

Project: I-70 Vail Pass Various Wall Repairs

Project Sub Acct. No: 21897

Date: October 16, 2018

## **Technical Requirements**

### **Section 19 – ITS**

The ITS system in the I-70 Vail Pass is a CDOT fiber optic trunk line located along the westbound outside shoulder. At the US6/24 interchange, CDOT has fiber trunk lines along the westbound outside shoulder.

#### **Design Requirements**

Not Applicable

#### **Construction Requirements**

Not Applicable

#### **Project Special Provisions**

The following specifications modify and take precedence over the CDOT *Standard Specifications*.

## **Section 19 – ITS**

### **REVISION OF SECTION 108 DISINCENTIVE FOR ITS OFFLINE DEVICES**

Section 108 of the Standard Specifications is hereby revised for this project to include the following:

#### **DESCRIPTION**

Throughout the duration of the project, the Contractor is responsible for the maintenance of all ITS devices and communications infrastructure contained within the limits of this project. Offline, as used in this specification, is defined as time during which data or video is not being received by a Colorado Operations Center or Node Building.

#### **CONSTRUCTION REQUIREMENTS**

Anytime the Contractor plans to perform work on an ITS device and an outage is not planned, the Contractor shall notify CDOT ITS immediately upon discovery of outage. This notice, as well as advanced notices described below for planned outages, shall be provided to Jill Scott at [jill.scott@state.co.us](mailto:jill.scott@state.co.us) by the Project Engineer.

##### *(a) Planned ITS Outages*

A “planned outage” is considered to be any loss of device functionality or communication that can be anticipated in advance due to work activities within or related to the Project. For planned outages, CDOT ITS shall be given proper advance notice as described below. All proposed equipment, power, and all temporary communications necessary for maintaining ITS devices during construction shall be constructed and put in place prior to the cutover or reset in order to minimize downtime of devices.

For locations with new poles, all work on the new pole including installation of the cabinet, power, pull boxes, and fiber optic cables shall be complete before any part of the existing system is disturbed. Once it becomes necessary to disturb the existing system at a given location, work at that location shall progress continuously until the new installation is up and running.

- (1) ITS Network: The Contractor shall submit a fiber optic backbone cutover plan to CDOT ITS for review two weeks prior to performing the work, as well as a one week advance notice to CDOT ITS of any fiber optic backbone cutover work. This cutover plan shall detail how the Contractor shall sequence the construction activities, so that the new backbone is installed and spliced into the existing devices and the node building such that 12-hours of downtime is not exceeded. CDOT’s network fibers shall be spliced first in the sequence. The fiber optic backbone splicing shall be scheduled for an overnight shift such that the ITS network shall be fully functional by 4 AM and the remaining cable is complete by 9 AM, unless otherwise approved by the Engineer. The fiber optic backbone splicing shall be scheduled on a Tuesday, Wednesday or Thursday, except holidays, unless otherwise approved by the Engineer.

For work on node locations, the Engineer shall be notified about the need to shut down power in order to perform electrical wiring work at least 48 hours before the power needs to be shut down. Additionally, the Engineer shall be notified the day before the shutdown and on the morning of the day of the shutdown. Power shall be turned off in a responsible manner that will not harm existing node components. All necessary precautions and preparations shall be made and coordinated

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with CDOT prior to power being turned off. Power may not be off for a period of longer than 45 minutes unless specifically authorized by the Engineer.

- (2) ITS Devices: The Contractor shall provide a 72-hour advance notice to CDOT ITS to coordinate any downtime for ITS devices for a planned outage in the form of a Temporary offline ITS device notification form. For planned outages where CDOT ITS receives this advance notice, the Contractor shall be charged a disincentive of \$50 per hour per each device that is offline beyond the five working day allowable offline period. Unplanned outages shall be in accordance with subsection (b) (2) of this project special provision. ITS field devices covered under this special provision include, but are not limited to, CCTVs, MVRDs, RWISs, TTIs, ramp meters, VMSs, and ATRs. No more than two ITS device locations shall be inoperable at any one time unless previously approved by the Engineer and CDOT ITS. The Contractor shall keep the existing network operational until the Ethernet network has been tested and approved by CDOT for device cutover.

#### *(b) Unplanned ITS Outages*

An “unplanned outage” is considered to be any loss of network communications or device functionality that CDOT ITS does not receive proper advance notice, as described above, or is due to the Contractor’s negligence, act or omission under their control.

- (1) ITS Network: If the Contractor damages a CDOT ITS fiber optic backbone, or if CDOT ITS loses communications or power to a node building or operations center as a result of the Contractor’s negligence, act or omission under their control, the Contractor shall be charged a disincentive. This first time network disincentive rate shall be \$1,000 per hour, and an additional \$2,000 per hour for a communications or power outage that results in loss of data and video to a node building or operations center.

This disincentive rate shall increase to \$2,000 per hour the second time, and an additional \$3,000 per hour for a communications or power outage that results in loss of data and video to a node building or operations center. This increase of \$1,000 per hour will continue for any further outages to the CDOT Network.

Additionally, the Contractor shall be responsible for any charges involved with investigating such an outage and restoration of the ITS network to full working condition. These disincentive rates are in addition to any costs that may be levied by private industries for loss of communications.

- (2) ITS Devices: for unplanned outages or outages where CDOT ITS does not receive advance notification, the Contractor shall be charged a disincentive of \$50 per hour per each device that is offline beginning at the time of the outage.

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### **REVISION OF SECTION 108 DISINCENTIVE FOR ITS OFFLINE DEVICES**

#### **METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

All work, materials, and equipment required to reset, reconfigure and perform cutover will not be measured and paid for separately, but shall be considered incidental to the work.

This disincentive is not a penalty but is based on costs associated with the disruption of corridor operations, information to the traveling public, and general safety of the traveling public.

There will be no incentive paid for this work.

The disincentive will be deducted from any monies owed to the Contractor for work performed.

In addition to those disincentives described above, the Contractor shall be responsible to pay any penalties charged by private utility owners as a result of damage to their facilities.