



CITY OF REDMOND
WORK ZONE TRAFFIC CONTROL MANUAL
Public Works Traffic Operations Safety and
Engineering Division

July 2012 edition

INTRODUCTION

This manual is intended for use by any contractor, public or private agency, business or individual when involved in construction, maintenance or any activity that alters the normal flow of traffic, vehicular or pedestrian, on any City right-of-way.

This manual shall be used in conjunction with [Part 6 of The Manual on Uniform Traffic Control Devices \(MUTCD\)](#) for the installation of temporary traffic control and the [Access Board's Guidelines for Accessible Public Rights-of-Way](#) (2010) Section R205 Alternate Pedestrian Access Routes. Authority to establish local rules regarding channelization and traffic control is permitted by [Washington Administrative Code \(WAC\) 308.330.265](#).

This manual does not prohibit the use of additional traffic control or warning devices as long as the minimum conditions are met.

For additional information, please call the City's Traffic Operations Safety and Engineering Division at (425) 556-2873.

PERMITS

A permit must first be obtained from the Public Works Department by any person, firm or corporation working in City right-of-way. [Right-of-Way Use Permit](#) applications are available online on the City's website or by calling the Development Services Division at (425) 556-2760.

Traffic control plans must be submitted for approval with the application for a Right-of-Way Use Permit if impacts to pedestrian or vehicular traffic will occur. Permits will not be issued unless the Traffic Engineer has approved the traffic control plan. If work in the right-of-way is being done as part of a City Public Works project, traffic control plans need to be submitted to the Traffic Operations Safety and Engineering Division via the project inspector.

TRAFFIC CONTROL PLANS ("TCP's")

The primary function of work zone traffic control is to allow vehicles, cyclists and pedestrians to move safely and easily through or around work areas. Effective temporary traffic control enhances traffic safety and efficiency. Drivers and pedestrians need to be guided in a clear and positive manner while approaching and traversing temporary traffic control zones.

[Washington State Department of Transportation \(WSDOT\) Standard Plan "K" Drawings](#) are provided for your use where conditions are similar to those shown on the plan and are to be used along with good judgment. These plans are not drawn to scale, are typical in nature, are not intended to satisfy all conditions for all work zones, but can generally be adapted to a broad range of conditions. Minor

modifications may be made, as necessary, to accommodate site conditions; however, a plan's original intent must be maintained. An alternate plan should be considered if substantial revisions are necessary. All plans shall be consistent with the requirements of the latest edition of the MUTCD as amended by WSDOT and City of Redmond standards.

Consult the City of Redmond Traffic Operations Safety and Engineering Division staff for additional guidance and assistance.

CONSIDERATIONS

1. Provide substantial protection and minimize worker exposure to traffic by applying positive protection and devices in practical ways. Long-term projects may warrant the use of a concrete barrier, while short-term projects may be better served by a truck-mounted attenuator (TMA). Always consider the use of positive protection whenever practical.
2. Prior to the beginning of work operations, evaluate all aspects of the work area, including sight distance, traffic speed, volume, road approaches, work duration and the type of work activity before deciding on a traffic control plan.
3. After the traffic control plan is implemented, the supervisor [i.e., the person(s) supervising the actual work task(s) for which the TCP was implemented] should drive through the work area at the anticipated speed of the motorists to determine the effectiveness of the plan. Additional reviews throughout the work shift are recommended to ensure that traffic control devices remain in place. It is important for work occurring during nighttime hours for devices to be reviewed to ensure proper visibility.
4. Whenever the temporary traffic control zone extends more than 1000 feet from the first advance warning signs, the devices need to be moved forward in order to maintain appropriate advance warning to drivers.
5. Plan ahead for manpower, equipment and materials (such as signs, channelizing devices, pavement marking materials, etc.) needed for traffic control. Whenever possible look for opportunities to combine multiple work operations within a temporary traffic control zone to minimize impact to drivers and for maximum efficiency.
6. The distances shown on the TCP's are desirable minimum requirements. Device spacing, buffer space and sign spacing might require adjustments to provide for site conditions.
7. Police officers may be required to assist by enforcing compliance to TCP's, especially during nighttime lane closures on high volume/high speed streets or road closures.

8. Traffic control devices are used to visually guide drivers through work zones. Signing, channelizing devices, arrow panels and warning beacons all provide a message to the driver. Work zone credibility is established through the proper use of these devices to send correct messages to drivers.
9. During paving operations, temporary pavement markings shall be maintained throughout the project. Temporary pavement markings shall be installed on the roadway that was paved that day.
10. Traffic delays due to work zone operations must be anticipated and addressed appropriately. Excessive delays contribute to work zone incidents of road rage or crashes. Traffic capacity issues must be addressed with the City of Redmond's Traffic Operations Safety and Engineering Division prior to starting work. Traffic should not be allowed to back up past the advance warning signs. Sign locations may need to be adjusted to fit actual site conditions or additional signs added to the sequence. Use of advance warning signs such as portable changeable message signs (PCMS) may be recommended.

CITY WORK CREWS

City work crews are not required to obtain a permit for routine maintenance and repairs, but must notify the Traffic Engineer a minimum of 72 hours in advance if the following conditions apply:

1. Closing any street.
2. Altering or detouring traffic during commute hours on arterial streets (7 a.m. – 9 a.m. and 3 p.m. – 7 p.m.).
3. The activity or obstruction will be in place for more than eight hours.
4. The activity or obstruction is during the hours of darkness.
5. The activity reduces traffic on arterial streets to less than one lane in each direction.

GENERAL RULES

The following list of rules must be followed while involved in construction, maintenance or other activity in City right-of-way unless specifically addressed by the Traffic Engineer.

1. All traffic control devices must meet the requirements established by the MUTCD.
2. No activity will be placed in such a way as to detour, slow or alter traffic flow during peak commute hours. These times are generally from 7 a.m. – 9 a.m. and 3 p.m. – 7 p.m. The Traffic Engineer may allow an exception with prior approval.

3. An approved traffic control plan must be on-site and accessible for inspection at all times by law enforcement or inspectors.
4. Traffic control plans and activities must include the following components:
 - a. Advanced Warning Area: Signs and other devices inform drivers of what to expect.
 - b. Transition Area: Channelization devices move traffic from the normal flow to the desired path.
 - c. Activity Area: Area where the work takes place.
 - d. Buffer Space: Area used to separate traffic from the work activity area and provides recovery space for an errant vehicle.
 - e. Termination Area: Area used to return traffic to the normal path.
5. Pedestrian and disability access must be maintained throughout the period of time construction is underway. This does not just apply to the final product, but accessibility must be maintained during the actual construction. Safe, clearly marked routes must be maintained through or around the construction activity at all times. The use of temporary walkways with width, slope and cross-slope compliant to the maximum extent feasible shall be incorporated on the job site. Surfaces must be firm, stable and slip resistant. Channeling and barricading must be used to separate pedestrians from traffic. Adequate barricading must be addressed to prevent visually impaired pedestrians from entering work zones (see [MUTCD Part 6F.74](#) for specifications). Alternate pedestrian circulation routes with appropriate signage that can be accessed by people who use mobility aids (wheelchairs, walkers, scooters, etc.). The alternate circulation path shall have a minimum width of five feet and parallel the disrupted pedestrian access route when practicable. Barricades and channelizing devices shall be continuous, stable, non-flexible and shall consist of a wall, fence or enclosure specified in [MUTCD Part 6F](#). A solid toe rail should be attached such that the bottom edge is six inches maximum above the walkway surface. The top rail shall be parallel to the toe rail and shall be located 36 inches minimum and 42 inches maximum above the walkway surface. If drums, cones or tubular markers are used to channelize pedestrians, they shall be located such that there are no gaps between the bases of the devices in order to create a continuous bottom, and the height of each individual device shall be no less than 36 inches. For more information on pedestrian and worker safety, refer to [MUTCD Part 6D](#).
6. Persons in charge of maintaining or establishing traffic control and channelization must have a certified flagger control card in their possession and must be on the site at all times or be represented by another knowledgeable, certified person.

7. A flagger cannot be used to direct traffic through a signalized intersection against the signal indications. When flaggers are used near signalized intersections, care must be used to clear the intersection of traffic before the signal change and to flag in concert with the traffic signal.
8. A uniformed police officer is required to direct traffic through a signalized intersection against the signal indications.
9. Police officers may also be required during activities for traffic calming if speeds are high, pedestrian or vehicular traffic volume is extremely high or during emergencies.
10. When parking lanes are closed due to construction, temporary “no parking” signs will be installed at least 48 hours in advance of the closure in unrestricted areas and 24 hours in advance in time restricted areas. The message on the signs shall establish the date and hours for no parking.
11. The Traffic Engineer may allow reduced speed limits in construction area zones. Request for speed reduction must be included in the traffic control plan.
12. All signs and cones shall be removed from the right-of-way when traffic control is not in effect.
13. The contractor may be required to discontinue work if possible conflict exists with special events such as parades, sporting events, miscellaneous rallies and large public meetings.
14. Maintenance of two-way traffic on arterial streets is required at all times except on one-way streets. Additional width for facilitating traffic flow may be obtained by prohibiting on-street parking adjacent to the work zone.

Failure to comply with the provisions of this manual is a traffic infraction and, notwithstanding any fines or penalties levied against the person, firm or corporation involved, if a safety hazard exists, the work may be ordered stopped and the obstruction cleared by the person, firm or corporation responsible or by the City at that responsible party's expense.

WORK DURATION

The five categories of work duration and their time at a location shall be:

1. Long-term stationary is work that occupies a location more than three days.
2. Intermediate-term stationary is work that occupies a location more than one daylight period up to three days, or nighttime work lasting more than one hour.
3. Short-term stationary is daytime work that occupies a location for more than one hour within a single daylight period.

4. Short duration is work that occupies a location up to one hour.
5. Mobile is work that moves intermittently or continuously.

PERSONAL ATTRIBUTES

Awareness. Routinely working near traffic for extended periods of time can lead to workers becoming complacent to the danger around them. Therefore, it is necessary to continually caution ourselves and those around us of the dangers to which everyone is exposed. Pre-activity safety plans and daily “tail-gate” meetings are required prior to beginning any work operation to ensure everyone is aware of the task to be performed and their respective duties.

Alertness. There is no place on a “traffic exposed” work crew for a daydreamer or distracter. Each individual, for their own protection and that of the crew, must stay constantly alert and watchful.

Attitude. A positive, safety-conscious attitude on the part of each crewmember will contribute greatly to the overall safety of crew operations.

Responsibility. Each person is responsible for ensuring their own safety and to see all standards are followed. This includes ensuring temporary signs, warning devices, and flag persons are placed appropriately to protect both the motorists and workers. Motorist and worker safety are of primary importance.

EQUIPMENT

All personal equipment and traffic control devices must be kept clean to provide protection for the crew through better visibility to the motorist. A sign or traffic control device determined to be “not acceptable” shall be replaced as soon as possible.

SIGNS

Signs that are no longer retro-reflective (visible and legible at night) or are in poor condition are to be replaced. All standard temporary warning signs are required to be 48 inches x 48 inches diamond shape with black letters or symbols on an orange background consisting of Type X reflective sheeting. All signs shall use aluminum sign substrate material.

Some work areas might require the use of special or regulatory signs. Contact the City's Traffic Operations Safety and Engineering Division for assistance with special signs. Use of double-faced (back-to-back) signs or signs made of plywood substrate is not allowed. Sign supports must be in good condition, be capable of withstanding normal wind stresses along the highway and must be crashworthy.

Signs not necessary during non-working hours shall be removed or turned away from oncoming traffic.

Minimum sign mounting height for temporary warning signs is one foot above the ground. In some locations where the sign is located behind a traffic control device such as a traffic safety drum or temporary barrier, consider raising the minimum height to three feet in order to provide additional visibility.

Where it is necessary to add weight to signs for stability, sand bags or other similar ballast may be used, but the height must not be more than four inches above the roadway surface and must not interfere with the breakaway features of the device. Follow manufacturer recommendation for sign ballasting.

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

- Recommended for high speed, high volume roadways or work operations that require a highly visible message.
- Shall not be used to replace required signs.
- Can be used to replace static message signs for short duration or moving operations, as per approved traffic control plan.
- Place in advance of other temporary traffic control zone signing.
- Shall meet the minimum visibility and legibility standards established in the [MUTCD Part 6F.60](#) and in [Standard Specification 9-35.5](#) seen in WSDOT's Standard Specifications for Road, Bridge and Municipal Construction.
- Should be able to read the message twice at the posted speed.
- Each individual display should convey a single thought.
- A complete message cycle should consist of no more than two displays in sequence. Refer to [MUTCD Part 1A.15](#) for a list of acceptable message abbreviations.
- Bottom of sign panel shall be a minimum of seven feet above roadway.
- PCMS shall automatically adjust its light source relative to surrounding conditions.
- Messages shall not scroll horizontally or vertically across the sign face.
- Consider use of permanently located changeable message signs when applicable.
- PCMS should be placed on the shoulder of the roadway, or if practical, further from the traveled lane. They are to be delineated with traffic control devices or shielded with a barrier or crash cushion. When signs are not being used, they are to be removed.
- Except when the PCMS trailer is actually being moved, it shall be detached from the towing vehicle. Towing trailer devices with the display active as a mobile operation is not allowed.

ARROW PANEL

- Required on multi-lane roads for all lane closure operations, except during an emergency.
- Arrow panels shall meet the minimum size, visibility, legibility distance, number of elements and other specifications as shown in the [MUTCD Part 6F.61](#).
- An arrow panel shall not be used on a multi-lane roadway to laterally shift traffic.
- An arrow panel shall not be used on a two-lane, two-way roadway.
- An arrow panel shall only be used in the caution mode when used for shoulder closures.
- Only the four-corner flash mode shall be used to indicate caution.
- Use only one arrow panel per lane being closed (unless used in mobile operations).
- Arrow panel should be used in combination with other appropriate traffic control devices. When arrow panels are not being used, they are to be removed.
- Arrow panel shall be capable of a minimum 50 percent dimming.
- For stationary lane closure, the arrow panel should be located on the shoulder at the beginning of the taper. Where the shoulder is narrow, the arrow panel should be located in the closed lane.

- The arrow panel shall be located behind channelizing devices (unless used in mobile operations).
- Except when the arrow trailer is actually being moved, it shall be detached from the towing vehicle. Towing trailer devices with the display active as a mobile operation is not allowed.

CHANNELIZING DEVICES

Traffic safety cones are the most common devices used to separate and guide traffic past a work area. Cones must be a minimum of 28 inches tall and retro-reflectorized. Traffic safety drums must be 36 inches tall and are recommended for use in the tapers on high-speed roadways due to their greater visibility and imposing size.

Taper and channelization spacing requirements are shown on the TCPs. Tighter spacing may be desirable, under some conditions, to enhance motorists' guidance.

TEMPORARY CONCRETE BARRIER

Temporary concrete barrier is designed to prevent intrusion of errant vehicles into work areas and to provide positive protection to work areas. Barrier is recommended for long-term stationary work areas with high exposure to traffic. Refer to the [WSDOT's Design Manual M 22-01 Chapter 1010](#), for site specific placement information.

Consider the following for use of concrete barriers:

- Areas where there is a high potential for injury to workers or “no escape” areas such as internal lane work, work zones on bridges, lane expansion work, etc.
- Long-term, stationary jobs (work occupying a location for more than three days).
- Areas of high exposure to workers and motorists such as high speed and high volume of traffic.
- The approach ends of temporary concrete barriers must be adequately protected. If the barrier cannot be mitigated by either tapering outside clear zone, behind guardrail, or buried in the back slope, then the end must be fitted with a temporary impact attenuator. Refer to the [WSDOT's Design Manual M 22-01 Chapter 1010](#), for site specific placement information.

Generally used to protect spot hazards but can also be used to close roadways and sidewalks with appropriate signing. Barricades can also be used to provide additional protection to work areas. Barricades must be crashworthy and National Cooperative Highway Research Program ([NCHRP 350](#)) approved. The barricades used in work zone applications are portable devices. They are used to control traffic by closing, restricting, or delineating all or a portion of the roadway. There are three primary - barricade types:

1. Type 1 Barricade – Used on lower speed roads and streets to mark a specific hazard.
2. Type 2 Barricade – Used on higher speed roadways and has more reflective area for nighttime use to mark a specific hazard.
3. Type 3 Barricade – Used for lane and road closures.

Signs mounted on Type 3 Barricades are allowed provided they are located behind other traffic control devices such as a shoulder or lane closure.

WARNING LIGHTS

These lights are either flashing or steady burn (Types A, B or C or strobe) mounted on channelizing devices, barriers and signs. Secure warning lights to the channelizing device or sign so they will not come loose and become a dangerous flying object if impacted by a vehicle. See the [MUTCD Part 6F.83](#) for additional information.

- Type A – Low-intensity flashing warning light used to warn road users during nighttime hours they are approaching a potentially hazardous area.
- Type B – High-intensity flashing warning light used to warn road users during both daylight and nighttime hours.
- Type C – Steady-burn warning light designed to operate 24 hours per day to delineate the edge of the roadway.

SPECIFIC WARNING SIGN REQUIREMENTS

Not all warning signs are shown on the traffic control plans but are required to address specific work zone hazards when conditions warrant, particularly if the hazard is not obvious or cannot be seen by approaching motorists.

Examples:

- Abrupt Lane Edge
- Motorcycles Use Extreme Caution
- Bump
- Traffic Revision Ahead
- Road Narrows
- Grooved Pavement
- Rough Road
- Loose Gravel
- No Shoulder
- Water Over Roadway

PERSONAL PROTECTIVE WEAR

Refer to [WSDOT Safety Procedures and Guidelines Manual M 75-01](#) for guidance and requirement on personal protective equipment.

FLAGGING

Refer to [WAC 296-155-305](#) for specific flagging requirements.

- A TCP showing flagger locations is required for any flagging operation.
- Minimum standard flagging paddle size allowed is 18 inches. It is recommended that a 24-inch paddle be used to improve visibility and for all high speed operations.
- Locate the flagger off the traveled portion of the roadway. More than one flagger may be necessary to achieve traffic control in both directions. A means of communication between flaggers must be considered in these situations. Communication by hand-held radio is the recommended procedure.
- Only persons who have successfully completed an approved flagging course and who possess current flagging certification recognized in Washington State can be used as flaggers.
- In a mobile flagging operation when the flagger is moving with the operation, all signs associated with the flagger shall be moved ahead whenever work advances to more than 1000 feet from the

advance warning signs; also, the flagger ahead (symbol or text message) sign must be within 500 feet of the flagger.

- During hours of darkness, flagger stations shall be illuminated without causing glare to the traveling public by using a portable light plant or approved alternative.
- When flagging within 150 feet of signalized intersections, special consideration must be made to address the specific needs to traffic movements. The signal must be either turned off or set to red “flash” mode. At no time shall traffic be flagged with an active signal. Contact the City’s Traffic Operations Safety and Engineering Division staff for assistance with signal operation.
- The placement of a flagger at the center of an intersection to control traffic is not allowed. The only person allowed to legally control traffic from the center of an intersection is a uniformed police officer.
- A four-sign sequence is required for flagging on roadways with posted speeds of 45 mph or higher. WSDOT’s standard four-sign sequence for “one lane road” situations is in compliance. However, there are situations other than “one lane road” where the four-sign sequence is still required. These situations could be truck crossings, bridge work, surveying, etc., where flaggers are required to stop traffic for a short period of time. In these cases, the most appropriate standard warning sign that reflects the roadway condition or work operation should be used in place of the “one lane road ahead” sign to comply with the four-sign sequence requirement. These signs might be:

Truck crossing	Survey crew
Road machinery	Workers (generic yet appropriate solution in many cases)
Utility work	

If the above signs are not available or appropriate for the operation, an acceptable alternative would be to repeat the “Flagger Ahead” symbol sign or the “Be Prepared to Stop” sign. Again, the preferred method is to use the sign that most appropriately describes the roadway condition or work operation.

PEDESTRIANS, BICYCLES, AND OTHER ROADWAY USERS

Give consideration to pedestrian and bicycle traffic where appropriate. Provide alternative routes where designated walkways or bicycle routes are temporarily interrupted due to work operations. Alternative routes need to be free of obstructions and hazards (e.g., holes, debris, mud, construction and stored equipment, etc.). Clearly delineate all hazards near or adjacent to the path (e.g., ditches, trenches, excavations, etc.). Refer to [MUTCD Part 6D.01.07](#) and [MUTCD Part 6F.74](#).

PEDESTRIANS

- Pedestrians generally will not go out of their way. Make alternate pathways reasonable.
- Do not place signs and other traffic control devices within the pathway that may pose a hazard.
- Placements of sidewalk closure signs are required in advance of the closure point for pedestrians to make adjustments to their route. It must be recognized that pedestrians are reluctant to retrace their steps to a prior intersection for a crossing.

BICYCLES

- Bicycles have a legal right of access to most highway facilities. Provisions for their safe conduct through work zones are necessary.
- Provide for and sign an appropriate alternate route when activities close a designated (signed) bicycle path or shoulder bikeway. Where horizontal separation for bicycles and pedestrians existed prior to work, give consideration to separating during work.
- When laying out alternative bicycle paths, make sure no overhead obstructions present a direct hazard to normal bicycle operation.
- Riding surfaces are important for safe bicycle operation. Loose gravel, uneven surfaces, milled pavement and various asphaltic tack coats endanger the bicyclist. Consider the condition of the surface the bicyclist will be required to use.
- Where bike lanes are narrowed or alternate paths not available, post “Bicycle” ([W11-1](#)) and “Share the Road” ([W16-1](#)) signs as shown in the MUTCD.

MOTORCYCLES

The driving or roadway surface is also important for motorcycle rider safety. The same surfaces that are a problem for bicyclist are also difficult for motorcyclists. Stability at high speed is a far greater concern for motorcycles than cars on grooved pavement, milled asphalt and tapers from existing pavement down to milled surfaces. Adequate signing to warn for these conditions to alert the motorcycle rider are required by [RCW 47.36.200](#) and [WAC 468-95-305](#).

SCHOOLS

Work zone operations in the vicinity of schools require consideration to ensure that conflicts are kept to a minimum. Issues that should be considered are:

- Student path to and from the school.
- Bus movements for loading and unloading students.
- Coordination with crossing guards.
- School hours to minimize impacts.

ADDITIONAL WORK ZONE CONSIDERATIONS

WORK ZONE SPEED LIMITS

The speed limits on City streets are set by the City Traffic Engineer and by City Council ordinance and cannot be changed without approval. Only use reduced legal speed limits when the safe operating speed of the roadway determines the need to do so. Safety issues such as access points, sight distance, poor roadway condition, and reduced geometric features are some examples of issues that may apply.

Do not reduce speed limits based on the hope that traffic will slow down when there is no driver perceived need to do so. Proposals to reduce the speed limit for work zones must be submitted to the City’s Traffic Operations Safety and Engineering Division for consideration and approval.

BUFFER SPACE AND SHY DISTANCE

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

- Lateral buffer space provides space between the driver and the active work space, traffic control device, or to a potential hazard such as an abrupt lane edge or drop-off. A minimum of two-foot lateral buffer space is recommended.
- Shy distance is the distance from the edge of the traveled way beyond which a roadside object will not be perceived as an immediate hazard by the typical driver to the extent that the driver will change the vehicle's placement or speed.
- Longitudinal buffer is the space between the end of the taper and the protective vehicle.

Devices used to separate the driver from the work space should not encroach into adjacent lanes. If encroachment is necessary, it is recommend closing the adjacent lane to maintain the lateral buffer space.

In the case of short-term lane closure operations, the adjacent lane may need to be closed or traffic may need to be temporarily shifted onto a shoulder to maintain a lateral buffer space.

SURVEY WORK ZONES

For surveying operations along the centerline of a high-volume road, one lane shall be closed.

The guidance and TCPs contained in these guidelines do not reflect a specific type of work operation, which is consistent with the principles of the [MUTCD Part 6](#). It is intended that survey crews will follow the guidance shown in these guidelines to accommodate their work needs. Moving centerline work operations are not allowed. Survey crews are not allowed any additional flexibility than other work crews to conduct work operations in a safe manner as intended within the established rules and guidance. However, TCPs more specific to survey operations may be considered. If specific plans are necessary or additional guidance is needed, contact the City's Traffic Operations Safety and Engineering Division for assistance.

PUBLIC INFORMATION

Accurate and timely reporting of work zone information to the public is a valuable element in the overall traffic control strategy. The use of public information resources, such as project web pages, newspapers, radio, and television can greatly improve the public's perception and acceptance of the necessary delays and other inconveniences caused by the project's construction. Contact the City's Traffic Operations Safety and Engineering Division for assistance.

Issues to consider are:

- Coordinating with emergency response services so they are aware of the project and can make adjustments to routes if necessary when responding to emergencies.
- Transit organizations may require adjustments to bus stop locations within project limits.
- Special considerations to schools and local business may be necessary for them to maintain access to their sites.

- Specific phone numbers for these groups are available from the City's Traffic Operations Safety and Engineering Division.

ROUNABOUT TRAFFIC CONTROL

For work within the roundabout, initial advance warning signs are required for each approach leg. If the work operation and all work vehicles are off of the travel lanes and island apron, a single "Road Work Ahead" sign per approach is all that is required. If any of the road approaches to the roundabout cannot access the intersection due to work operations, then either flagging or possibly a detour is required. If the center island apron will be impacted by the work or equipment, treat it as a shoulder closure for the length of work and consider diverting truck traffic due to large vehicle wheel tracking. Appropriate signs for lane closure at each entry are required.

ROAD CLOSURES

This work type requires the complete closure of the roadway for more than 12 hours in order to pursue the work operation. Advance notification to the City Council of the closure is required and a signed detour route is required. Closing a street, while not always practical, is a desirable option from a safety viewpoint. For the traveling public, closing the road for a short time might be less of an inconvenience than driving through a work zone for an extended period of time.

Workers should not assume that because a road closure is in place that a danger from vehicles does not exist. Even with a posted road closure, the potential may exist for a vehicle to get past a closure point. It is important for workers to remain vigilant and aware of their surroundings at all times.

When it is necessary to close a road or street for more than 12 hours, submit a request to the City's Traffic Operations Safety and Engineering Division at least 45 days in advance of the need.

If a road closure is feasible, take the following actions:

- Obtain approval from the City's Traffic Operations Safety and Engineering Division. On State highways, WSDOT approval must be obtained.
- Determine if a detour route is available and adequate to handle the detouring traffic volume.
- Determine maximum number of days allowed for the closure.
- Determine if additional traffic control measures are needed at intersections along the detour route and any other locations such as schools or shopping centers.
- Contact emergency services, schools, and transit organizations, etc.
- Coordinate with the City's Traffic Operations Safety and Engineering Division for assistance with public notification.
- Before any new detour route or alternate route is opened to traffic, all necessary signs shall be in place.

Short-term closures (less than 12 hours) may be allowed without advance public notification for emergencies or off-peak closure (night closure). Check with the City's Traffic Operations Safety and Engineering Division prior to implementing a closure.

DETOUR

This work zone type involves total closure of the roadway. Traffic is rerouted to an adjacent street or roadway to avoid a traffic control work zone operation. Detours should be clearly signed over their entire length so that drivers can easily use existing roadways to return to the original street. Follow the steps outlined earlier for road closures.

SPECIAL EVENT

Be aware that special events may conflict with the planned work operation and make adjustments to work hours if necessary. Coordinate with event to minimize impacts.

The City's Traffic Operations Safety and Engineering Division can provide assistance in the coordination effort.

For any special event (parade, bike event, movie or television commercials, etc.) on a City street where there is a roadway closure, detour, flagging operation or other traffic control, a traffic control plan is required. Event organizers must coordinate with the City's Development Services and Traffic Operations Safety and Engineering divisions to obtain permits and submit a traffic control plan for approval prior to any event taking place on City right-of-way.

WORK OVER TRAFFIC

Work over an open lane of traffic, sidewalk, or bike lane will not be allowed, unless a plan for the protection of the traveling public from debris falling onto the traveled way is approved by the City's Construction Division. This protection shall remain in place during the work operation and meet the minimum vertical clearance for the roadway.

Checklist to Establish a Temporary Traffic Control Zone

Completed Item

- Determine the duration of work (Stationary, Short-Duration, Mobile).
- Select hours of work to avoid peak periods (typically 9:00 am to 3:00 pm, Monday through Friday.)
- Select the appropriate layout(s), using duration, type of roadway, volume and speed.
- Determine any modifications to WSDOT Standard Plan K drawings.
- Check decision sight distance.
- Include intersections and driveways.
- Allow for buffer space free of obstructions.
- Check the condition of devices.
- Install devices beginning with the first device the driver will see. Device spacing and layout as per chart shown on TCPs.
- Conduct a drive through to check for problems.
- Document temporary traffic control zone, problems and major modifications to the layouts.
- Continuously maintain devices while in place.
- Remove devices as soon as the work is completed, beginning with the last device placed.
- Keep a copy of the approved traffic control plan at the work site for review by City inspectors.

Contact the City's Traffic Operations Safety and Engineering Division for assistance, and for any questions or concerns.