

## **16.0 MAINTENANCE OF TRAFFIC**

The Contractor shall conduct all Work necessary to meet the requirements associated with Maintenance of Traffic (MOT), including provisions for the safe and efficient movement of people, goods, and services through and around the Project while minimizing impacts to local residents and business and commuters.

### **16.1 Administrative Requirements**

#### **16.1.1 Traffic Operations**

##### **16.1.1.1 Maintenance of Traffic Task Force**

The Contractor shall establish a MOT Task Force to assure proper coordination with affected agencies. The MOT Task Force shall include, at a minimum, the Contractor's Public Information Officer, Traffic Control Supervisor, Superintendent, CDOT, and CCD representatives. The Contractor shall submit the proposed list of task force members to CDOT for Acceptance within 30 Days after NTP1.

The MOT Task Force shall meet weekly, and shall be an integrated element of the Public Information Plan (PIP).

In addition to regular MOT Task Force meetings the Contractor schedule and conduct MOT Task Force Meetings to present and discuss Contractor prepared narratives identifying processes and critical elements of all full closures and coordination activities.

Within 14 Days after Acceptance of the MOT Task Force members, the Contractor shall convene a TMP kick-off meeting. The meeting will be used to develop agreement upon the level of detail required for the TMP as identified in this Section 16.

##### **16.1.1.2 Traffic Management Plan (TMP)**

The Contractor shall prepare a TMP that defines the strategic plan for traffic management on the Project. The TMP shall address major aspects of the Work for individual construction areas, phases, and stages. The Contractor shall use the TMP as a planning and policy guide to develop and execute the project MOT program.

These major aspects shall include, but are not limited to:

1. An overview and description of the proposed construction, subdivided as applicable, into the following components:
  - A. Area: A specific grouping of Work along the Project defined by the Contractor that creates segments of the Project for the purpose of planning and executing the Work.

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- B. Phase: A specific sequence of the construction Work in an area during which a major traffic movement is undertaken (e.g., a detour) and left in place until the Work is complete and traffic is redirected to another location. This shall require development of a specific Traffic Control Plan (TCP). In some cases, multiple TCPs may be necessary.
  - C. Stage: A subdivision of Work within a phase that combines similar components of Work to maintain efficiency.
2. A detailed approach to the development of TCPs and MHTs on the Project
  3. A list of known or potential roadway, ramp, and lane closures, including the following information
    - A. Description of traffic shift
    - B. Description of detour
      - a. Identification of detour limits to be used in each construction phase.
      - b. Contractors' identification and coordination with other construction projects, within the vicinity of the proposed detour route. The impact of these construction projects shall be incorporated into the detour route planning and scheduling.
    - C. Number of shifts expected
    - D. Duration of shifts and detours
  4. A description of proposed detour routes, including:
  5. An approach to Travel Demand Management (TDM) strategies
  6. An approach to the use of Intelligent Transportation System/Variable Message Sign (ITS/VMS) boards and traffic signals, including coordination with the affected Local Agency's Traffic Management Center or the CDOT Traffic Operations Center (CTMC), and the Contractor's representative.
  7. The Contractor's plan for coordinating the TMP Activities with those Activities required under Book 2, Section 4 - Public Information.
    - A. A checklist identifying specific items that shall be provided both to the Contractor's Public Information Officer, the CDOT Public Information Officer and CCD Traffic Operations Center every Thursday by 10:30 a.m. for public information data collection and management activities on the Project. The checklist shall provide the inclusion of supporting information relevant to coping messages and public awareness and shall be included in the Public Information Plan (PIP) required in Book 2, Section 4.
  8. Additional Elements

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- A. An approach to coordination and cooperation with construction being performed by projects adjacent to the Project limits.
  - B. An approach to coordination with RTD.
  - C. An approach to traffic access management, including restrictions, bicycles, pedestrians, and potential impacts to handicapped mobility.
  - D. Relevant portions of the Incident Management Plan (IMP), described below.
  - E. An approach to special event coordination.
9. Typical section requirements
10. Emergency requirements
- A. Pull-out locations
  - B. Emergency access
  - C. Courtesy patrol
11. Temporary closure scenarios
- A. Location
  - B. Time and Duration
12. Access
- A. Pedestrian/bike
  - B. Business
  - C. Work Site (area)
  - D. Bus/Transit

13. Construction Zone Temporary Speed Reduction

Temporary speed reduction, if warranted, must be authorized by a Form 568 approved by the R6 Traffic Engineer. Temporary speed reduction may be authorized during the construction phasing of the US 6 Project when the following conditions exist:

- A. Restricted shoulder widths and TCD placement within 2' of the travel way
  - B. Lane closures adjacent to live traffic
  - C. Traffic phasing where corridor geometrics restrict design speed to less than posted speed
  - D. Other safety concerns as documented by construction engineer
14. MHT Requirements

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The Contractor shall use barriers to positively separate traveled lanes and work zones. All work zone traffic control devices, barriers and crash cushions/impact attenuators shall meet NCHRP 350 Test Level 3 requirements.

The TMP shall be submitted to CDOT (and CCD where local streets or Federal Boulevard are affected) for Acceptance at least 30 Days prior to NTP2. No Work that impacts traffic shall commence until the TMP is Accepted.

**16.1.1.3 Coordination with CDOT Traffic Management Center (CTMC) and CCD Traffic Operations Center**

Routine requests for use of the CTMC VMS boards shall be submitted to CDOT by 10:30 a.m. on Thursday of the week prior to when the VMS boards will be needed (Monday through Sunday of the following week). Requests for routine use of the VMS will be reviewed by noon Friday of the same week of the submittal. The Contractor shall coordinate directly with the CTMC following review by CDOT.

For after-hours operations only, the Contractor shall coordinate directly with the CDOT Traffic Management Center (CTMC). The CTMC is available to the Contractor to modify VMS messages 24 hours a day, 7 days a week.

The Contractor shall coordinate with CDOT and the CTMC, and CCD TOC for emergencies in accordance with the Accepted Incident Management Plan

**16.1.1.4 Incident Management Plan**

The Contractor shall develop a detailed Incident Management Plan (IMP) as a companion to the TMP to manage traffic incidents and emergency operations on the project Site. The IMP shall, comply with the CDOT *Guidelines for Developing Traffic Incident Management Plans for Work Zones* and be consistent with the existing US 6 Incident Management Plan included in Book 3.

At a minimum, the IMP shall include the following components:

1. Coordination with the Public Information Plan (PIP)
2. Incident detection and identification
3. Incident response
4. Incident site management
5. Incident clearance
6. Dissemination of traveller information regarding incidents
7. Courtesy patrol
8. Emergency services notification, including local area Police Departments, the Colorado State Patrol (CSP), local area fire departments, ambulance services, and any other emergency response providers.

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9. Notification of local school districts about possible impacts to school bus routes, student drop-offs, and/or pedestrian facilities
10. Geographic and other special constraints
11. Available resources
12. Operational procedures

The IMP shall be submitted to CDOT for Acceptance at least 30 Days prior to NTP2. No Work that impacts traffic shall commence until the IMP is Accepted.

**16.1.1.5 Travel Demand Management Program (TDM)**

The Contractor shall develop a TDM program to reduce travel demand and improve traffic operating conditions during the construction period. The TDM program shall specify:

1. Coordination with the RTD.
2. A TDM marketing plan.
3. A plan to evaluate the effectiveness of the TDM program.
4. Additional TDM strategies which would complement current corridor and regional strategies facilitated by RTD and DRCOG.

The Contractor shall submit the TDM program to CDOT for Acceptance within 30 Days after NTP2.

**16.1.1.6 Business and Private Access**

The Contractor shall maintain public and private access to the local street system at all times.

TCPs and MHTs shall incorporate stakeholder information from the PIP, available surveys, and other pertinent studies relating to business and private access to the local street system and the highway facility. At a minimum, the Contractor shall communicate and document the following information relevant to business and private access:

1. Access points impacted by a particular construction phase or stage
2. All notifications of affected businesses and land owners
3. Schedule of closures and estimated durations
4. Site-specific access or delivery requirements for local businesses (deliveries, wide load vehicles, etc.)
5. Proposed mitigation efforts

**16.1.1.7 Maintenance of Traffic Variance Process**

The Contractor may request a MOT variance for any closure, detour, or other restriction beyond the specified limits defined herein. The following information shall be included in each MOT variance request:

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1. Summary of the variance request
2. Justification for the variance request, including a list of the criteria that cannot be met and the reasons for not being able to meet the criteria
3. Public notification methods and schedule
4. List of affected emergency services and the schedule for notification
5. List of affected agencies or private owners and the method(s) and schedule for notification
6. Description of additional public information surveys to be performed, if required
7. List of any potential safety hazards to which the public may be exposed
8. Proposed revisions to the Accepted TCP or current MHT
9. Proposed duration of closure, detour, or phasing change for which a variance is requested

The Contractor shall allow CDOT a minimum of 14 Days for review and Approval of any MOT variance requests. The Contractor shall obtain Local Agency approval for detours utilizing non-State owned facilities. If Local Agency approvals are necessary, they shall be obtained prior to submittal of the MOT to CDOT.

**16.1.1.8 Contractor Response Time**

The Contractor shall have at least one employee on call, via cellular phone, that can respond to an incident within 30 minutes. Upon arrival at the incident site, that employee shall assess the situation and immediately notify the appropriate personnel to implement the IMP. Upon notification of the incident, the Contractor shall immediately undertake actions necessary to restore traffic operations to the maximum extent practicable.

**16.1.1.9 Special Events**

The Contractor shall coordinate with CDOT, the local agencies, and the Public Information Officer as specified in Book 2 Section 4 to develop a list and schedule of special events. The Contractor shall update the list as events are identified or scheduled. The special event calendar shall be a standing agenda item at the Maintenance of Traffic Task Force meetings.

The Contractor shall identify and implement necessary changes in Work progress to accommodate traffic to and from special events. No lane closures shall be permitted on the day of the event unless Approved by CDOT. Work outside the travel lanes, ramps and shoulders will be permitted during special events.

**16.1.1.10 RTD Transit System**

The Contractor shall coordinate with RTD to minimize any impacts to the RTD Transit System including bus routes, station access, bus stop locations, and other RTD services.

The Contractor shall maintain access to all RTD stations within the Project limits during construction. Any modifications to RTD station access or bus stop locations shall be submitted to CDOT for Approval.

#### **16.1.1.11 Coordination with Adjacent Projects**

The Contractor shall coordinate with CDOT, RTD, CCD, and their contractors to coordinate construction traffic and detour impacts and minimize simultaneous closures or impacts to adjacent or alternate routes.

### **16.2 Design Requirements**

The Contractor's Professional Engineer in responsible charge of the MOT design shall prepare, Review, and Approve: field design changes; Released for Construction documents; and TCP and MHT plans.

#### **16.2.1 Traffic Control Plans (TCP)**

The Contractor shall prepare a TCP to control traffic on the Project. The TCP shall conform to the requirements specified herein and the CDOT Standard Specifications for Road and *Bridge* Construction and the most current version of the MUTCD. The TCP shall generally describe all lane and shoulder configurations, including widths, traffic control signing, pavement markings, traffic control devices, temporary signalization, construction access, construction parking, emergency access, work areas, and pedestrian/bicycle requirements necessary for each construction phase. Temporary traffic signals shall be installed in conformance with standards set forth in Book 2, Section 14, Signing, Pavement Marking and Signalization & Lighting.

The TCPs shall be submitted to CDOT for Acceptance 14 Days prior to implementation of the particular TCP.

TCPs for local streets and Federal Boulevard shall submitted to CCD for Acceptance 14 Days prior to implementation of the particular TCP.

Any major revision to the TCP, as determined by CDOT, shall require submission of a new TCP for Acceptance.

#### **16.2.2 Method of Handling Traffic (MHT)**

The Contractor shall prepare MHTs in accordance with the Project Special Provisions included in this Section 16.

Temporary traffic signals, if determined necessary by the Contractor, shall be installed in conformance with standards set forth in Book 2, Section 14, Signing, Pavement Marking, Signalization & Lighting.

#### **16.2.3 Design Vehicle**

The design vehicle shall be as described in Book 2, Section 13, Roadways, Exhibit 13-1.

#### **16.2.4 Design Speed and Posted Speed**

Minimum design and posted speeds for Work zones shall conform to Table 16.2.

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<b>Table 16.2 DESIGN AND POSTED SPEEDS FOR WORK ZONES</b>		
<b>Location</b>	<b>Design Speed (mph)</b>	<b>Posted Speed (mph)</b>
US 6 Mainline east of I25 (Match Existing posted speed)	55	45
US 6 Mainline west of I25 (Match Existing posted speed)	65	55
Ramps and collector-distributor roads	25	25
I-25	55	55
Federal Boulevard*	35	35
Local Streets*	25	25

\* The Contractor shall provide existing design and posted speed whenever it can be reasonably maintained on the local system.

## **16.2.5 Minimum Lane Requirements**

### **16.2.5.1 Lane Restrictions**

Before any travel lanes or shoulders are closed, the Contractor shall submit an appropriate MHT or TCP to CDOT for Acceptance. The MHT/TCP shall be developed in accordance with CDOT Regions 6 Lane Closure Strategies and Local Agency guidelines.

Lane restrictions must be submitted to CDOT by the Contractor by Thursday 10:30 a.m. of the week in advance of the work (for work Sunday through Saturday), unless required by construction emergencies or other reasonably unforeseen events.

#### **16.2.5.1.1 Lane Restrictions**

Minimum lane widths for travel lanes on US 6 shall be 11 feet. Minimum outside shoulder widths on US 6 shall be 8 feet. Outside shoulder widths of less than 8 feet may be used, to a minimum shoulder width of 2 feet when emergency pullouts are provided. Inside shoulder widths shall be a minimum of 2 feet.

The contractor shall maintain two through lanes at all times on eastbound and westbound US6 from the South Platte River to the east project limit.

The contractor shall maintain three through lanes at all times on eastbound and westbound US6 from the west project limit to the South Platter River.

When travel on US 6 mainline is reduced to a single lane in one direction, the Contractor shall provide a minimum clear width of 16 feet to accommodate oversize vehicles.

All lane closures on US6 shall be consistent with the Region Six Lane Closure Strategy.



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Minimum lane widths for travel lanes on I25 shall be 11 feet. Minimum outside shoulder widths on I25 shall be 8 feet. Outside shoulder widths of less than 8 feet may be used, to a minimum shoulder width of 2 feet when emergency pullouts are provided. Inside shoulder widths shall be a minimum of 2 feet.

During all non-working hours the contractor shall maintain 4 through lanes of traffic on I25 in each direction. Acceleration, deceleration and ramp lanes shall not be considered as through lanes.

When travel on I25 mainline is reduced to a single lane in one direction, the Contractor shall provide a minimum clear width of 16 feet to accommodate oversize vehicles.

All lane closures on I25 shall be consistent with the Region Six Lane Closure Strategy.

**16.2.5.1.2 Ramps, Collector-distributor and Frontage Roads**

Minimum lane widths for ramps, collector-distributor and frontage roads shall be 11 feet. Minimum shoulder width is 2 feet.

A minimum of one lane shall remain open on all eastbound collector-distributor roads.

A minimum of one lane in each direction shall remain open on all frontage roads.

Closure of the ramp from I25 northbound to US6 eastbound, and the ramp from I25 southbound to US6 eastbound shall not occur concurrently. During non-closure periods of time one lane on of all ramps shall remain open at all times.

**16.2.5.1.3 Local Roads**

The contractor shall maintain two through lanes of traffic on Federal Boulevard at all times.

Minimum lane widths for through lanes and turn lanes on Federal Boulevard shall be 10.5 feet with additional 1 foot inside and outside shoulders.

A Turn lane from north bound Federal Boulevard to US6 westbound shall be provided for at all times.

Any and all variances for Federal Boulevard lane closures and lane reductions shall be Approved by the City and County of Denver Traffic Engineering Services.

One lane in each direction shall remain open on all Local Streets at all times. Minimum lane widths shall be 11 feet with minimum shoulder widths of 2 feet. One lane in each direction shall remain open at all times.

**16.2.5.2 Queue Lengths During Construction**

The Contractor shall monitor queue lengths on all roads within the Project limits whenever a lane closure is in effect. The Contractor shall adjust the traffic control devices, including advance signing, to provide advance warning to motorists, of stopped traffic.

### **16.2.5.3 Working Time Violations Incidents (WTVI)**

If there is a violation of the working time limitations for traffic control as allowed for in this Section 16, a written notice to stop Work will be imposed on the Contractor at the start of the next Working Day. Work shall not resume until the Contractor assures CDOT, in writing, that there will not be a reoccurrence of the working time violation. If more violations take place, CDOT will notify the Contractor in writing that there will be a price reduction charge for each WTVI. This WTVI price reduction charge shall be reflected on the Contractor's monthly invoice. This price reduction will not be considered a penalty, but will be a price reduction for failure to perform traffic control in compliance with the Contract.

A WTVI is any violation up to 30 minutes in duration. Each 30 minutes or increment thereof will be considered as a WTVI. A price reduction will be assessed for each successive or cumulative 30-minute period in violation of the working time limitations, as determined by CDOT. A 15-minute grace period will be allowed at the beginning of the second WTVI on the Project before the price reduction is applied. This 15-minute grace period applies only to the second WTVI.

WTVI charges shall be as follows:

1. US 6 - \$4,600 per WTVI
2. I -25 - \$4,600 per WTVI
3. Federal Boulevard - \$1,750 per WTVI
4. All local street WTVI charges will be consistent with the Local Agency policy

### **16.2.5.4 Abandonment of Roads**

The Contractor shall not close Bryant Street east bound on ramp until the compliment ramp from Federal Boulevard is open to provide the minimum connectivity of the abandoned road. The closure strategy for this route shall be consistent with the Contractor's TMP.

### **16.2.6 Interchange Closures**

Closures of the I25/US6 interchange and US6/Federal Boulevard interchange shall not occur concurrently.

#### **16.2.6.1 Interchanges**

1. Construction at all interchanges shall be consistent with the CDOT Region 6 Lane Closure Strategies.
2. The Contractor shall coordinate phasing of the construction at Federal Boulevard interchange so as to provide full access movements at all times to and from US6 during construction. Detours may be utilized to provide full access requirements to and from US6. Local Streets shall not be utilized as detours. Detour routes shall be as identified in the I-25 FEIS ROD and shall be submitted to CDOT and CCD for Approval prior to implementation.

#### **16.2.6.2 Ramp Closures**

The CDOT Region 6 Lane Closure Strategy and Ramp Closure Policy shall be adhered to for all ramp closures at Interchanges.

1. The Federal Boulevard eastbound off-ramp, and westbound on-ramp closure schedule shall be consistent with the eastbound on-ramp times listed in the CDOT Region 6 Lane Closure Strategy and a temporary detour shall be required.
2. The temporary closure of the ramp from I25 northbound to US6 eastbound, and the ramp from I25 southbound to US6 eastbound shall be allowed, and a temporary detour shall be required.
3. Closures of the ramp from I25 northbound to US6 eastbound and ramp from I25 southbound to US6 eastbound shall not occur concurrently.
4. During non-closure periods of time one lane on of all ramps shall remain open at all times.

#### **16.2.7 Detour Routes**

Unless otherwise specified, only State Highways shall be used for detour routes and haul routes. Local Agency local streets shall not be used as detours, haul routes, staging areas or for parking of contractor personal or work vehicles. Use of Local Agency non-local streets for detours, haul routes or staging areas shall be approved by the Local Agency. All detour routes shall be the shortest length possible utilizing the State Highway System.

#### **16.2.8 Trail and Pedestrian Impacts**

Existing trail systems, temporary trails, sidewalks, and pedestrian routes must be maintained at all times. The Contractor shall meet all requirements of ADA as specified in Book 1 Section 2.2.

CCD Traffic Engineering Services and CCD Parks and Recreation has approved the following Temporary Trail and Pedestrian Detour:

New bike path connection to 7th Avenue, 7th Avenue to Bryant Street, Bryant Street to 2nd Avenue, 2nd Avenue/Tejon Street to Bayaud to the ramp connection at South Platte River Drive. This detour shall be clearly signed and marked for all path users during all closures of the facility. All variances to this detour, including the route, shall be submitted for approval to CCD Traffic Engineering Services and CCD Parks and Recreation.

The following restrictions shall apply to existing trail systems in the vicinity of the Project:

1. No trail closures shall be allowed from 5:00 a.m. to 8:00 p.m. any day of the week.
2. Temporary trail detours will be allowed under the following conditions:
  - A. PIP requirements shall be identified and appropriate public notifications provided.

- B. The Contractor shall comply with the CDOT *Construction Detour Standards for Multi-Use Trails*.

### **16.2.9 Emergency Pullouts**

The Contractor shall provide emergency pullouts on US 6 for disabled vehicles, staging of incident management, and law enforcement vehicles in accordance with CDOT's Standards S-630-6 . The pullouts shall not be subject to ponding or other weather-related conditions that could render them unsafe or ineffective. Snow removal in emergency pullouts is the responsibility of the Contractor.

### **16.2.10 Courtesy Patrols**

This work includes locating, assisting, and clearing traffic related incidents within the Project limits. The use of the Courtesy Patrol shall be integrated into the traffic incident management plan. Courtesy Patrol Service (CPS) shall patrol between the project's westerly resurfacing limit on US 6 to east of the BNSF, and on I 25 within the project's I25 construction limits. The Contractor shall coordinate with the Courtesy patrol operator in providing service for the Project in areas and time periods as defined below. The Courtesy Patrol shall begin operation with the start of work and shall operate until project completion.

The following measures shall be required for the courtesy patrol element of the IMP:

1. Courtesy patrol coverage shall be on US 6, its ramps, and I25 within the Project limits.
2. Service shall be on-Site and provided during the following times:
  - A. Monday thru Friday, from 6:30 AM to 9:00 AM and 3:30 PM to 6:30 PM for US6 and I25 within the entire project limits.
  - B. Saturdays and Sundays during Contractor work hours for US6 and I25 within the entire project limits.
  - C. Special events as defined in Book 2, Section 16.1.1.9.

The Contractor shall provide tow truck vehicles needed to perform assistance services as described in this specification. Each tow truck shall be a Colorado licensed Class A vehicle with a minimum gross rating of 10,000 lbs. The truck shall have a dual wheel chassis and a four ton vehicle recovery rating. Each tow truck shall be equipped with the following:

- (1) Wheel lift towing equipment, including high visibility safety straps with a minimum lift rating of 3,000 pounds.
- (2) Hydraulic boom lift with a static rating of 5,000 pounds.
- (3) Winch with an 8,000 pound rating.
- (4) Cable with a 3,500 pound rating on the first layer of cable.

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- (5) Tow slings rated at 3,000 pounds each.
- (6) Tow chains of 5/16 inch alloy.
- (7) OEM JT hook assembly.
- (8) Rear work lights.

The Contractor shall provide sufficient tow trucks to meet the coverage requirements of the TMP.

The Contractor may use equivalent capacity flatbed trucks in lieu of tow trucks or a combination of both, as approved by the Engineer.

Each truck shall meet the following operating requirements:

- (1) The truck's exterior and interior shall be cleaned periodically. The operator's personal articles or equipment shall be removed from the interior of the truck prior to the start of each shift. All damage to the truck, and damage to personal articles and clothing shall be repaired or replaced at the Contractor's expense. The tow truck shall be regularly maintained in accordance with the manufacturer's recommendations.
- (2) The truck's exterior condition and color shall be approved by the Engineer.
- (3) One CDOT supplied sign shall be mounted on each side of the tow truck and shall be displayed at all times during project working hours. No personal or corporate names or symbols will be permitted to be displayed during the hours the tow truck is being used for CPS services. Signs that are lost, stolen or damaged shall be replaced at the Contractor's expense.

Each CSP tow truck shall have the following items:

- (1) Three gallons of unleaded gasoline and three gallons of diesel fuel stored in approved and marked containers.
- (2) Two gallons of ASTM and SAE approved standard radiator fluid.
- (3) One flexible spout funnel.
- (4) Four way metric lug wrench.
- (5) Four way standard lug wrench.
- (6) 2 Ton capacity floor jack on rollers.
- (7) Rechargeable tire air pump (200 PSI capacity) with hoses and fittings.

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- (8) 12 Feet heavy duty booster cables.
- (9) Ten traffic cones in accordance with Section 630.
- (10) Three reflective triangular warning signs in accordance with MUTCD requirements.
- (11) Three electric roadway flares.
- (12) First aid kit compliant with OSHA and ANSI regulations for towing and emergency vehicles.
- (13) 10 pound ABC fire extinguisher compliant with OSHA and ANSI regulations for construction zones.
- (14) Hand broom with pan.
- (15) 10 gallon plastic bucket with sealable lid for light debris.
- (16) 20 pounds of traction sand properly stored.
- (17) Four standard snow tire chains.
- (18) Items necessary for survival in harsh winter conditions, including blankets, snow shovel, flashlights, hand warmers, fresh drinking water, etc.

Each CPS operator shall be trained and certified in OSHA 10 Hour training and in basic first aid techniques, including CPR. The Contractor shall submit documentation confirming this training prior to the start of work.

If a major traffic incident is beyond the capacity of the CPS, the Contractor shall immediately contact law enforcement and the Engineer. The CPS shall remain on site with emergency lights flashing and appropriate traffic control placed around the incident until local law enforcement arrives.

The CPS shall respond to an incident in less than 20 minutes. The CPS shall inform the Engineer and the Contractor prior to responding to any incidents. The response shall include the location, time and estimated severity of the incident at a minimum.

The CPS operator shall maintain daily logs that include shift start and end times, roadways covered, and detailed incident data. Incident data shall include the date, type and time of incident, CPS arrival time, number of vehicles involved, motorist information, type of service provided, location of incident, number of lanes blocked and time lanes were cleared and opened to the traveling public. All logs shall be signed by the CPS and shall be submitted to the Engineer on a daily basis.

The courtesy patrol operator shall be in contact with the CTMC and the Contractor via cellular phone during all hours of courtesy patrol operation.

The courtesy patrol shall tow, at no cost to the vehicle operator, the disabled vehicle to a location identified in the IMP. Courtesy patrol hours shall be communicated as part of Contractor's coping messages.

### **16.3 Construction Requirements**

The Contractor shall provide installation, maintenance, and removal of all temporary traffic control devices.

#### **16.3.1 Temporary Traffic Control Devices**

##### **16.3.1.1 Construction Signing**

Construction signing within the Project limits and all detours shall comply with CDOT *Standard Specifications*, the MUTCD and all other applicable standards set forth herein. Construction signing and construction signing maintenance shall be the responsibility of the Contractor.

Wood signposts conforming to CDOT *Standard Specifications* will be allowed for installation of temporary signs.

##### **16.3.1.2 Temporary Traffic Signals**

Temporary traffic signals, if determined necessary by the Contractor, shall comply with Book 2, Section 14, Signing, Pavement Marking, Signalization & Lighting. The Contractor shall operate the temporary signals and respond to malfunctions during the duration of the project.

Temporary signal timing shall be designed and submitted to CCD TES 14 days prior to implementation for their approval. Timing for the temporary signal(s) will be provided by CCD TES. Maintenance of the temporary signal(s) shall be the responsibility of the Contractor.

##### **16.3.1.3 Temporary Marking Paint and Signs**

The Contractor shall furnish, apply and remove temporary pavement marking paint in accordance with CDOT *Standard Specifications*. Temporary paint striping shall meet the conformity of lines (including no overspray), dimensions, patterns, locations and details established in the Contractor's TCP and MHT.

1. Temporary pavement paint striping shall be re-striped once a month, or as required to maintain safe traffic operations.
2. Epoxy-based paint shall not be allowed on concrete pavement surfaces for temporary striping.
3. Hydro blasting, or other methods that do not result in scaring of permanent pavements shall be used for removal of temporary striping.

#### **16.3.1.4 Glare Screens**

Glare Screens shall be designed and installed on all opposing traffic permanent median barrier within the project construction limits on US6 and I-25. Glare screens shall be of industry standards.

Glare screen shall be designed and installed on all opposing traffic temporary barrier through sections where opposing traffic lanes are shifted.

The Contractor shall evaluate the applicability of glare shields in all cross overs.

All work zone traffic control devices shall meet NCHRP 350 Test Level 3 requirements.

#### **16.3.2 Maintenance of Temporary Traffic Control Devices**

The Contractor shall be responsible for the maintenance of all temporary traffic control devices within the Project limits, including the local street system.

#### **16.3.3 Detour Pavement**

The Contractor shall provide a paved surface for all detours. Detour pavement locations shall be generally described in the Contractor's TMP and detailed in the Accepted TCP. The Contractor shall determine the type and thickness of pavement that shall be used to accommodate existing traffic loadings.

The Contractor shall maintain the detour pavement for the entire period that it is open to the traveling public, including all temporary approaches, accesses, crossings, and intersections with adjacent roads and streets. Detour pavements shall be maintained in good operating condition devoid of potholes, uneven surfaces, and rutting. CDOT may direct the Contractor to repair or replace detour pavements if, in CDOT's sole discretion, detour pavements are determined to be in poor condition. Detours that use existing streets pavements shall be subject to pavement repair or replacement where it is determined that the condition of the existing pavement has noticeably deteriorated over the duration of its use as a detour. The Contractor shall obtain written approval from the affected Local Agency prior to use of any local streets for detours.

The Contractor shall be responsible for the complete removal and disposal of all temporary detour pavement.



## 16.4 Deliverables

The Contractor shall submit the following to CDOT (and CCD TES when applicable) for review, Approval, and/or Acceptance:

<b>Deliverable</b>	<b>Review, Acceptance, or Approval</b>	<b>Schedule</b>
List of MOT Task Force members	Acceptance	Within 30 Days following NTP1
Traffic Management Plan (TMP)	Acceptance	30 Days prior to NTP2
Requests to CDOT CTMC and Local Agencies for modifications to traffic signals, timing, and VMS messages	Review	14 Days prior to the requested date for modifications
Incident Management Plan (IMP)	Acceptance	Within 30 Days after NTP2
TDM Program	Acceptance	Within 30 Days after NTP2
MOT variance request	Approval	14 Days prior to the requested date for the change
Traffic Control Plan (TCP)	Acceptance	At least 14 Days prior to implementation of the TCP
Method of Handling Traffic (MHT)	Acceptance	At least 2 Days prior to implementation of the MHT requiring a lane closure
Temporary Signal Timing	Approval	At least 14 days prior to implementation of timing

All deliverables shall also conform to the requirements of Book 2, Section 3, Quality Management.