazard warning flashers. For short-term durations, work zones are limited to 250 feet including taper. On arterial streets, traffic cones should be placed a minimum of 10 feet from the rear of the vehicle or in a short taper (using six cones spread out about 50 feet).

Arrow panels are effective because they provide both warning and directional information ahead of time to motorists when the restriction causes traffic to change lanes. Because they are more effective than flashing lights, arrow panels are certainly preferable and, in some cases, mandatory to support work zones. With the special equipment specified below, service vehicles are authorized to conduct short-term/ mobile work for up to:

- 40 minutes if equipped with two rotating flashing, strobe light, or LED high-level flashers
- 60 minutes if equipped with approved arrow panels.

Method of Handling Traffic Plans

The more extensive signing, barricading, and channelization specified elsewhere in this TBM are necessary for service vehicles where they will be stopped in the street for more than one hour. Similarly, signs, barricades, and channelizing devices should normally be used for slow-moving or intermittent stops operations such as pavement crack sealing and tree trimming on Arterial and Collector Streets. These devices normally can be set up in short sections and moved as work progresses.



EXISTING TRAFFIC CONTROL DEVICES

Overview

Applicants are responsible for maintaining all traffic signs and pavement markings in their construction zones and for restoring the permanent traffic signs and pavement markings upon completion of their work. During temporary traffic control operations, it is important to make sure that existing traffic control devices remain compatible with the temporary traffic control

Method of Handling Traffic Plans

being deployed. This includes, but is not limited to, signs, parking meters, traffic signals, and pavement markings. The devices that remain applicable to the affected traffic must be maintained, while other devices must be covered, relocated, or in rare cases, completely removed. Requirements for each group of devices are detailed in this section.

Traffic Signs

All signs shall be maintained upright, clean, and in full view of the intended traffic by the applicant at all times. If these signs interfere with construction, the applicant shall temporarily relocate the signs to permit construction, but the devices must be kept in full effective view of the intended traffic. Sign placements also must not block motorists views from adjacent driveways and intersection approaches. Portable signs may be helpful to augment other signs, which temporarily cannot be placed in their optimum position. Existing signs that are no longer applicable shall be removed by the applicant, taking care not to damage the signs. The signs are to be salvaged by carefully storing them out of the way on the adjacent property line.

Traffic Signals

The applicant shall notify the Traffic Services Division (970-350-9882) a minimum of two (2) working days prior to the start of any underground construction in the vicinity of signalized intersections. The applicant shall keep existing signal equipment fully operational and in full view of traffic at all times. The only exception is when pre-approved by the City Traffic Engineer specified in this manual, or reflected in the City Project Permit, Plans and Specifications. When necessary, pedestrian push buttons may be deactivated with prior approval. However, they shall be reactivated or replaced by the applicant in an expedited manner when work is completed. The request must be accompanied by a full explanation of why it is necessary to do so, what alternative procedures shall be used to accommodate traffic, and what efforts are being made to minimize the time the detectors will be out of service. Left-turn arrows shall be de-activated when left-turn prohibitions are in effect. As part of traffic signal work, traffic signal contractors may need to schedule night-time work between 9 pm – 6 am to perform work that requires replacement of signal operating equipment.

The Traffic Services Division will, upon request, provide the approximate locations of all underground signal equipment (conduits, junction boxes, vehicle detector sensing devices, etc.) The exact location of underground equipment shall be determined by the applicant prior to excavation. During all work, the applicant shall exercise due care to prevent damage to existing traffic signal equipment. If damage occurs, the Traffic Services Division must be notified immediately so that they can restore traffic signal operations. The applicant will contact Colorado 811 and will pothole all existing underground utilities to determine their

Method of Handling Traffic Plans

exact location. Responsibility for permanent repair/replacement of damaged equipment shall be:

- At the applicants expense if the damage done was not preceded by a request for CO 811/identification of equipment prior to the start of work.
- At the City's expense if the damage done was preceded by a request for CO 811/identification where appropriate time was given for the City to mark the underground equipment and the City failed to do so.

When existing signal equipment cannot be maintained, the applicant shall, at their expense, have a qualified electrical Contractor move signal equipment to a temporary location. Another option is to provide temporary equipment capable of ensuring continuity of all signal functions (except vehicle detector sensing devices). The location and type of temporary signal equipment must be pre-approved by the Traffic Signal Supervisor.

Conflicting Pavement Markings

Existing pavement markings that cause driver confusion by conflicting with the intended vehicle path (indicated by barricades and channelization devices) shall be removed or obliterated by the Permit Holder, as directed by the Traffic Services Division.

The City of Greeley reserves the right to require the removal or obliteration of existing pavement markings anywhere that driver confusion exists due to pavement markings. If pavement-marking obliteration is needed, a method should be used which leaves minimal pavement scars and effectively removes existing markings.

School Zones

Work zone signs in or near a School Zone can divert driver attention from school zone signs and street markings. The arrival and dismissal times of school children, buses, and parents dropping off children also create issues that may affect driver recognition of signs and warnings. Therefore, the following policy shall be followed when working in or near school zones:

- No work shall occur the hour before school starts and the hour after school ends, unless approved by the Public Works Department (Traffic Engineer) or it is deemed an emergency by the City inspector/Project Manager.
- Contact with the school is required to determine the appropriate time that has the least impact on the school during construction or maintenance activity. Every effort shall be made to limit the effect on bus routes, crosswalks, and parent pick-up/drop-off access.

Method of Handling Traffic Plans

A two-week lead time should be given to allow for notification to parents and school bus drivers of any changes in routes or entrances.

- School zone signs shall not be obscured or removed by any Permit Holder. School zone signs to be relocated for construction delineation shall be placed nearest to their original position, and should be a minimum 15 feet from any barricade or sign.
- When practicable, work shall be performed when school is not in session including weekends, summer, and fall/spring breaks.
- A preconstruction meeting shall be held with the City Inspector/Project Manager and the Traffic Operations Superintendent to determine the best course of action. The School District should be contacted for complex or long-term projects near schools.
- Pedestrian pathways on the same side of street will be established and maintained at all times.
- In the case of School Zones at major intersections, an off-duty police officer may be required. In any case, flagging operations **shall not be allowed** while the school zone is established.

PEDESTRIAN AND BICYCLIST SAFETY

Pedestrian Considerations

Except during emergencies, pedestrian service should be fully preserved at every crosswalk (marked or unmarked) and other facilities intended for use by pedestrians, unless reasonable alternatives are provided. During temporary traffic control work zones, the facilities must be kept safe and usable by the applicant at all times, unless the City gives prior approval. Any time temporary disruptions of pedestrians are required, those planning the activity must provide temporary accommodation of pedestrians that meet the satisfaction of local, state, and federal requirements.

Temporary traffic control work zones that affect normal pedestrian flow should provide the most effective ways of maintaining access to local businesses, facilities, bus stops, and crosswalks. The provisions for protection of pedestrian service outlined in this manual are applicable to all persons doing work that influences pedestrian facilities (sidewalks or marked/unmarked crosswalks). The City of Greeley follows the four principles for successfully accommodating pedestrians through work zones:

Method of Handling Traffic Plans

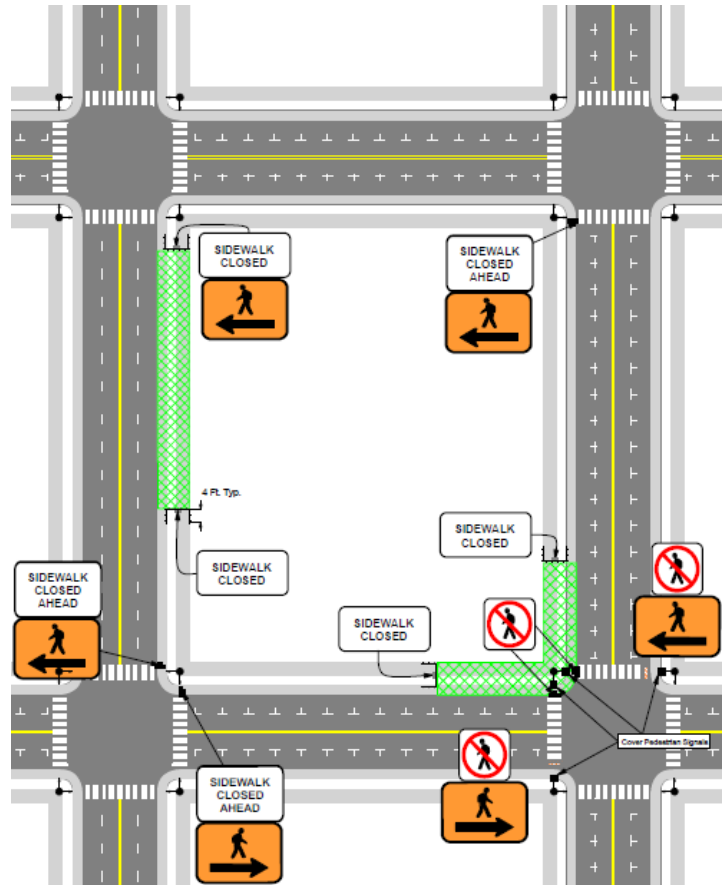
1. Traffic and pedestrian safety must be an integral and high-priority element in every project, from planning through design and construction.
2. Pedestrian and traffic movements should be inhibited as little as practical, and planned to reduce exposure to potential hazards.
3. Pedestrians and motorists should be guided in a clear and positive manner while approaching, traversing, and leaving work zones.
4. Pedestrian paths through the work zones should replicate as nearly as practical the elements of the existing path and be accessible to people using mobility devices like wheelchairs and those with limited sight.

Where the full pedestrian facility cannot be kept functional, it is essential that a clearly defined accessible path be developed at a minimum width of 36 inches. When it is not practical to maintain a minimum width of 60 inches throughout the entire length of the pedestrian pathway, a 60 x 60-inch passing space should be provided at least every 200 feet to allow individuals in wheelchairs to pass. Accordingly, special care is important in placing traffic control devices and other equipment/material. If a 36-inch clear walkable surface cannot be kept clear, it is not considered functional. On the rare occasion when it is required to take sidewalks out of service, alternative and accessible provisions must be made. The only exception to this is on the rare occasion when a walkway has to be totally closed for safety reasons. Consequently, accommodations must be made for businesses and transit stops that require pedestrian access at or near the closure.

The "SIDEWALK CLOSED" (R9-9) sign and "PEDESTRIANS PROHIBITED" (R9-3) sign shall be used for walkway closures as shown in the illustration below. Special attention shall be given when contemplating the closure of pedestrian paths to ensure that safe, reasonable, and accessible alternative walkways exist. Closures should only be requested, and subsequently approved when doing so is absolutely necessary for safe operation. Even then, maintaining access to businesses and transit stops must be taken into consideration. When complete closure is allowed, typically to ensure safety, advance warning of the conditions should be given by carefully positioning a "SIDEWALK CLOSED AHEAD" (R9-11/R9-11a) sign, so as not to impede pedestrian access. The pedestrian symbol/arrow sign shall be used to guide pedestrians to alternate walkways.

Method of Handling Traffic Plans

1) This plan shows the pedestrian traffic control measures only. Additional traffic control measures may be required to manage vehicular traffic.

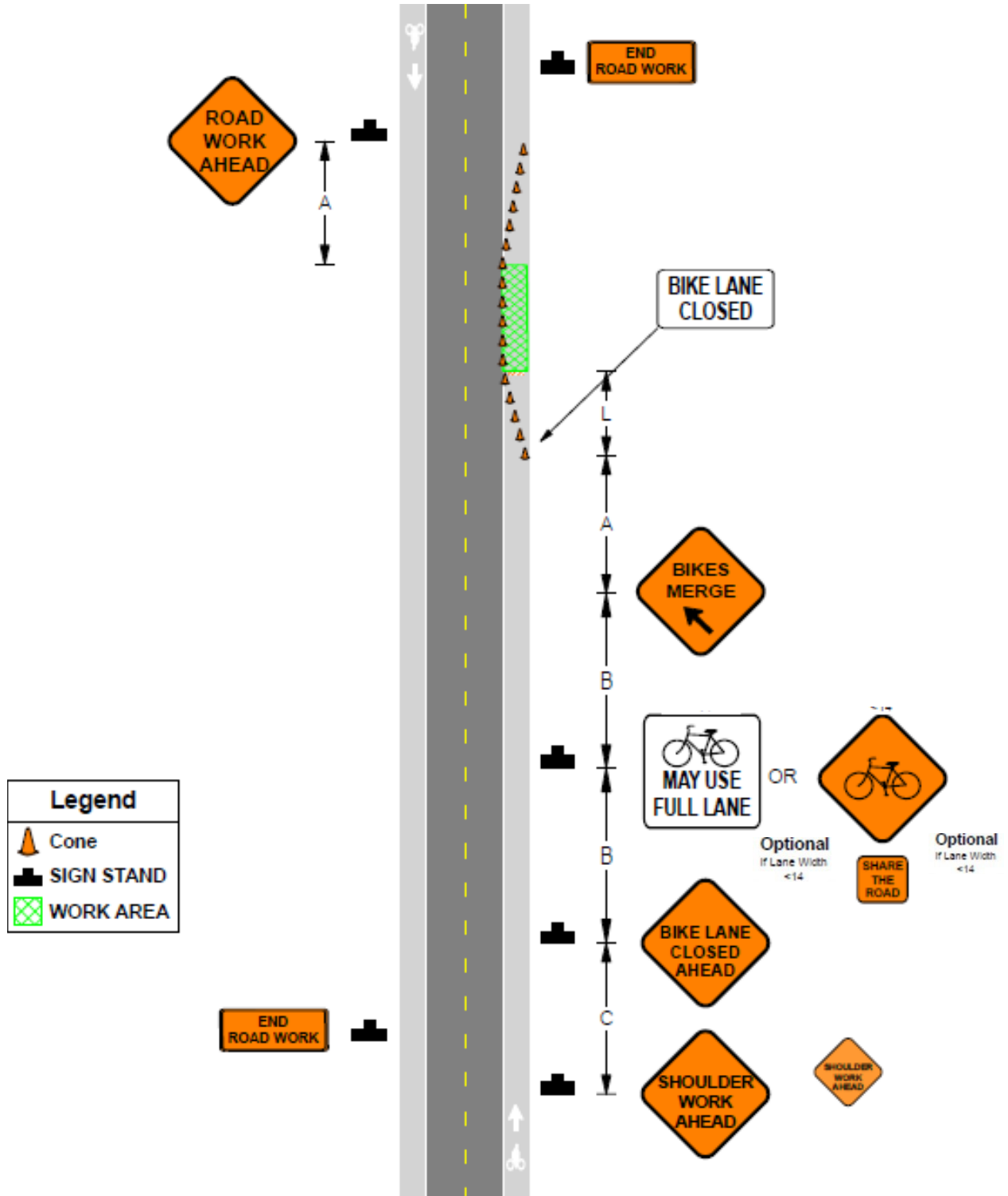


Bicyclist Considerations

Bicyclists may legally use both street and sidewalk and need to be considered under both conditions. When work encroaches upon a bike lane, shared-use path, shared lane, and signed bike route as identified on the City of Greeley's bike map or clearly marked in the field, an accessible, safe, and clearly defined route shall be provided. Maximum effort should be made to provide a convenient bicycle way separated from active work areas. Bicyclists shall not be led into direct conflicts with mainline traffic, work site vehicles, or equipment moving through or around the traffic control zone. The work zone shall also not force a bicyclist into an unsafe condition, such as grating, debris, or an abrupt stop within moving traffic lanes as part of traffic control. Bicycle lanes and other identified bicycle routes shall be kept free of obstructions. If bicyclists cannot be accommodated through the work area with facilities comparable to pre-construction conditions, bicycle detours shall be considered.

Method of Handling Traffic Plans

1) This plan shows the pedestrian traffic control measures only. Additional traffic control measures may be required to manage vehicular traffic.



Method of Handling Traffic Plans

Transit Considerations

During planning activities, it is important to consider whether bus service or passenger pick up may be affected by the temporary traffic controls and/or work activity. If construction activities are planned along transit routes, Greeley Evans Transit staff shall be notified of activities expected to impact transit stops and routes for longer than a very brief period (defined as no more than 1 hour). In this case, consultation with Greeley Evans Transit staff is required to reduce unexpected situations. As part of construction activities, the contractor shall maintain all existing transit stop locations or provide alternate bus stop locations. If alternate bus stop locations are proposed, the Contractor shall include these plans as part of the MHT for the City's review and approval. After these MHT plans are approved, the contractor shall notify Greeley Evans Transit staff (ph.970-350-9289) at least seven (7) days prior to any bus stop relocations or access restrictions during construction. When construction activities require that transit services are rerouted, detoured, or when multiple stop locations on the same route are affected, a notification must be submitted to the Greeley Evans Transit staff in the same time (7) day frame as noted above.

MHT plans may require the identification of alternate pedestrian routes and/or bus stop locations if the work zone inhibits pedestrian access to an existing bus stop. It is important to note that bus riders need to have safe access to the bus stops in the construction zones. Pedestrians should be directed through temporary access routes by the use of signs and other way-finding devices, giving them a safe path through or around the work zone, which may include lighting. When an individual transit stop is closed and a temporary stop is utilized, the contractor shall place way finding signing for the transit user from the closed stop to the temporary stop, lighting may be necessary of temporary bus stop(s) and details agreed upon with transit staff. Existing transit stop signing must be covered/bagged while temporary signs are in use. The Contractor may be responsible for posting route modification information at the individual stop locations seven (7) days in advance of the beginning of the detour. The Contractor is responsible for removing all route modification notices once the route has been restored to normal transit operations or is no longer needed.

Greeley Evans Transit service needs to be able to continue operating as efficiently as possible during construction activities. Alternate bus routes or bus stops may become necessary in some instances and require coordination with the Greeley Evans Transit staff. Consideration may also be given on how to handle buses in the new detours. Streets that are available to accommodate bus service have different configurations.

TEMPORARY TRAFFIC CONTROL DEVICES

Temporary traffic control devices are used to alert and guide road users through locations where roadways have been temporarily reconfigured for maintenance, construction, special events, or incidents. Temporary traffic control devices fall into five basic categories:

- Signs
- Barricades and Channelizing Devices

Method of Handling Traffic Plans

- High-Level Warning Devices
- Pavement Markings
- Portable Barriers

Sign Requirements

Signs are a very important part of temporary traffic control. They shall be placed in advance and at applicable points throughout traffic restrictions to provide navigational guidance to drivers. It is especially important to use initial warning signs in advance of traffic restrictions to prepare drivers for conditions ahead. Temporary traffic control signs in Greeley follow the same basic standards for signs specified in the MUTCD regarding size, color, and shape. However, based on engineering judgment and experience, a few variations are used because they have been determined to work better than nationally prescribed suggestions.

Size Requirements

Guidelines for sign sizes, colors, and shapes are shown on pages 28 (i.e. Regulatory Signs) and 29 (i.e. Warning Signs), and the MUTCD. The size of sign needed is dependent on the size and speed of the road in question, and how far out of the direct line-of-sight of the driver the signs are placed. Signs placed within roadways offer optimum line-of-sight visibility to drivers, which mean they work well at a smaller size sign than would normally be used if mounted at the side of the road. Larger signs are important on higher speed, rural-type roadways where signs are mounted well away from the edge of roadways. Accordingly, the sign sizes shown reflect the suggested sizes for signs installed within roadways (warning and regulatory signs). The size of sign used may need to be increased for emphasis and where unusual conditions exist, making larger signs desirable. For signs mounted on posts along the side of the street (street-side supports), signs typically will be larger than shown in the illustration. There are some sizes where the size of legend/stroke width on the sign controls the final sign size, as the final product must offer good legibility.

Sheeting Requirements

The City requires that construction warning sign sheeting must be ASTM Type VII or brighter. Current standards include the following:

- Fluorescent Orange Prismatic (ASTM Type VII or brighter) warning signs to be used for the first advance warning sign(s) in a temporary traffic control zone. This includes, but may not be limited to, "Road Work Ahead," "Shoulder Work Ahead," and "Special Event Ahead" signs.
- Fluorescent Orange Prismatic (ASTM Type VII or brighter) warning signs for the double arrow or "splitter" signs (W12-1 and W12-1a) to compensate for their small size.
- High-intensity prismatic sheeting, or better, will be required for all other orange signs/barricades (ASTM Type IV).

Additionally, based on research which has shown that the engineer-grade black-on-orange signs do not provide the needed brightness and contrast, all other black-on-orange sheeting

Method of Handling Traffic Plans

for signs and barricades are required to be high-intensity, reflective sheeting (ASTM Type IV) or brighter.

Nighttime Sign Requirements

All signs used for temporary traffic control operations during hours of darkness must:

- Be equipped with operating Type-A flashing barricade warning lights when mounted on portable supports.
- Be equipped with operating Type-B flashing warning lights when authorized to be mounted on street-side supports for advance warning at Arterial street construction projects.
- Have a minimum application of 150 square inches of orange, weather-proof, high intensity (minimum) retro-reflective sheeting on the back of signs exposed to opposing traffic. The retro-reflectorized sheeting is to be placed in strips not less than 5 inches wide along each outer edge of the sign. Signs placed in two-way left-turn lanes will have at least one Type I (or Type II with approved ballast) barricade placed a maximum of 10 feet behind the sign to alert opposing traffic.

All signs are to be mounted on standard vertical supports with minimum heights to the bottom of the sign panel as follows.

Portable Support Sign Height

Regulatory Signs:

- 36 inches, except signs (KEEP RIGHT/LEFT)
- 12 inches for signs (SIDEWALK CLOSED/PEDESTRIANS) and sign (SIDEWALK CLOSED AHEAD CROSS HERE), which shall be 24" x 30"

Warning Signs:

- 12 inches, except for W1-6 (large 36" arrow)

Guide Signs:

- 24 inches

Combination Regulatory and/or Warning Signs:

- 12 inches

Post-Mounted Signs:

- 84 inches (7 feet) (secondary signs may be 6 feet above sidewalk)

Sign Mounting Procedures and Placement

Standard vertical supports used for barricades, vertical panels, and flag trees are also acceptable for mounting portable signs. Suitable ballast should be placed on the base of all portable signs that are unattended.

Method of Handling Traffic Plans

Metal and wood signposts, such as those commonly used to mount permanent traffic signs and steel streetlight poles, are acceptable sign supports. However, signs shall not be typically mounted on wood utility poles or placed in areas intended for pedestrians. Where necessary to do so, care shall be taken to minimize interference with pedestrians and wheelchair accessibility.

As a general rule, portable signs are to be located on the right side of the street when right-lane traffic is restricted, and additionally on the centerline or median, when left-lane traffic is restricted. Post-mounted signs shall be located on the right side of the street and in protected medians. Where special emphasis is required, and where more than one lane of traffic in any one direction is affected, dual signs should be provided approximately opposite each other. Care shall be taken when signs are placed in the two-way left-turn lane to not obstruct access to or from driveways or intersecting streets.

Portable supports should be used for short-term and moving operations. Street side supports may be used when authorized for construction speed limit and advance warning signs on long-term, fixed construction operations, such as major street reconstruction.

For maximum mobility on certain types of construction and maintenance operations, signs may be mounted on a vehicle stationed in advance of the work, or moving along with it. This may be the working vehicle, pavement marking equipment, crack-sealing equipment, or a vehicle provided expressly for this purpose.

Types of Signs

Temporary traffic control signs fall into the following four categories:

- Regulatory Signs
- Street Closure Signs
- Guide Signs
- Warning Signs

Regulatory Signs

Regulatory signs impose legal obligations or restrictions and are enforceable by the Police Department. To be enforced, their use must be approved by the Traffic Services Division. Special care must be used to ensure proper placement, use, maintenance, and removal of all temporary regulatory signs in a timely fashion. Conflicting existing regulatory signs shall be covered or removed.

The applicant provides all regulatory signs. Regulatory signs used in construction and maintenance areas shall be the shape and color shown in the illustrations. They shall be used as follows:

- *Turn Restriction Signs:* NO LEFT (RIGHT) TURN (R3-1 and R3-2) signs are used whenever turns may cause excessive congestion at intersections during restrictions. A minimum of two signs (one on the near side and one on the far side of the intersection) is required

Method of Handling Traffic Plans

for each direction of traffic affected. When buses can safely turn, "EXCEPT BUSES" panels should be considered and attached at the bottom of each sign when turn restrictions affect transit routes. Panels with hourly restrictions (e.g., "6 - 8:30 AM AND 4 - 7 PM MON-FRI") shall be used when turn restrictions are required only during specific hours.

- *Mandatory Turn Signs* are used to show motorists when they must turn right or left from a special turning lane, separated from the through traffic lane. A minimum of two signs (one in advance and one at the intersection) is required for each direction of traffic affected. These signs must always be used in conjunction with the W12-1 lane split sign, otherwise motorists may be led to believe through lanes exist on both sides of the sign.
- "KEEP RIGHT/LEFT" (R4-8a and 7a) signs shall be used at, or near, the start of all channelization, except where the "DOUBLE ARROW" W12-1 sign is used. The "KEEP RIGHT" (R4-7a) sign shall be used on both sides of intersections where temporary center line channelization is required.

Street Closure Signs

The "ROAD CLOSED TO THROUGH TRAFFIC" (R11-4) sign shall be used for closures of arterial streets where only local access is permitted. Where used, the proper "DETOUR ARROW" and detour instructions (M4-10) shall be displayed. "ROAD CLOSED AHEAD" and "DETOUR AHEAD" signs are to be used approximately 300 feet and 600 feet, respectively, in advance of all arterial and collector street closures (further for high-speed roadways). Mandatory turn lanes approaching street closures shall be closed.

The "ROAD CLOSED" (R11-2) sign shall be used for all Collector and Local street closures when only local access is allowed. A "LOCAL TRAFFIC ONLY" panel shall be displayed unless approved by the Traffic Services Division.

The "ALLEY CLOSED" (R11-2A) sign shall be used for all alley closures.

The "DETOUR" (M4-9A) sign with arrow shall be used to mark detour routes when required by the Traffic Services Division.

The "BUSINESS ACCESS" (D1-108) sign may be required where access becomes a problem on major and Collector Streets that are closed for construction. It is installed on a barricade adjacent to the "ROAD CLOSED" sign when requested by the Traffic Services Division.

A "LOCAL TRAFFIC ONLY" panel shall be displayed unless approved by the Traffic Services Division.

Method of Handling Traffic Plans



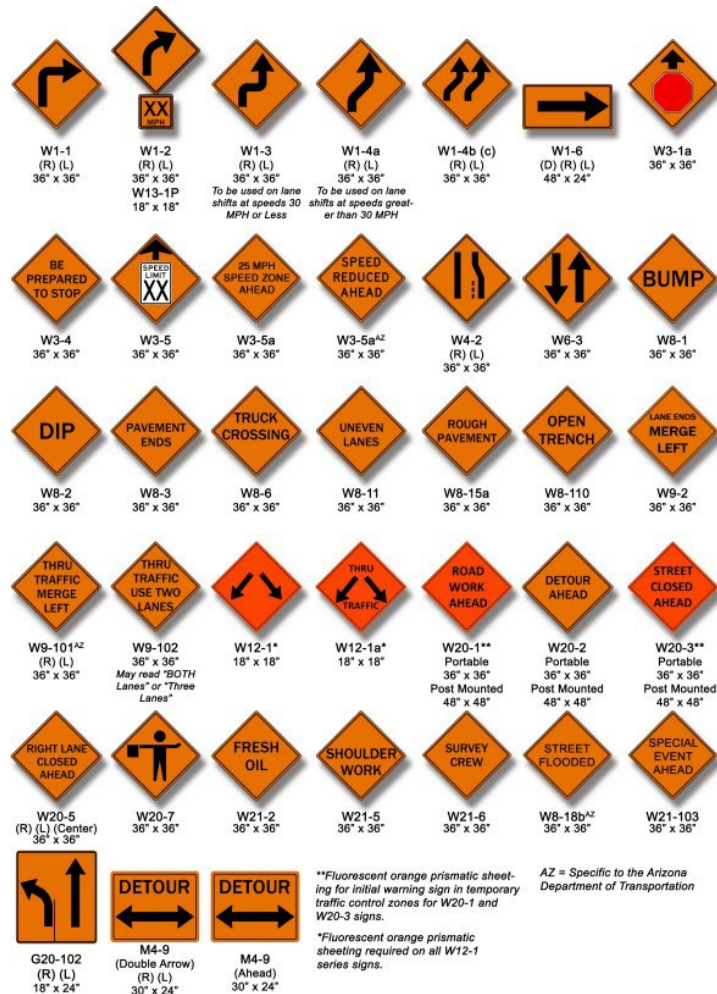
Warning Signs

Warning signs are used to notify unfamiliar motorists of specific hazards or restrictions in temporary traffic control zones. Within construction zones there may be a variety of temporary roadway conditions, such as reduced width, open excavations, or pavement removal. Motorists must be properly alerted well in advance to provide adequate time to react safely.

All warning signs are provided by the Permit Holder. Commonly used signs are illustrated on the next page.

Method of Handling Traffic Plans

Warning signs used in temporary traffic control zones shall be diamond shaped, except as shown in the warning sign illustrations. They shall have a black legend and/or symbol on an orange or fluorescent orange background. The warning signs illustrated shall be used for only those situations indicated by their legend or symbol. Distances such as 500 feet, 1,000 feet, 1/4 mile, or 1/2 mile may be used in place of the word "AHEAD" on advance warning signs and numerals may be used in place of words (e.g., "2" instead of "TWO"). The "ROAD WORK AHEAD" (W20-1) sign shall be used in advance of all construction and maintenance areas, except for exempt process (slow moving or short duration work in service vehicles). Minimum spacing for advance warning signs in advance of channelization should be equal to the taper lengths shown in Temporary Traffic Control examples on pages 41 - 49.



Guide Signs

Guide signs are used to direct motorists on detour routes and provide information in advance of street closures. Guide signs used in temporary traffic control areas are generally rectangular with a black legend on an orange background.

Method of Handling Traffic Plans

Guide signs most frequently used are "DETOUR" (W20-2) signs with arrows, as shown with the "STREET CLOSED" (W20-3) signs as shown on page 19. "DETOUR" sign and detour instructions are incorporated into the design of the STREET CLOSED TO THROUGH TRAFFIC" sign.

When required, the Permit Holder shall provide separate "DETOUR" signs, with the appropriate arrow, at locations along a specific detour route as directed by Traffic Services Division staff. When required, detailed detour route instructions and/or State and Federal route symbols shall also be provided and attached to the detour signs.

At times, when alternate detour routes for street closures are offset or points of closure are at locations where detours are not available, it is necessary to provide additional guide information signs. These signs generally have a legend similar to "10th ST to 20th ST SB CLOSED-USE 71st Ave" with appropriate detour arrows. These signs shall be rectangular with a minimum size of 48 inches by 48 inches. The legend shall be black on an orange or fluorescent orange background.

Barricades and Other Channelizing Devices

Channelizing devices are the most important part of temporary traffic control in temporary traffic control areas. They are used to warn and alert motorists of conditions created by work activities in or near the roadway and to guide roadway users. They are also used to separate vehicular traffic from the workspace, pavement drop-offs, pedestrians, and opposing traffic. They are not intended to be physical barriers. Channelizing devices should always be used in groups to warn and guide traffic.

Flag rope may be used between barricades and channelizing devices to provide additional guidance and security. In some major construction areas, and in areas with substantial pedestrian traffic, the use of fencing may be necessary for maximum safety.

New and improved guidance is evolving to better design for those with low vision. Increasingly, in long-term work zones, the techniques listed in this paragraph may no longer be appropriate depending upon the alignment of newly defined pedestrian paths. Designers should consider evolving technology, and where practical, design for pedestrians with low vision. The key to doing so is to provide continuous detectable bottom and top rails on channelization devices without gaps. See Sections 6F.63 and 6F.74 of the MUTCD for additional information.

Channelizing devices used to guide motorists must provide a smooth, gradual transition when moving traffic from one lane to another or onto a bypass detour, or when reducing the width of the street. This smooth, gradual transition is referred to as the "taper length." The minimum

Method of Handling Traffic Plans

desirable taper length formulas, calculated taper lengths, and spacing of devices for tapers are shown in Tables 7 and 8.

It is the responsibility of the Permit Holder to provide and maintain temporary traffic control devices. All temporary traffic control devices shall be stabilized with sandbags, or other approved material (ballast), when necessary. Ballast shall be placed on the lower parts of the frame, or on the base, and not placed on top of any striped rail. The use of rocks, concrete blocks, concrete, or asphalt chunks, etc. as ballast is not permissible.

Channelization devices work as a system. Periodic reminder signing (such as "KEEP RIGHT/LEFT" signs) may need to be placed at frequent enough intervals that the proper message is self-evident to drivers. Channelization signs and devices must be provided whenever:

- Traffic is moved across the street center line;
- The existing center line is obliterated; or
- Traffic is maintained in other than the normal traffic lanes.

Minimum desirable taper lengths apply to streets of relatively flat grade and straight alignment. Adjustments may be desirable to provide adequate sight distance on the approach to channelization, and to accommodate cross streets and adjacent driveways. In urban areas characterized by short block lengths and driveways, longer tapers have not proven to be better than shorter ones. The reason for that is that extended tapers tend to encourage sluggish operation and encourage drivers to delay lane changes unnecessarily to the last moment, which creates friction.

When more than one lane is closed, a tangent length of channelization between the two closed lanes of no more than twice the taper length is desirable to distinguish between the two separate lane closures. Experience has shown that on busy streets with short block lengths, other factors make it imprudent to use that much distance. However, having some tangent clearly operates better than having none.

When lanes are not closed, but rather re-directed, a shifting taper ($\frac{1}{2} L$) using channelizing devices is helpful to clarify the driver's path. This is particularly useful in urban areas with all but extended long duration work where the three dimensional channelizing devices overpower non-applicable pavement markings. Spacing for devices used in tangent areas between tapers should be the same as the spacing for devices used in the adjacent tapers.

Channelizing devices are also used to protect workers in the street and to guide and protect pedestrians. Consequently, it is important that the design of channelizing devices be

Method of Handling Traffic Plans

substantial enough to provide protection, yet not pose a threat to road users should a collision occur.

Typical uniform applications of channelizing devices are shown in the illustrations included in this MHT Manual. Situations not illustrated shall be handled in conformance with the general methods set forth.

Traffic Cones

Traffic cones are used to channelize traffic, divide opposing traffic lanes, divide traffic lanes when two or more lanes are open in the same direction, and delineate minor maintenance operations. When traffic cones are used to divide traffic lanes or delineate minor maintenance operations, spacing should not exceed 50 feet.

Traffic cones are effective for **daytime** channelization of traffic and to delineate minor maintenance areas. Traffic cones are versatile because they are portable and if struck, they will not damage vehicles. They can be set up and removed quickly. When traffic cones are used, it is necessary to check them often because vehicles frequently move them. Cones are normally not considered suitable for nighttime use, except under emergency conditions, or special circumstances approved by the Traffic Services Division.



All cones shall be orange and a minimum of 36" in height, with the exception that 24" cones may be used during day hours and on local streets. For nighttime use, cones shall be retro-reflectORIZED.

Steps should be taken to minimize the possibility of cones being blown over or displaced by wind or moving vehicular traffic. Cones may be doubled up to increase their weight. Some cones are constructed with bases that can be filled with ballast. Others have specially weighted bases, or weight such as sandbag rings can be dropped over the cones and onto the base to provide added stability. Ballast should be kept to the minimum amount needed.

When traffic cones are used to channelize traffic, they shall be placed using an appropriate taper where applicable. Taper lengths should be as shown on page 47. Because cones are smaller and less visible than standard barricades, spacing between cones used to channelize traffic should not exceed 50 feet for tangents and 25 feet for tapers, regardless of speed. Cones should not be used for pedestrian channelization or as pedestrian barriers in work zones on or along sidewalks unless they are continuous between individual devices and detectable to users of long canes.

Vertical Panel Channelizing Devices

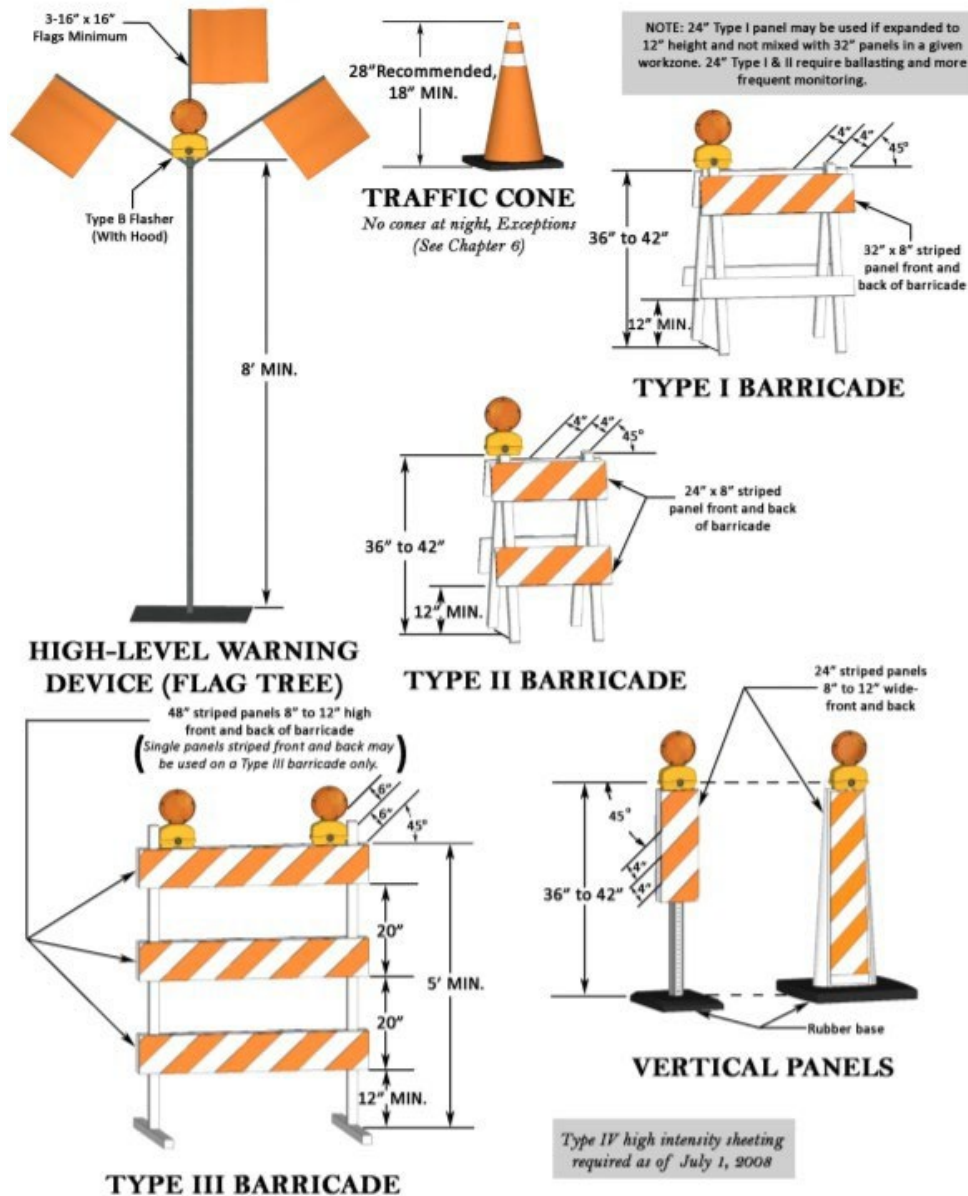
Vertical panels are devices to enable 24-hour channelization. They are used in place of traffic cones when channelization is needed during nighttime hours. They are versatile because their height and amount of retro-reflective sheeting makes them substantially more visible than normal pavement markings. They are portable, lightweight, and use less street width than standard barricades. Professional experience indicates that at city speeds, vertical panels (when properly placed) override any existing pavement markings; therefore, positive guidance prevails to the point that existing pavement markings can remain, as they do not induce driver confusion.

Markings on vertical panel channelizing devices shall be alternate orange and white stripes, sloping down at a 45-degree angle to the side on which traffic must pass. When used to divide two traffic lanes in the same direction, the stripes shall slope down to the side on which traffic is being diverted. Both stripes (orange and white) shall be reflective with Type IV (minimum) high intensity retro-reflective sheeting.

Vertical panels shall be constructed of suitable material to the dimensions shown on the next page. The base and panel support should be substantial, designed to prevent overturning, and yet sturdy enough to ensure they do not become a projectile. Because the base can be an obstacle to traffic when overturned, the base and support should be designed to minimize damage to a vehicle if struck. The base and panel support shall be galvanized, aluminum, or white in color, except rubber bases, which may be black.

Vertical panels are used to channelize traffic, divide opposing lanes of traffic, divide traffic lanes when two or more lanes are maintained open in the same direction, and in place of standard barricades where space is limited. When vertical panels are used to channelize traffic, they shall be placed on a taper to guide motorists past hazards. Taper lengths and vertical panel spacing should be as shown the traffic control typical plans in this manual.

Method of Handling Traffic Plans



When vertical panels are used in place of standard barricades to delineate hazards parallel to traffic, spacing should not exceed 50 feet. When used to divide opposing lanes of traffic or divide two or more lanes traveling in the same direction, spacing should not exceed 75 feet for short distances and 150 feet for extended distances.

Vertical panels used during nighttime hours shall have an approved and operating barricade warning light mounted on top of panels that are components of a merge or shift taper. Warning lights are optional on tangent sections of the traffic control setup. Steady-burn warning lights should be considered by permit holder for use in areas with fog or snow, severe

Method of Handling Traffic Plans

vertical or horizontal roadway curvature, nearby vertical drops or trenching, unlit roadways, and usually cluttered environments.

Type C, steady-burn warning lights shall be used in a series to channelize or guide traffic through merge or shift tapers, while Type A, flashing warning lights shall be used to delineate hazards at night.

Drums as channelizing devices are seldom used on urban streets in the Greeley area due to space constraints. If drums are proposed for use, refer to Section 6F.67 of the MUTCD.

Barricades

Barricades used in the City shall be three types: Type I, II, and III. (See Illustrations on page 26). Markings for all barricade panels shall be alternate orange and white stripes sloping down at a 45-degree angle to the side on which traffic is to pass. Both stripes (orange and white) shall be retro-reflective with Type IV (minimum) sheeting.

All barricades shall be constructed of suitable materials to the dimensions shown in the Illustrations on page 26. Barricade supports shall be substantial enough to support what they hold. Types I and II barricades are intended to channelize traffic through temporary traffic control work zones.

[Types I and II barricades](#) are also used to delineate hazards in or near the street or sidewalk, or to close local and Collector Streets or sidewalks and alleys. When used to delineate hazards parallel to traffic, spacing should not exceed 75 feet. When used to close streets, sidewalks, and alleys, spacing should not exceed 5 feet.

Type I and II barricades used to channelize traffic shall be placed on a taper to guide motorists past hazards. Taper lengths and barricade spacing should be as shown on most typical plan illustrations.

Type III barricades are used for complete street closures of Arterial streets when they are under construction. They shall be placed with a minimum of one on each side of the "STREET CLOSED TO THROUGH TRAFFIC" (R11-4) sign, and one centered on the back of the sign. Additional Type III barricades shall be used as required to close the street to through traffic.

Barricades used during hours of darkness shall have an approved operational barricade warning light attached. The warning light shall be mounted above the top panel and on the end of the barricade closest to traffic. Type A flashing warning lights are used to delineate hazards and close streets, sidewalks, and alleys. Type C steady-burn warning lights are used in a series to channelize traffic and guide traffic through construction areas.








Method of Handling Traffic Plans

Types I, II, and III barricades are to have the responsible party's (Permit Holder) name and phone number placed near the bottom of the lowest panel. The letters are to be clearly legible and not less than one inch or more than two inches in height.

Arrow Boards

Arrow boards provide additional advance warning and directional information to assist in diverting traffic, which is especially effective under high-volume traffic conditions and at night. An arrow board's primary function is to provide advance warning of closed traffic lanes. Arrow boards are designed to flash directional arrows or chevrons. Arrow boards are powerful devices that can be seen far ahead of time and are required for use on Arterial streets when lanes are fully closed at night. If two lanes are closed sequentially, an arrow board is required for the first one to get the driver's attention. The only exceptions will be emergencies, or when service vehicles are used instead. A common example of when arrow boards may be required is when geometric conditions prevent the normal advance warning and taper/tangent distances from being achieved.

Arrow panels shall be rectangular (except type D, which are intended for use on service vehicles and have no panel). In the case of type D, the arrow length is 48", with an arrowhead width of 24." Arrow panels should meet the following specifications:

Operating Mode		Display (Type C arrow board illustrated) (right arrow shown; left is similar)	
1. At least one of the three following modes shall be provided:	Flashing Arrow	 Merge Right	
	Sequential Arrow	 Merge Right	
	Sequential Chevron	 Merge Right	
2. The following mode shall be provided:	Flashing Double Arrow	 Merge Right or Left	
	3. At least one of the following modes shall be provided: Flashing Caution or Alternating Diamond Caution	 or  or  Flashing Caution Flashing Caution Alternating Diamond Caution	
Arrow Board Type	Minimum Size	Minimum Legibility Distance	Minimum Number of Elements
A	48 x 24 inches	1/2 mile	12
B	60 x 30 inches	3/4 mile	13
C	96 x 48 inches	1 mile	15
D	None*	1/2 mile	12

*Length of arrow equals 48 inches, width of arrowhead equals 24 inches

Method of Handling Traffic Plans

MANUAL TRAFFIC CONTROL – POLICE and FLAGGERS

Manual control of traffic is essential at times, in order to add the human decision element to complex temporary traffic control situations. By using human judgment, Police Officers and flaggers can accomplish things that no physical traffic control device can do. Police Officers and flaggers can visually assess traffic conditions and respond accordingly.

Use of Police Officers for manual control of traffic is expensive but essential during complex temporary traffic control work. Police control is often required at traffic signals when lane closures exist. It is essential that human judgment be present (police) at signals to allocate green time to best move traffic through the intersection.

When an officer is required by the Public Works Department, only uniformed Greeley, Weld County Sheriff's Office, or other area law enforcement officers may be used to control traffic in Greeley. Using only these agencies expedites enforcement (citation writing) and ensures reliability. The City seeks officers equipped with portable radio/phone to enable prompt contact with appropriate Greeley police, and those who display a firm understanding for traffic safety and operations.

Flagger Control

Flaggers (see definition) should be alert, courteous, neat, and possess a sense of responsibility for the safety of the public and work crews. All flaggers also shall be properly trained according to State and Federal guidelines. For daytime and nighttime activity, flaggers shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled "American National Standards for High-Visibility Apparel and Headwear (see Section 1A.11 of the MUTCD). Flaggers shall also wear an approved hard hat and incorporate the use of an authorized STOP/SLOW sign to manually control traffic. The STOP/SLOW sign shall be 18 inches wide and octagonal shape with 6-inch Series C letters. The STOP face shall have a red background with white letters and border. The SLOW face shall have an orange background with black letters and border. The sign shall be mounted on a suitable staff to support the sign a minimum of 5 feet from the ground when in

Flaggers shall be stationed at a readily visible location on the shoulder, or behind channelization, in advance of the restriction. Flagger stations shall be marked with a high-level warning device (flag tree). "FLAGGER AHEAD" and "BE PREPARED TO STOP" signs shall also be used in advance of each station. At no time should a Flagger be allowed to stand in the traveled portion of the roadway, or cross a traffic lane to stop more than one lane of traffic.

Each Flagger station shall be illuminated during nighttime hours. All traffic control devices, including the STOP/SLOW sign and the Flagger's vest, shall be reflectorized. Signs, barricades, and channelization in advance of each Flagger station shall have barricade warning lights attached and in operation. Flaggers are limited by the MUTCD to flagging operations that can be accomplished from the edge of the traveled way.

Method of Handling Traffic Plans



Flaggers shall use a Stop/Slow paddle on a 5' staff and a high level warning device (flag tree) at all times.

Daytime: Flagger must wear ANSI Class II or better vest with a hard hat.

Nighttime: Flagger must wear ANSI Class III apparel with a hard hat and be visible by use of a light tower or other direct light.

Police Control

Off-duty Police Officers are to be hired by the Permit Holder for traffic control when required. Off-duty Police Officers can be arranged contractually, or if Greeley Police Officers are unavailable through agencies, Permit Holders may arrange for them by calling the same number listed above if 24-hour advance notice is provided. Police Officers that are alert, visible, and accommodating can be a valuable public relations asset for both the City and the Permit Holder. Conversely, they can create a poor image for the City if they are not contributing to the efficient and safe movement of traffic. Since officers wear an official uniform, their performance reflects powerfully upon Greeley.

Expectations of the City and employers of Police Officers hired to provide manual traffic control are set high. When police officers are hired to support construction, maintenance, and special event efforts, expectations are that officers will:

- Keep traffic lanes functional, and free of all illegally parked vehicles
- Enforce properly signed turn restrictions at intersections to achieve the required number of through lanes to maintain traffic flow
- Confirm work zone set-up has proper advance warning of critical issues such as lane closures
- Do what is necessary to affect manual traffic control when needed to cope with unforeseen, traffic pattern changes such as during bridge beam erection and blasting operations
- Observe, and immediately report, traffic problems to the appropriate inspection staff
- Enforce speed limits/other restrictions in or near the work zone

WORK ZONE SPEED LIMIT PROCEDURES

Speed limit signs are regulatory signs, and procedures for establishing work zone speed reductions may be appropriate. Procedures for determining when work zone speed reductions are required are outlined here. Speed reduction in work zones are required when the following conditions exist for temporary traffic control work zones:

- Roadway grade differential • Roadway geometric changes
- Insufficient lighting for driver visibility
- Major traffic shift
- Flagging operation
- Lane Width Reductions

Research has shown that achieving large speed reductions in work zones is difficult, and it is preferable to not reduce speeds in work zones more than 10 miles per hour, except in unusual circumstances. Where speed limits are posted, the speed limit signs will conform to the following:

"SPEED LIMIT" signs are to be co-mounted with "WORK ZONE" signs when reducing speed limits within construction areas. Combining "WORK ZONE" and "SPEED LIMIT" signs has been found to be an effective method of encouraging speed reductions. Most motorists associate the lower speed limits with work zone activities and will adjust their speeds accordingly. Typically, there shall be a minimum of one sign combination in advance of construction, and a minimum of three signs per one-half mile for each direction of traffic affected. The large, post-mounted "WORK ZONE" and "SPEED LIMIT" signs may also be combined on posts at the side of the street for arterial street widening projects. At other locations, small signs on portable supports may be used. Existing, conflicting "SPEED LIMIT" signs shall be covered or removed.

The "SPEED LIMIT 25" (R2-1) sign is typically used where the existing pavement has been removed, or where traffic is being maintained on temporary detour roads, on unpaved shoulders, or on traffic lanes that are severely restricted.

The "SPEED LIMIT 30" (R2-1) is commonly used where traffic is being maintained on new asphalt paving during the completion of street paving projects, and in most construction zones, on improved streets where restricted traffic is maintained on a reduced number of lanes.

Speed limits by State law shall not be reduced by local agencies in increments greater than 10 miles per hour. The "SPEED LIMIT 35" sign is also used for interim speed reduction in construction areas until construction progress requires 25 miles per hour.

TEMPORARY TRAFFIC CONTROL ILLUSTRATIONS, REQUIREMENTS and RESTRICTIONS

The following pages show typical applications of signs, pavement markings, and channelizing devices. They illustrate strategies that have proven to be effective and efficient throughout Greeley and represent the most common methods required for the uniform application and placement of standard traffic control devices. Specific situations, not specifically illustrated, need to be addressed making best use of the general principles described in this manual, the MUTCD, and these illustrations. The illustrations are "typical" situations, and where applicable, differentiate between daytime and 24-hour treatments.

Notes about the Illustrations:

The "ROAD WORK AHEAD" sign is the key "lead" sign used to advise of an upcoming temporary traffic control work zone. Barricades, vertical panels, and channelizing devices are normally used to:

- Define the proper paths for motorists, pedestrians, and bicyclists through the work zone;
- Mark hazards such as holes, equipment, materials, and drop-offs;
- Close streets; and
- Separate workers, pedestrians, and bicyclists from vehicular traffic

Traffic cones are normally used during daylight hours only. During the hours of darkness, they must be replaced with standard channelizing devices. Exceptions are rarely granted and must be approved by the Traffic Services Division.

Devices used during darkness must be equipped with fully operating warning lights, as specified. Only Type C steady-burn warning lights are to be used on devices placed to guide traffic (tapers, centerlines, lane lines, or edge lines). Only Type A or Type B flashing warning lights are to be used on signs and flag type high-level warning devices as specified. Type A flashing warning lights should be used on devices marking hazards because they have proven to be the most effective for this application.

Method of Handling Traffic Plans

MHT Plans - Through Lane Closures on Higher Volume Streets (i.e. Collectors, Arterials, etc.)

Road Type	Distance Between Signs ^a		
	A	B	C
Urban (low speed) ^a	100 feet	100 feet	100 feet
Urban (high speed) ^a	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,040 feet

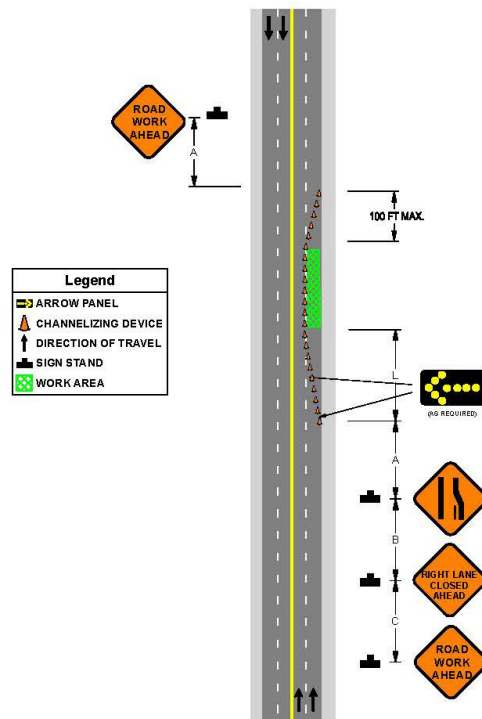
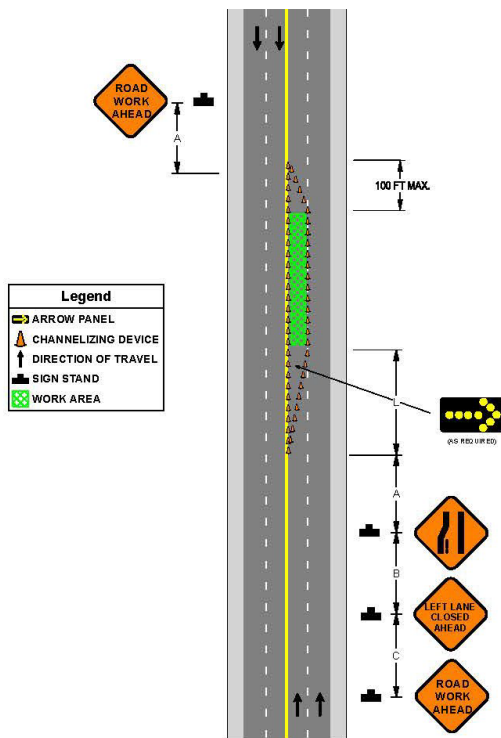
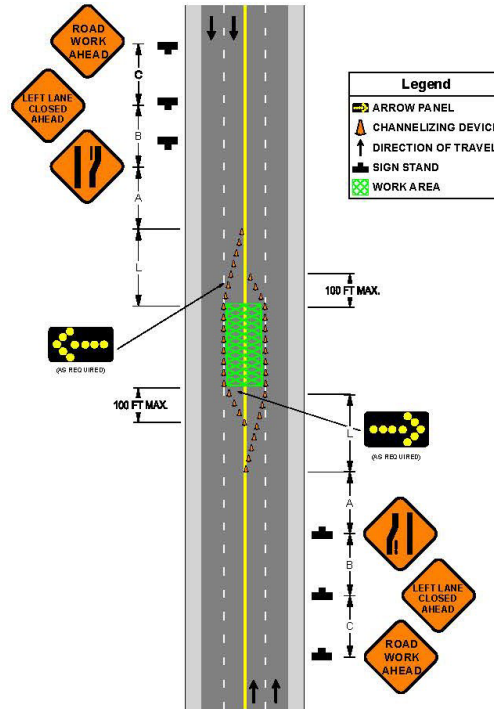
Type of Taper	Taper Length (L)
Merging Taper	At least L
Shifting Taper	At least 0.5 L
Shoulder Taper	At least .33 L
One-Lane, Two Way Traffic Taper	100 Ft. (30m) Maximum
Downstream Taper	100 Ft. (30m) per Lane

Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{80}$
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

Lane Width	Speed in MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH
10 Ft. Merging Taper	105'	150'	205'	270'	450'	500'	550'	600'	650'	700'
11 Ft. Merging Taper	115'	165'	225'	295'	485'	535'	585'	635'	685'	735'
12 Ft. Merging Taper	125'	180'	245'	320'	540'	600'	660'	720'	780'	840'

Enlarged Table Shown on Page 47



Method of Handling Traffic Plans

MHT Plans – Double Through Lane Closures on Higher Volume Streets (i.e. Collectors, Arterials, etc.)

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	600 feet	600 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

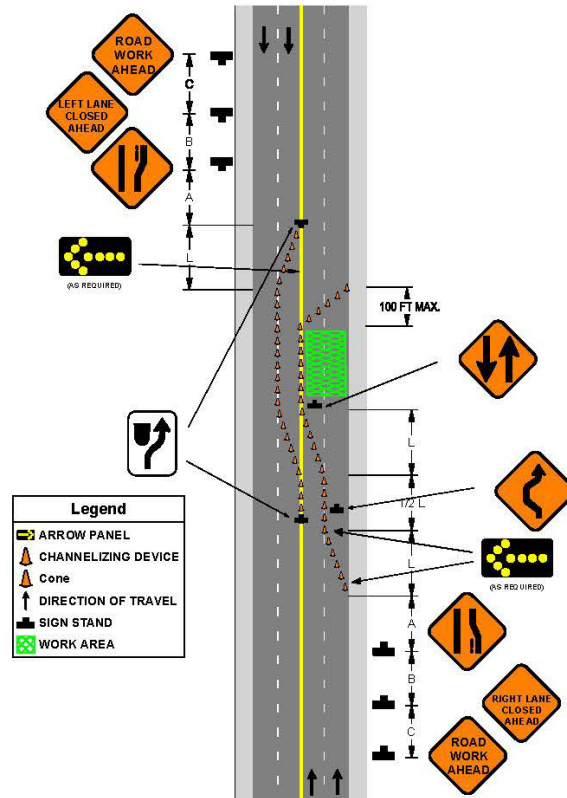
Type of Taper	Taper Length (L)
Merging Taper	At least L
Shifting Taper	At least 0.5 L
Shoulder Taper	At least .33 L
One-Lane, Two Way Traffic Taper	100 FT (30m) Maximum
Downstream Taper	100 FT (30m) per Lane

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

Lane Width	Speed in MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH
10 Ft.	Merging Taper	105'	160'	205'	270'	450'	500'	550'	600'	650'
11 Ft.	Merging Taper	115'	165'	225'	290'	465'	550'	605'	660'	715'
12 Ft.	Merging Taper	125'	180'	245'	320'	540'	600'	660'	720'	780'

Enlarged Table Shown on Page 47



Method of Handling Traffic Plans

MHT Plans – Through Lane Closures on Higher Volume Streets (i.e. Collectors, Arterials, etc.) within Intersections

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

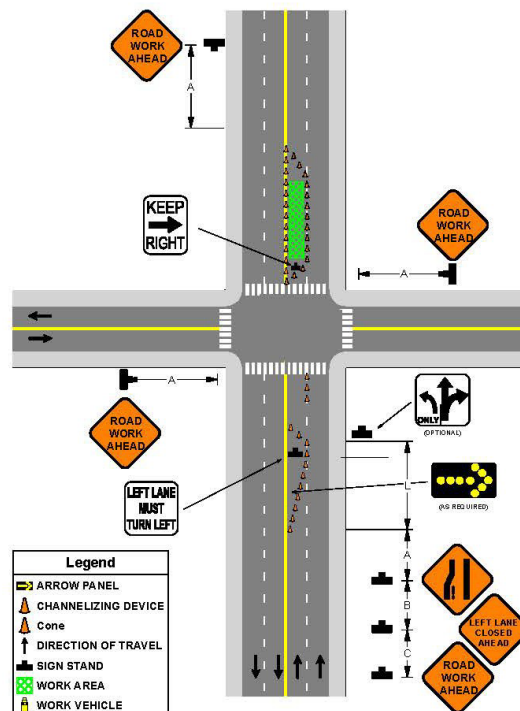
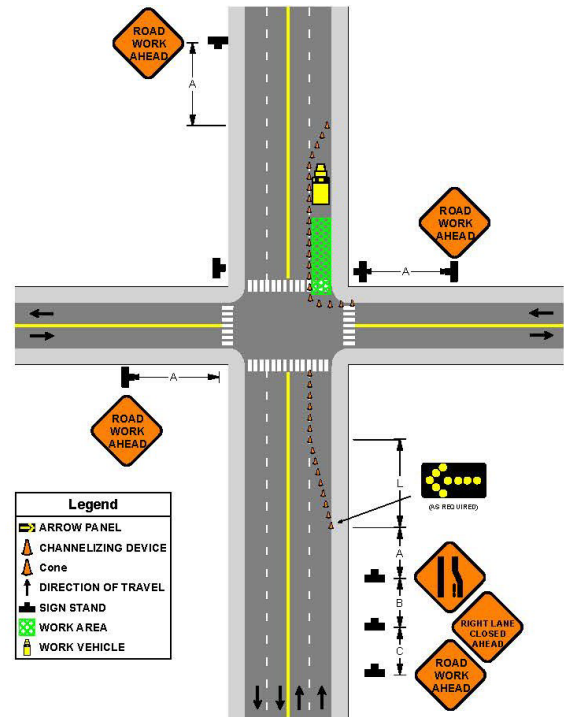
Type of Taper	Taper Length (L)
Merging Taper	At least L
Shifting Taper	At least 0.5 L
Shoulder Taper	At least .33 L
One-Lane, Two Way Traffic Taper	100 Ft. (30m) Maximum
Downstream Taper	100 Ft. (30m) per Lane

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

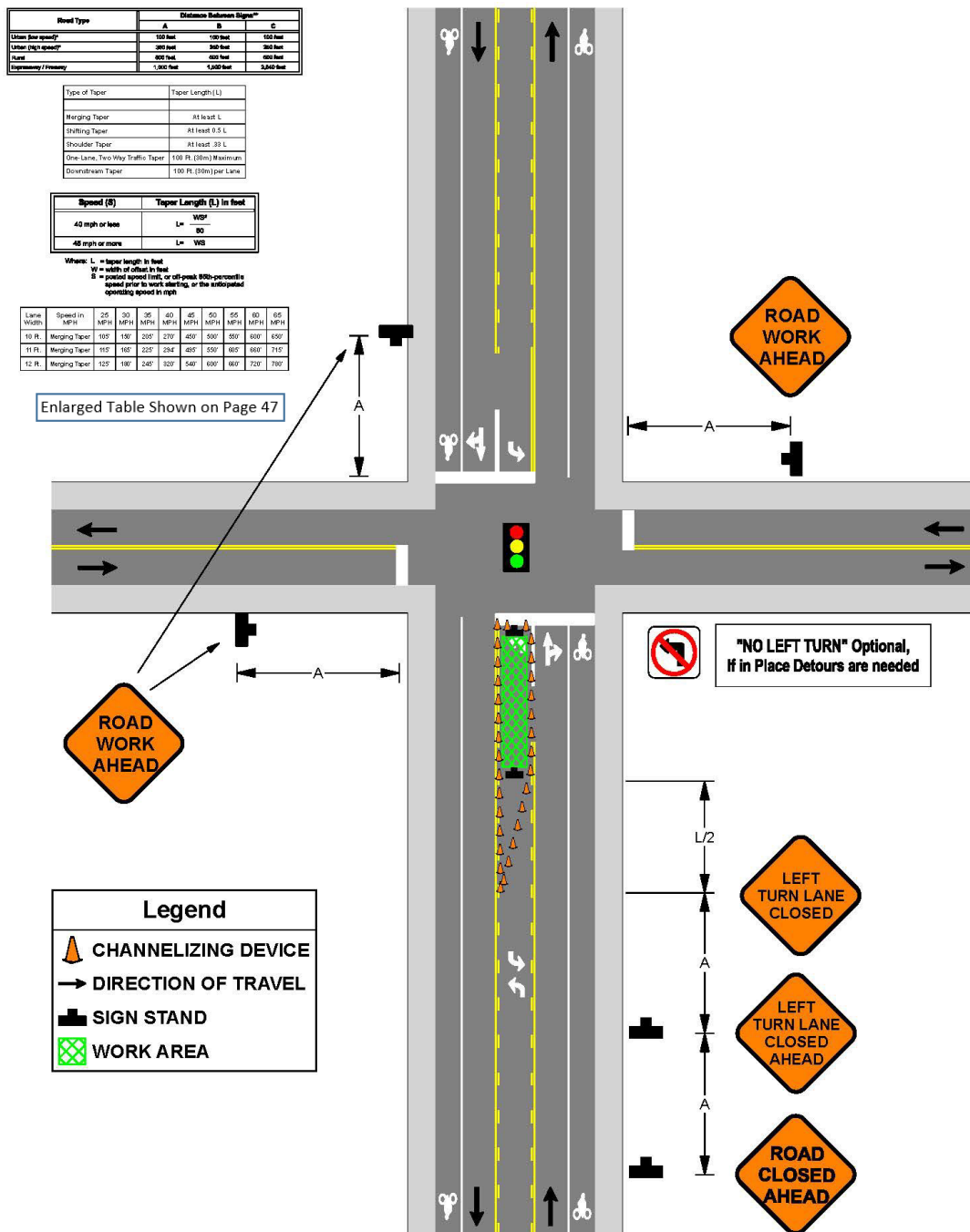
Lane Width	Speed In MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH
10 Ft.	Merging Taper	105'	150'	205'	270'	450'	500'	550'	600'	650'
11 Ft.	Merging Taper	115'	165'	225'	294'	485'	530'	580'	630'	715'
12 Ft.	Merging Taper	125'	180'	245'	320'	540'	600'	660'	720'	780'

Enlarged Table Shown on Page 47



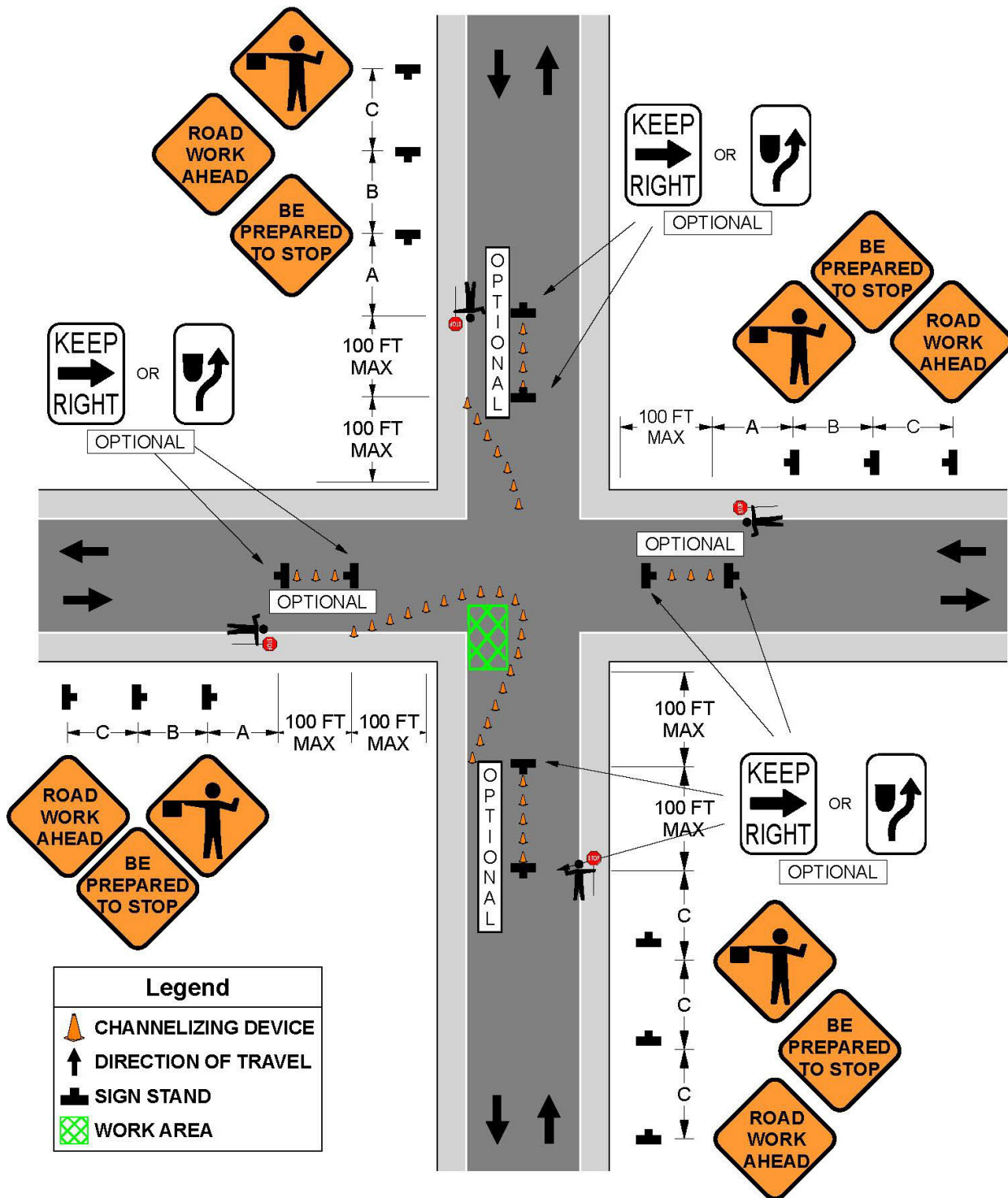
Method of Handling Traffic Plans

MHT Plans – Left/Right Turn Lane Closures on Higher Volume Streets (i.e. Collectors, Arterials, etc.) within Signalized Intersections (Contact Traffic Signal Staff)



Method of Handling Traffic Plans

MHT Plans – Closures on Lower Volume Streets for Workzones within Intersections



Method of Handling Traffic Plans

MHT Plans – Lane Closures on Lower Volume Streets for Workzones along Corridors with Bike Lanes and On-Street Parking

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

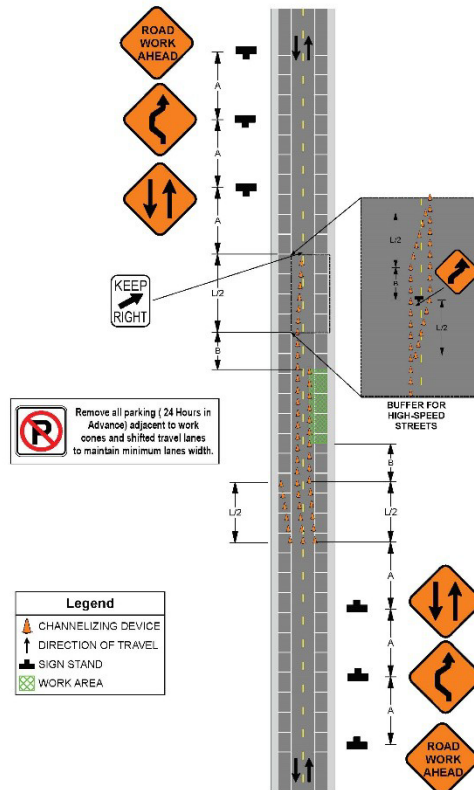
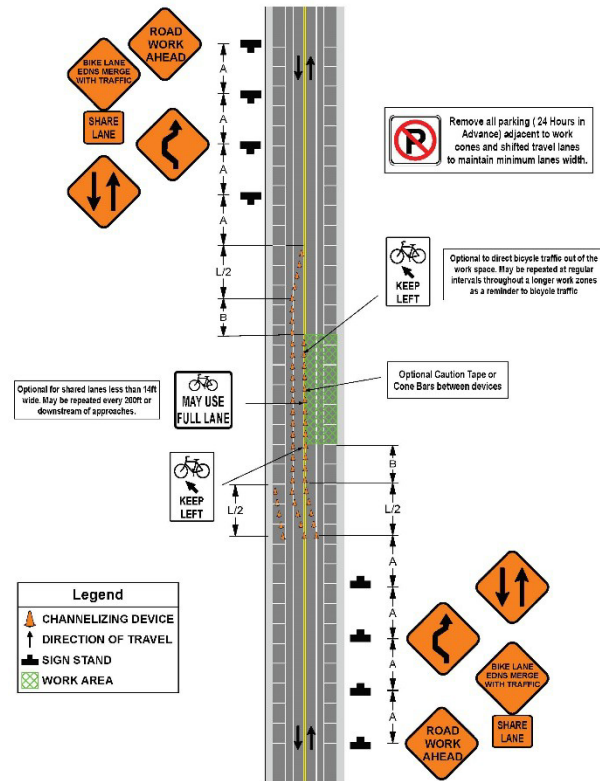
Type of Taper	Taper Length (L)
Merging Taper	At least L
Shifting Taper	At least 0.5 L
Shoulder Taper	At least .33 L
One-Lane, Two Way Traffic Taper	100 Ft. (30m) Maximum
Downstream Taper	100 Ft. (30m) per Lane

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

Lane Width	Speed in MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH
10 Ft.	Merging Taper	106'	160'	208'	270'	460'	600'	660'	600'	660'
11 Ft.	Merging Taper	118'	165'	228'	294'	495'	660'	608'	660'	715'
12 Ft.	Merging Taper	128'	180'	246'	320'	640'	600'	660'	720'	780'

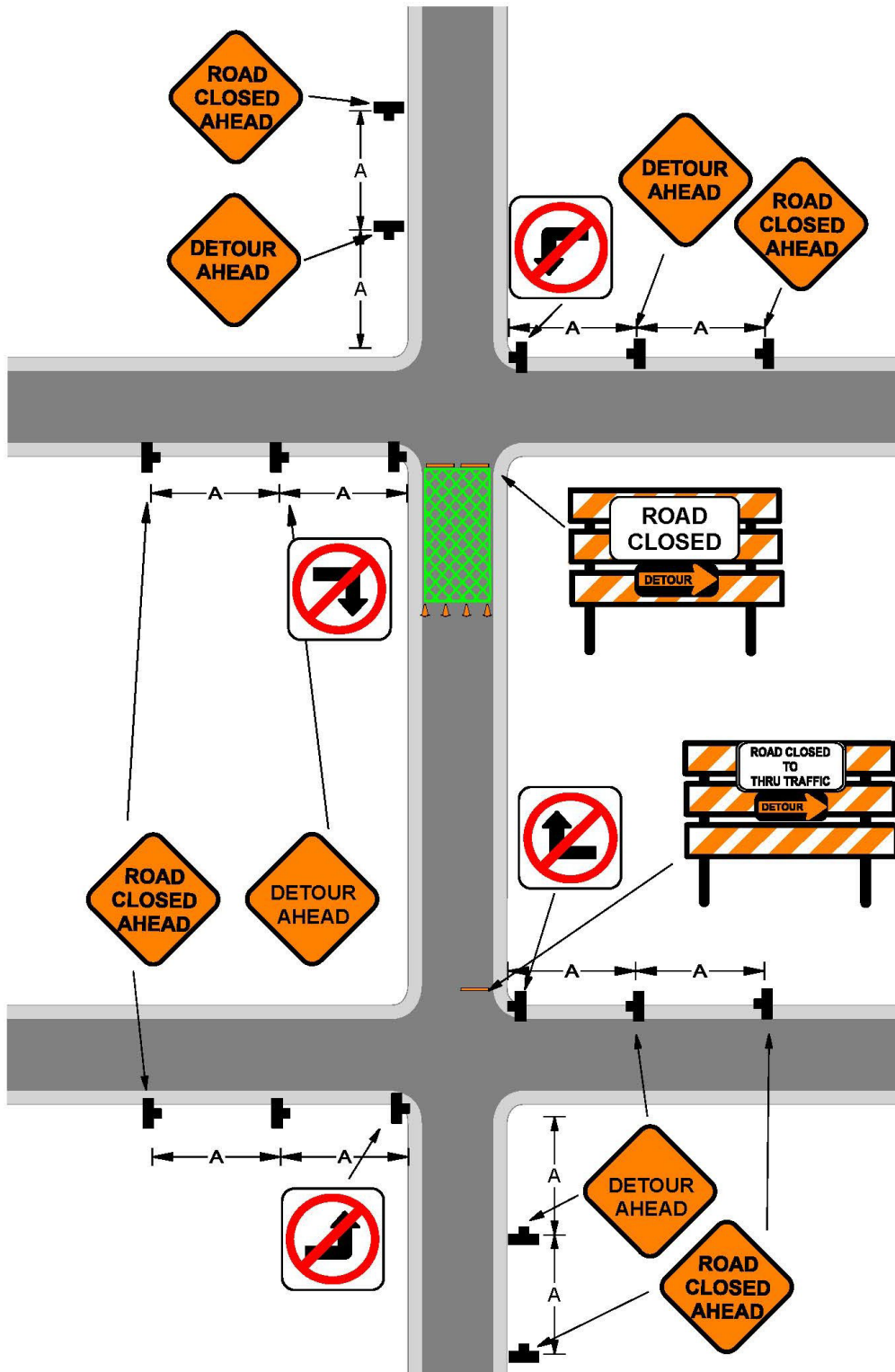
Enlarged Table Shown on Page 47



Method of Handling Traffic Plans

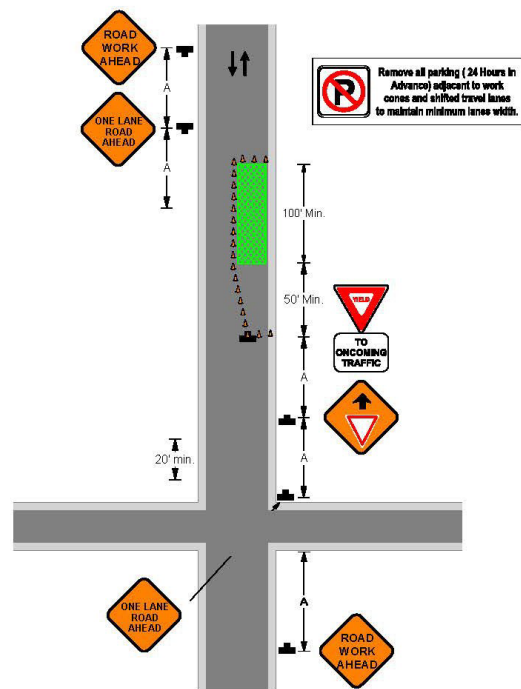
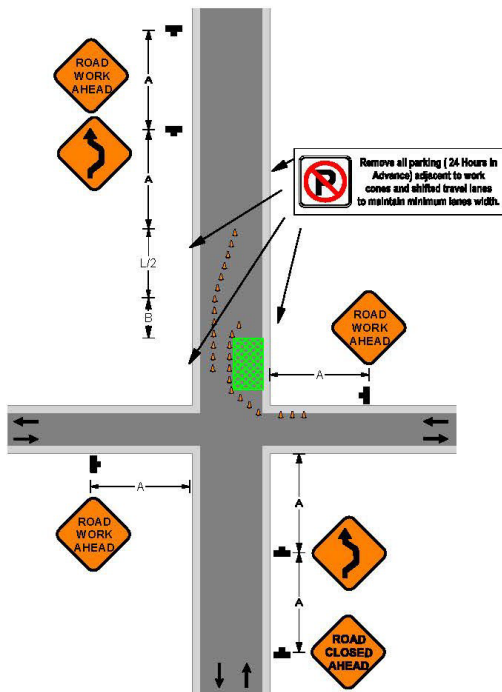
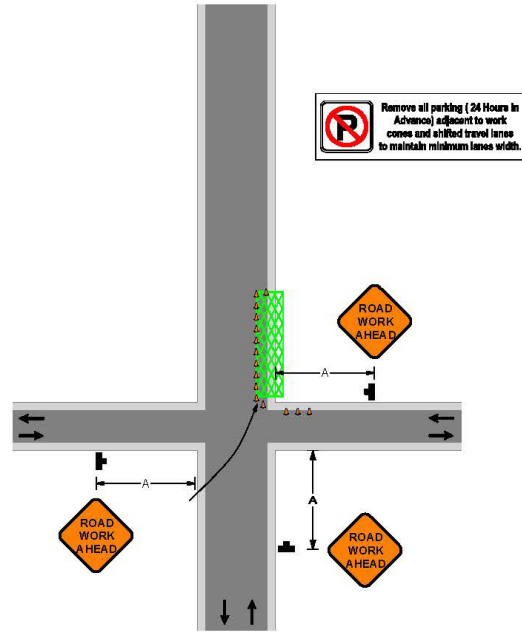
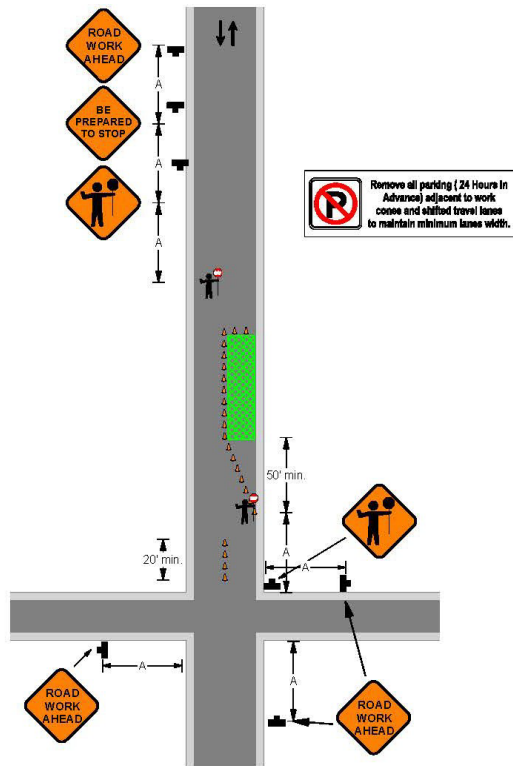
MHT Plans – Full Street Closures on Lower Volume Streets

Flagging should be considered for maintenance work.



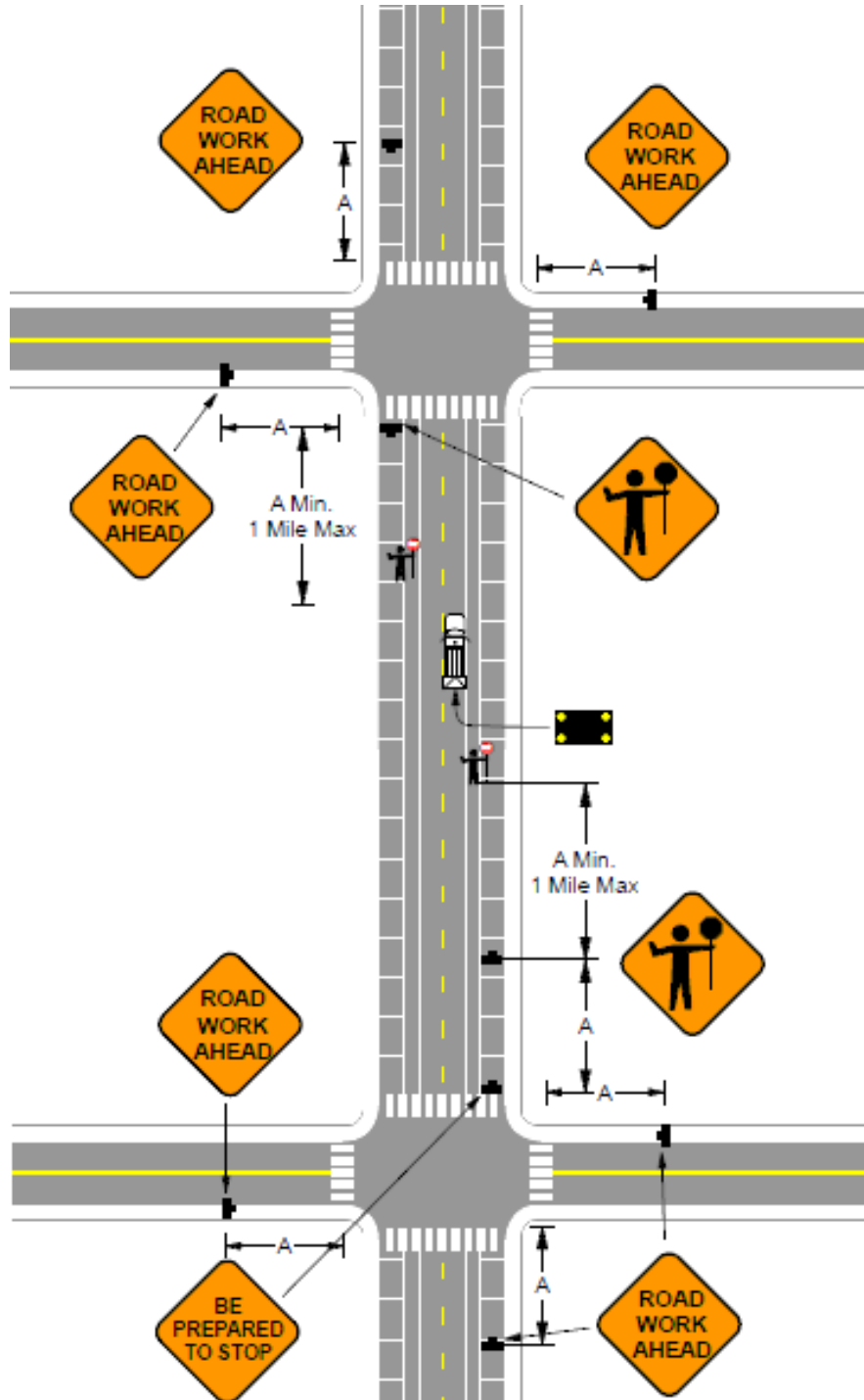
Method of Handling Traffic Plans

MHT Plans – Partial Street Closures on Lower Volume Streets



Method of Handling Traffic Plans

MHT Plans – Partial Street Closures on Lower Volume Streets Short Term Maintenance Activities



Method of Handling Traffic Plans

MHT Plans – Enlarged Table Showing Taper and Spacing Requirements for Traffic Control Devices

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

Type of Taper	Taper Length (L)
Merging Taper	At least L
Shifting Taper	At least 0.5 L
Shoulder Taper	At least .33 L
One-Lane, Two Way Traffic Taper	100 Ft. (30m) Maximum
Downstream Taper	100 Ft. (30m) per Lane

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

Lane Width	Speed in MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH
10 Ft.	Merging Taper	105'	150'	205'	270'	450'	500'	550'	600'	650'
11 Ft.	Merging Taper	115'	165'	225'	294'	495'	550'	605'	660'	715'
12 Ft.	Merging Taper	125'	180'	245'	320'	540'	600'	660'	720'	780'

Method of Handling Traffic Plans

Appendix A – Summary of Violations and Penalties

Summary of Violations and Penalties

Violation	Description	1st Offense	2nd Offense	3rd & More Offenses
1	Any act, error, or omission within the right-of-way that creates an imminent risk of death or injury	\$500	\$750	\$1,500
2	Restricting the right-of-way without proper certification or permit	Warning	\$250	\$500
3	Restricting the right-of-way during peak traffic hours without proper authorization (as described in the Traffic Barricade Manual)	Warning	\$250	\$500
4	Failure to correct or cure a violation of the Traffic Barricade Manual within the required timeframe stated on the notice of violation	Warning	\$125	\$250
5	Improperly closing a sidewalk without certification or permit	Warning	\$250	\$500
6	Permit holder fails to comply with permit conditions, restrictions, limits, times, or location	Warning	\$125	\$250
7	Failure to install or maintain advance warning signs as required by the Traffic Barricade Manual	Warning	\$250	\$500
8	Failure to install barricades or channelizing devices as required by the Traffic Barricade Manual	Warning	\$250	\$500
9	Failure to remove an advance warning sign after traffic restriction has ended	Warning	\$125	\$250
10	Permit holder fails to remove traffic control devices within 24 hours after permit expires	Warning	\$125	\$250
11	Failure to install and maintain traffic control devices as required by the Traffic Barricade Manual	Warning	\$125	\$250
12	Making a bus stop inaccessible without relocation or other actions to maintain access	Warning	\$125	\$250