Work Area

Traffic Control

Policies and Procedures

August 2016

Traffic Operations

626 Linden Street

P.O. Box 580
# TABLE OF CONTENTS

- **Introduction** .................................................................................................................................................... 1
- **Applicability** .................................................................................................................................................... 1
- **Goals** ............................................................................................................................................................... 1
- **Authority** ........................................................................................................................................................ 2
- **Planning** .......................................................................................................................................................... 2
- **Responsibilities** ............................................................................................................................................... 3
- **Public Information** .......................................................................................................................................... 4
- **Excavating Permits** ......................................................................................................................................... 5
- **Temporary Traffic Control Zone Devices** ........................................................................................................ 5
- **Pavement Striping** ........................................................................................................................................ 11
- **Flagger Requirements** ................................................................................................................................... 11
- **Traffic Control Supervisors** ........................................................................................................................... 12
- **Arrow Panels and Message Boards** .............................................................................................................. 12
- **Multi Modal Traffic Control** .......................................................................................................................... 13
- **Non- Compliance** .......................................................................................................................................... 14
- **Work Area Traffic Control Fees** .................................................................................................................... 14
- **References** ...................................................................................................................................................... 15
INTRODUCTION

The purpose of this handbook is to set forth the basic principles and standards to be observed by all who perform work in the public right-of-way, to provide a safe and effective work area and to warn, control, protect and expedite vehicular, bicycle, and pedestrian traffic.

APPLICABILITY

The requirements specified in this handbook are applicable to all contractors, public utilities and all city work crews performing work on or near the public roadway, in all cases where traffic is affected by such work.

All work performed in the public right-of-way requires the submittal of a Work Area Traffic Control Plan (WATC) for review and approval by the City of Fort Collins Traffic Operations Department. This includes all work, which requires traffic (traffic being defined as vehicles, bicycles and pedestrians) to operate in a manner which is different than when the work is being done, including sidewalk work. If you have any questions as to whether or not your project is required to have a TCP, please contact The Traffic Operations Department by phone at (970)221-6630, or email FCWATC@fcgov.com.

Fees for WATC Plans are $35.00 new plans, $10.00 for re-submittal

GOALS

Proper traffic control techniques shall be effectively utilized to:

- Ensure Safety for the public, work crews, motorists, cyclists, and pedestrians
- Provide guidance for safe effective work areas, to warn, control, protect, and expedite vehicular and pedestrian traffic
- Provide safe access for police, fire, and rescue vehicles
- Prevent damage to private and public property, including damage to construction projects and construction equipment
- Minimize the possibility of claims and litigation from construction area accidents
- Reduce confusion to motorists, bicycles, and pedestrians
- Improve public communications
- Insure conformity with national, state and city regulations for traffic control

**AUTHORITY**

Any work performed in the public right-of-way requires permission and permitting from the City of Fort Collins. The City Traffic Engineer and his/her designees have centralized authority for reviewing and prescribing proper traffic control and devices at work sites and shall have final determination in case of conflict on equipment required. The Traffic Operations Department has the responsibility to assure public safety within the City of Fort Collins public right-of-way. All traffic plans shall be submitted to the Traffic Operation Department for review and approval prior to starting any project in the public right-of-way. Upon approval of the traffic control plan by this department, the contractor, developer, and the City of Fort Collins departments may set up the traffic control devices.

The responsibility for the installation and maintenance of work area traffic control shall rest with the contractor, utility company, or public agency doing the work. All work area traffic control setups and devices shall conform to the current edition of the Manual of Uniform Traffic Control Devices (MUTCD).

**PLANNING**

The agency intending to do major work in the right of way is encouraged to make contact with City Traffic Operations as early as possible to start the planning process. All persons responsible for supervising work sites shall plan in advance to keep traffic obstructions, public inconvenience and lost work time to a minimum.

The planning responsibility likely requires a visit to the work site to consider: special attention shall be given to individuals under the American Disability Act, traffic conditions, existing traffic control, “existing signage”, traffic lane requirements, physical features, activities, the type, number and location placement of signs, barricades, lights and bicyclists and pedestrians affected by the work sites. Where physical conditions such as hills, curves, buildings, vegetation etc. reduce or obscure the drivers view, additional precautions may become necessary.

In planning for the safety of all involved, consider the traveling public and remember:

- They must be warned sufficiently in advance to allow time to react
They must have time to regulate their speed, to allow them to pass through the guidance pattern with safety and ensure an even flow of traffic

The need for decision making must be reduced to a minimum

**RESPONSIBILITIES**

It shall be the responsibility of the person doing the work to complete the following:

- Obtain a permit for all work
- Submit a Work Area Traffic Control Plan and approval form to Traffic Operations Department for review and approval
  - Work Area Traffic Control Plans may be emailed to FCWATC@fcgov.com (preferred)
  - Contact person listed on the form MUST be reachable during duration of project, including nights and weekends and especially during working hours
  - Delivered to 626 Linden St, Ft. Collins
- Provide timely notification to, and coordination with, all agencies that may be impacted by the work:
  - City Traffic Operations (970) 221-6630
  - Fire Department (970) 221-6570
  - Police Department (970) 221-6540 – ask for Dispatch
  - Poudre R-1 School District (970) 490-3232
  - City Engineering Department (970) 221-6605
  - Transfort Bus Service (970) 221-6620
  - Streets Department (970) 221-6615
  - Parking Services (970)221-6617
  - Utility companies, public/private when applicable
  - Fort Collins Coloradoan and radio stations when needed (The City notifies the Coloradoan and radio stations each Friday morning of all on-going construction projects for which a Traffic Control Plan has been approved).
• Inform occupants of adjacent properties impacted by the work (by mail or door-to-door flyer delivery)

☐ Schedule and expedite the work to cause the least amount of inconvenience to the public.

☐ Install and maintain required traffic control devices.

☐ Provide adequate and knowledgeable flag personal when required.

☐ All crew members, employees, and visitors of a work site, working in or near the public right-of-way must wear personal protective equipment, as required.

☐ Provide adequate safeguards for workers and the general public.

☐ Service check the construction sites as required and/or requested to insure that all devices are in place and operating at all times.

☐ Remove all traffic control devices immediately when they are no longer needed.

☐ Work on arterial roadways is encouraged to occur at night and weekends.

TIME OF WORK

No work shall be scheduled on arterial streets and sidewalks during peak traffic hours without written authorization from the City Traffic Engineer or Designees. Construction or repair work will not be permitted at or in the vicinity of a signalized intersection or any arterial and collector streets that have major traffic volumes between the hours of 7:00 a.m. to 8:30 a.m. or 3:30 p.m. to 6:30 p.m. (except in the case of an emergency).

No work shall be scheduled on holidays (except in cases of emergency). No full street closures will be allowed except under special considerations.

PUBLIC INFORMATION

The public information component of work zone traffic control can help to reduce overall congestion, and improve functionality of a proposed work zone. The City of Fort Collins Traffic Operations team uses the information on the application to populate FCTRIPS to assist in informing the public of current and future work zone impacts. Public information should be provided through methods best suited for the specific project. During preliminary meetings Traffic Operations staff, any additional public information efforts will be outlined.

It is the responsibility of the applicant to notify the residents and business directly adjacent to the work. This can be done through mailings or door-to-door flyer notifications.
EXCAVATING PERMITS

When excavation work is planned any firm or individual, other than the City of Fort Collins Utility Department is required by Chapter 23 of the City code, to obtain a written permit from the City Engineer for any work affecting city streets, alleys, sidewalks, and/or right-of-ways. Although city departments are not required to obtain an excavation permit, all city departments are required to submit a Traffic Control Plan, for review/approval prior to working in the public right-of-way.

TEMPORARY TRAFFIC CONTROL ZONE DEVICES

The most effective system of warning and guidance is provided through properly planned usage of traffic control devices, uniformly placed and well maintained. All traffic control, warning and guidance shall meet at least the minimum requirements of the latest Manual of Uniform Traffic Control Devices (MUTCD) for Streets and Highways, these requirements are just minimums and in some cases the City of Fort Collins Traffic Operations Department may request devices that exceed the minimum requirements.

SIGNS

SIGN TYPES

Traffic signs are classified into several functional groupings; Regulatory, Guide and Warning.

The use of regulatory signs must be approved by the City of Fort Collins Traffic Operations Department and when required, all such signs will be provided, installed and maintained by the contractor or permittee.

Existing regulatory signs within or adjacent to the work area must be maintained by the contractor or permittee. If existing signs are not appropriate for the traffic conditions in the work area, the City of Fort Collins Traffic Operations Department must be notified if the signs are to be covered, replaced or relocated. No existing signs of any type shall be removed by the contractor or permittee. The Traffic Operation Department shall be notified 48 hours in advance of any signs to be removed by either the contractor or by City forces.

Temporary No Parking signs shall be installed and removed as directed by the City of Fort Collins Traffic Operations Department. All No Parking signs shall be a minimum of 12” x 18” Red on White and shall include, the Time and Dates when parking is to be restricted. Property owners and businesses should be given a minimum of 24 hours’ notice of said restrictions. Non-Standard signs of any type are not acceptable.
SIGN PLACEMENT

A work area traffic control zone is defined as the stretch or portion of roadway or highway in which all of the traffic control devices are used to warn, regulate or guide motorists, bicyclists and pedestrians past roadway construction or maintenance operations. It is often the portion of the roadway for construction and maintenance work that is performed on or near the public right-of-way. There are several ways to do this; each involves some form of closure; and every situation and location may be different.

Pre-warning signs should not be placed in any portion of the bike lane, sidewalk, or driveway. Certain conditions may warrant the use of a portion of the sidewalk. See the Traffic Operation Departments for specific instructions. The only sign that may be placed in the bike lane is the BIKE LANE ENDS MERGE WITH TRAFFIC sign, Black on Orange, 4” letters on a 30” x 24” inch sign black. This sign is to be placed at the point where the transition starts, when closing a drive lane. See Traffic Operations department for specifics on this sign.

1) Traffic lanes may be narrowed to NO LESS than 10’ ft. in width.
2) Traffic may be moved over into part of the shoulder, providing that portion is safely drivable to motorists and bicyclists.
3) The number of lanes may be reduced at certain locations, see Traffic Operation Department for specific location applicable.
4) Traffic may be detoured over another route, providing the detour route does not interfere with another project within the area.
5) All open holes (sidewalk removal, utility trenches, tie-ins, bore pits, etc.) left over nightovernight MUST be illuminated and surrounded with the proper safety devices.
6) Our guidelines prefer to open only areas that contractors and permittees can backfill at the end of approved working hours.

All roadway traffic control zones shall have an advance warning area, a transition area, a buffer area, a work area and the termination area. The main devices used in these areas are cones, barrels, barricades and the diamond-shaped pre-warning signs in the black on orange series specified for construction and maintenance sites. Each apparatus may or may not require various predetermined illumination, but must have reflectorized material. The minimum sized accepted by the City of Fort Collins for these signs is 36” x 36”. All traffic control devices must meet the minimum or exceed the specifications set forth in the MUTCD manual and the City of Fort Collins Work Area Traffic Control Handbook.

The advance warning area starts the Work Area Traffic Control Zone and consideration must be taken in the placement of the traffic control devices, depending on varying situations.; these could be driveways, side streets, site obstruction, parked vehicles, etc.
Signs that have distance footages, such as ROAD WORK AHEAD 1000 FEET, should not be used within the city limits, they should only read as ROAD WORK AHEAD, unless prior approval has been given by the Traffic Operations Department. When used, the END ROAD WORK (G20-2) sign should be placed near the end of the termination area. Please check with COFC Traffic Operations department prior to placing the END ROAD WORK sign on City right-of-way and/or as determined by engineering judgement.

Signs shall face and be visible to oncoming traffic and should be a minimum of (2’) two feet from the bottom of the sign to the pavement of the roadway. If a location proves a sign is not visible enough at two feet from the bottom of the sign to the pavement, then it may be required to be placed at a higher height.

Only on raised center medians islands can double posted signs be used, never on just a painted center median island, unless prior approval is obtained from the Traffic Operations Department. All signs placed on State Highways (2 signs required, on either side of the roadway, when a divided center median is present) 48” x 48” must be used on the right hand shoulder and 36” x 36” in the center median, and meet all highway specifications.

Signs shall be installed immediately before work is to commence and be removed immediately when they are no longer needed. Pre-project specialty signs may be placed prior to work for additional pre-warning of projects.

All signs, which are to convey their message during darkness, shall be reflectorized and/or illuminated. Signs not used for overnight projects should not be left in any portion of the roadway (including bike lanes or sidewalks) unless otherwise approved by the Traffic Operations Department. Signs may not be left in place and turned backward. Examples of acceptable overnight signage would include total road closures, partial road closures, drive lane, or a closure due to emergency.

**SPECIALTY SIGNS**

Specialty signs may be required for long duration projects (for informational purposes) or where construction will impact traffic on major streets, roadways, intersections, bike lanes, sidewalks, etc. They may be also used in some cases where full road closure is allowed to pre-warn motorist in advance of the start of a project. Contact the Traffic Operations Department for specifics before manufacturing these signs.
DELINEATION DEVICES

BARRICADES

Barricades serve the following purposes:

1) To alert the public of the fact that a particular area is closed to traffic
2) To prevent drivers, bicyclists and pedestrians from entering the work area.
3) To protect the workers, equipment and other people or item inside the work area.
4) To support warning lights and specific signs that are required on certain projects.

Barricades should not be placed in a drive lane or bike lane without the proper advance warning signs. When barricades are used to close the roadway, they should be placed so there is no gap large enough for a vehicle or bicyclist to pass through, usually between 2 - 3 feet, except when it is necessary to provide access for local traffic or emergency vehicles.

Markings for barricade rails shall be alternate orange and white stripes sloping downward at an angle of 45 degrees in the direction traffic is to pass. The entire area of white and orange shall be reflectorized.

DELINEATORS

Delineators are markers which aid the driver and bicyclist in determining the location and alignment of the traffic lane or the edge line. By day, the effectiveness of the delineators is determined by the position, spacing, form, texture, size and color. By night, the effectiveness is determined by position and visibility. All delineators used at night MUST be reflectorized and adequately maintained.
Delineators are used:

1) To channel and divert traffic in advance of the work zones.
2) To define the travel way through the work zone.
3) To define curves and the edge if the roadway or detours.

Delineators shall be of a material that withstands impact without appreciable damage to the device, the striking vehicle or passing traffic.

Due consideration also must be given to the necessity against knockdown from the wind or turbulence due to passing traffic.

Devices which could roll into adjacent traffic lanes when hit shall not be used. Metal or wooden posts mounted in concrete filled buckets or on automobile wheels or rounded metal bases are examples of the types that are prohibited.

All vertical panels shall be a minimum of 36” inches in height.

CONES

Traffic cones and tubular markers of various configurations are available. All cones must have a reflective collar to help highlight the taper or transition and work area. The collar must be a 6” inch band and should be placed 3” to 4” inches from the top of the cone and supplemented with a 4” inch collar spaced a minimum of 2” inches below the 6” inch collar.

![Cone Diagram]

<table>
<thead>
<tr>
<th>Speed (MPH)</th>
<th>Minimum Cone Size (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-40</td>
<td>28</td>
</tr>
<tr>
<td>&gt;40</td>
<td>36</td>
</tr>
</tbody>
</table>

Cone sizing chart (Table 1).

Cones should not be used for nighttime operations unless an emergency should arise and must be replaced with the proper nighttime equipment. Any work areas that need to remain in place through the night must be cleared with the Traffic Operations Department.
ILLUMINATION

Barricade warning lights are used to indicate hazards and to delineate the safe path of travel. A single flashing light is to be mounted on barricades to indicate a hazard in or adjacent to the roadway. Flashers are also effectively used to draw attention to warning signs in the Traffic Control Zone. Flashing lights are also used to highlight the beginning of tapers or lane shifting.

<table>
<thead>
<tr>
<th>Table 2- Warning Lights</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>Lens Directional</td>
</tr>
<tr>
<td>Flash Rate</td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Hours of Operation</td>
</tr>
</tbody>
</table>

Steady – burning lights are used on a series of barricades or other movements through a work area. They are particularly advantageous:

1) When reflectorize panels may be covered with dust or snow.
2) In times of decreased visibility due to rain, snow, or fog.
3) On barricades and vertical panels for around curves in the roadway.
4) To alert pedestrians and bicyclists.
5) At hazardous locations and for channelizing slow speed areas.

Flashing yellow lights used for advance warning must be clearly distinguishable from primary delineation and shall be seen above normal reflectorized units. Warning lights are portable, lens-directed, enclosed and mounted at a minimum 3 feet from the bottom to the pavement of the roadway. The color of the light emitted shall be yellow. Barricade warning lights shall be in accordance with the requirements of the *MUTCD* Manual.
Variable Message Signs (VMS) are used for controlling and diverting traffic, providing notice of current and anticipated roadway conditions, and regulating access to specific lanes. Proper placement of portable VMS is critical for its effectiveness. The placement must give the motorist adequate time to react to the message.

VMS are to be located as follows:

- On level surfaces
- With message being legible from a minimum distance of 650 feet from all lanes
- Placed prior to major decision points, and expected traffic back up locations
- Right of the roadway, off of the shoulder
- VMS shall be completely on the shoulder and shall have no portion protruding over the travel lanes (vehicular or bicycle) at any time.

Message text displayed on VMS will comply with the following general standards:

- The message must be clear and concise
- Must convey a single specific thought per panel
- Must be timely, accurate and up-to-date

**PAVEMENT STRIPING**

Under certain circumstances, the use of pavement striping and raised pavement markers may be justified to supplement devices for delineation. On major construction projects where traffic is diverted for extended periods, pavement striping and markers are required to assure positive delineation and to minimize driver confusion. The Traffic Operations Department will determine the need for and the extent of striping removal, as well as the re-striping of the project.

**FLAGGER REQUIREMENTS**

Flaggers are required:
Where workers or equipment intermittently block traffic lanes or a two-lane roadway, or any other operation where equipment will obstruct the free flow of traffic.

Where the safety of the public and/or workers are at risk, or where the Traffic Operations Department determines the need for safety reasons

Flaggers have significant responsibility. They should be alert, intelligent, and neat in appearance, have good hearing, eyesight, and be capable of commanding the traveling public. They should be stationed far enough from the work area to slow down or stop traffic before it enters the work area. All pre-warning signs shall be placed well in advance of the flagger station as much as is practical. Cell phone use and the use of earbuds or headphones is not acceptable while flagging in the public right-of-way.

All flaggers shall have and wear the proper safety equipment:

- Hard hat at all times. (Fluorescent Orange-Red, fluorescent Yellow-green)
- Safety vests (in good repair). (Class 2 daytime and Class 3 nighttime)
- Stop/slow sign paddle (18” x 18” minimum) in good repair. A six foot (6’) minimum staff - *bottom of sign to ground is required.
- Proper attire for all weather conditions.
- Shall have in their possession a current flagger certificate card (copies will not be accepted) at all times while working in the public right-of-way.

TRAFFIC CONTROL SUPERVISORS

All Traffic Control Supervisors (TCS) shall have in their possession a current TCS card issued by the Colorado Contractor’s Association, Inc., and/or by the American Traffic Safety Services Association while working in the public right-of-way. Copies of the above mentioned card will not be acceptable. Traffic Control Supervisor shall wear the proper safety equipment, including a hard hat while at Job site.

ARROW PANELS AND MESSAGE BOARDS

If an arrow panel (arrow board) consisting of a bulb matrix is used, the element should be recessed – mounted or equipped with an upper hood of not less than 180 degrees.

An arrow panel shall have the following three mode selections:
1. Either a Flashing Arrow, Sequential Arrow, or Sequential Chevron mode
   a. Used only for stationary or moving lane closures on multi-lane roadways
2. A flashing Double Arrow mode
3. A flashing Caution mode
   a. Used only for shoulder work, blocking the shoulder, for roadside work near the
      shoulder, or for temporarily closing one lane on a two-lane, two-way roadway

A vehicle displaying an arrow panel should be equipped with rotating lights or strobe lights.

NOTE: The minimum size of an Arrow Panel allowed in the City of Fort Collins City limits should be 48”x 24”,
length of arrow equals 48” inches, and width of arrow equals 24” inches. Contact the Traffic Operations
Department or the MUTCD for specifics on message boards.

**MULTI-MODAL TRAFFIC CONTROL**

As part of the traffic control plan, the design must incorporate mobility and safety needs for all road users;
including cyclists, pedestrians, and transit users. The plan must comply with American’s with Disabilities Act (ADA).

**PEDESTRIAN CONSIDERATIONS**

When work areas encroach upon sidewalks, walkways, or crosswalks adequate protection for the safety of
pedestrians must be provided. There are three primary considerations in planning for pedestrians in the work
area traffic control zone:

- Pedestrians shall not be led into conflicts with work site vehicles, equipment or operations
- Pedestrians should be provided with a reasonable, convenient and accessible path that replicates
  as nearly as possible the most desirable characteristics of the exiting sidewalks or foot paths
- Access to recommended school crossings must be maintained at all times, or a detour with
  appropriate signage must be provided

**BICYCLE CONSIDERATIONS**

Through bicycle movement must be maintained in work zone traffic control settings. Bicyclists can share a
lane over a short distance. On longer projects and busy roadways, a temporary bike lane or wide outside lane
may be provided. Bicyclists should not be routed onto sidewalks or onto unpaved shoulders. Debris should be swept to maintain a reasonably clean riding surface in the outer 6 feet of the traveled way.

As mentioned in the placement of signage section of this handbook, the placement of advance construction signs should obstruct neither the pedestrian’s nor the cyclist’s path.

TRANSIT CONSIDERATIONS

Provisions for safe and effective continuity of transit service needs to be incorporated into the work area traffic control planning process. If detours are required as part of the work area traffic control these need to be coordinated with Transfort if on an existing transit route. The plan shall provide for temporary bus stops and waiting areas if existing facilities are impacted.

NON-COMPLIANCE

All work not in compliance with afore mentioned requirements of this handbook, or in conflict with the MUTCD should be temporarily suspended until the Traffic Operations Department determines that such work is in compliance.

INCIDENT MANAGEMENT

Incident management consists of a coordinated process to detect, respond to and clear incidents. A traffic incident management area is an area of roadway in the public right of way where an incident has occurred and temporary traffic controls are and needed. This could be in response to a road user incident, natural disaster, hazardous material spill, construction incident or other unplanned incident.

There is a four phase procedure to address incidents:

- Phase 1: Provide immediate warning to drivers, and contact emergency personnel as necessary
- Phase 2: Establish Traffic Control
- Phase 3: Communicate Closure to Key Parties
  - Traffic Operations
• Phase 4- Provide Traffic Control plans to Traffic Operations within 24 hours of the incident
  o Plans will show incident response traffic control configuration(s)

WORK AREA TRAFFIC CONTROL FEES

The Work Area Traffic Control (WATC) fee is assessed at the time of WATC plan submittal. This fee helps recover the costs of reviewing and monitoring roadway work area traffic control within the city.

The fee structure is as follows:

- $35.00 for the first submittal of a WATC plan
- $10.00 for each re-submittal of the same WATC plan*

The three payment options include:

- Cash
- Check: Made payable to the City of Fort Collins, please write the WATC Plan Number in the memo line of the check (this number will be assigned to each plan by the Traffic Operations office at the time of submittal)
- Account: Visit the Traffic Operations department to obtain a Billing Account Application. Accounts will be billed at the end of each month. Payment terms are net 30 days. If the account becomes delinquent, further WATC plans will not be accepted or approved until the account is brought current.

* A re-submittal is an adjustment to a plan that was originally approved. It is not a plan that was denied and therefore must be re-designed to meet approval standards.

REFERENCES