Request for Proposal

The City of Greeley is seeking proposals for Storm Drainage Master Planning Services to update of the City of Greeley Comprehensive Drainage Plan for Downtown and the North Greeley Basin. **Sealed** proposals must be received at the Purchasing Office, 1000 10th Street, Greeley, Colorado **before February 11, 2020 at 2:00 p.m.** per the requirements stated in the RFP. No late, faxed or electronic proposals will be accepted.

The necessary documents are available online at the Rocky Mountain Online Bid System site (Bidnet). Go to http://www.RockyMountainBidSystem.com, in the upper right corner of the screen choose "Login" if your company has a login established or "Register" if it is the first time you are visiting this site. Follow the prompts for the option chosen. Select "Search for Open Bids and Addenda by Agency" and then select "City of Greeley." Bid opportunities will be listed, in bid due date sequence, by project name and bid number.

A pre-proposal meeting will be held on January 23, 2020 at 2:00 pm at Public Works 1st Floor Conference Room, 1001 9th Avenue, Greeley, Colorado. All prospective vendors are highly encouraged to attend.

No proposals shall be withdrawn for a period of sixty (60) days after receipt of proposals.

The City of Greeley reserves the right to reject or accept any or all proposals and to waive any informalities as deemed in the best interest of the City.

Questions pertaining to the project may be directed to Doug Clapp at doug.clapp@greeleygov.com no later than January 30, 2020 by 5:00 p.m.

Doug Clapp
Purchasing Manager
City of Greeley

Greeley Website
January 10, 2020

Non-Construction



City of Greeley Colorado

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**CITY OF GREELEY**
**Purchasing**

**Request for Proposal**
**RFP #FD20-01-005**

**ATMS & Traffic Signal Controller Upgrade Project**

**for**

**PUBLIC WORKS DEPARTMENT/TRAFFIC SERVICES DIVISION**

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**REQUEST FOR PROPOSALS (RFP)**
**RFP #FD20-01-005**

| | |
|---|---|
| Procurement Contact: | Doug Clapp |
| Email Address: | doug.clapp@greeleygov.com |
| Telephone Number: | 970-350-9792 |

**Proposals must be received no later than:**
Due Date, February 11 2020, before 2:00 p.m. local time
*Proposals received after this date and time will not be considered for award.*

**The City only accepts proposals in hard copy format and does NOT accept proposals submitted via fax or email.  Proposals are to be submitted in a sealed package with the following on the outside of the envelope:**

Company Name
RFP Title:  ATMS & Traffic Signal Controller Upgrade
RFP Number: FD20-01-005
Due Date and Time: 2/11/2020 @ 2:00pm

**Package must include:**
- 5 Hard Copies and One (1) complete copy of Proposal on a flash drive

**Deliver proposals to:**
City of Greeley
Purchasing Division
1000 10th Street, Suite 222
Greeley, Colorado 80631

| Schedule of Events (subject to change) | All times are given in local Colorado time |
|---|---|
| RFP Issued | January 10, 2020 |
| Pre-Proposal Conference | January 23, 2020 – Public Works 1st floor Conference Room, Greeley, CO 80631 |
| Inquiry Deadline | January 30, 2020 |
| Final Addendum Issued | February 4, 2020 |
| Proposal Due Date and Time | February 11, 2020 |
| Interviews (tentative) | |
| Notice of Award (tentative) | March 5, 2020 |

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**EXHIBITS**

**SECTION I.  BACKGROUND, OVERVIEW, AND GOALS**

### A.  Overview

The City of Greeley is interested in procuring an Advance Transportation Management System and local traffic signal controllers (together referred to as "signal system") that meet the functional needs described in this request for proposal (RFP).  This project will replace the City's QuicNet Central Software with a new Central System as well as the majority of existing 118 controllers. This future ATMS system shall be capable of monitoring and synchronizing traffic signals in the City including performance monitoring and adaptive control.   The new Advanced Traffic Management System (ATMS) should also have the capability to handle up to 150 signalized intersections at full build out of the community. Advanced capabilities the City needs include: Centralized operation & management, real-time monitoring of all intersections, SMS text/e-mail alerts, system-wide device, communication and alarm status monitoring. The new system would also allow the use of adaptive timing in the future as well as other higher level functions.

The City has been awarded a 2020 CMAQ grant for upgrading the division's ATMS system and signal controllers.  The signal controllers shall include full implementation of NTCIP 1202 version v03 communications protocol.  The signal system shall include provision for adaptive signal control.  The signal system shall also include provision for Vehicle to Infrastructure (V2I) Signal Phase and Timing (SPaT) and MAP messaging.

This Request for Proposal (RFP) details the information requested by the City to compare each proposal and make a selection of the most qualified proposer. This consideration for value takes into account, but is not limited to, price, project management, system functional requirements, functionality, implementation and integration, technical support, and licensing structure. Described in this document and its attachments are the functional requirements of the ATMS and local controllers that can be deployed with the system. Aside from the information requested in the detailed functional requirements, the City requires information from each Vendor on its intended project approach, scope of work, integration of ATMS hardware in the City's communications network, client references, recommended maintenance, licensing structure, warranties and training. This list is not exhaustive and this RFP should be read thoroughly for all requirements.

The City is interested in an ATMS where the field components in the traffic operations network can be non-proprietary and not vendor dependent.  The City's existing and future conditions are described in the following section that provides a brief overview of the existing traffic signal hardware and system operations.

# Background

The City is seeking knowledge of state-of-the-art central traffic signal management systems capable of monitoring and controlling traffic signals and ITS infrastructure. The City operates

120 signalized intersections that include 26 intersections with adaptive signal systems. The existing traffic management systems utilized by the City comprises of a mix of cabinets, controllers and firmware with a centralized traffic control software, QuicNet®, as shown in the table below.  All intersections are controlled by McCain Model 170ATC Cold Fire  controller units which are housed in Caltrans Type cabinets

| Controller | Firmware | Cabinets |
|---|---|---|
| McCain 170 ATC Cold Fire | 11.03, 11.07, 10.13, 8.08, 10.13, | 336s, 333sd, 332d, 336, 336s, 337, 332, |

 A communication network connects intersections to this system including 105 intersections connected via fiber-optic network.  Of the remaining fifteen (15) intersections, five have Encomm radio communications (5.8 G Broadband) and ten (10) intersections are not connected to the system.

The City's current ATMS software (QuicNet®) has been operating since 2008 and provides monitoring and management capability to several combinations of traffic signal controller hardware and firmware. The system includes central software implementations housed in the City's TOC located at 1300 A Street, Suite E, in Greeley.

The City does not currently have transit priority feature implemented at any City intersections. The City currently does have emergency vehicle preemption GTT Opticom implemented at a majority of intersections.  The current pre-empt operation must be accommodated in the new ATMS, at a minimum, in the form of system capability to report times, directions, and input duration when pre-empt inputs are received and traffic signal response information.

The City will have 40 CCTV cameras that communicate via Ethernet over fiber to a Bosch video management system powered by a DIVAR IP 7000 recording, viewing and management solution.

The City utilizes Moxa EtherDevice Model EDS-518E-4GTXSFP-T multi-port VPN/NAT/Firewall/Router/switch devices for data communication and data security in each of the City's 120 traffic signal cabinets.


**Goals**

The goal of the project is to supply and assemble the new ATMS system devices and traffic controllers complete with successfully operating software programs by June 1, 2020.   The budget for the project is up to $520,000.

The intent of the Project is to provide a highly reliable ATMS system and local controller upgrades that will enable the City to effectively improve its ability to operate and monitor traffic operations.

The City may request oral presentations as part of the evaluation process; the City reserves the right to conduct demonstrations or oral presentations with one or more vendors.

Any award as a result of this proposal shall be contingent upon the execution of an appropriate contract.

# SECTION II. STATEMENT OF WORK

The selected vendor will provide an Advance Transportation Management System and local traffic signal controllers (together referred to as "signal system") that meet the functional needs described in this request for proposal (RFP). This upgraded signal system will include the newest technology complete with a control system utilizing software programs to enhance reliability and improved functionality.

This RFP presents requirements and outlines general specifications and desired capabilities for the City's procurement of the ATMS software. In keeping with recent findings, the selection and procurement process is not intended to follow past practices of rigid specifications followed by a bid process for the selection of a vendor; rather it follows more recent examples of ITS procurement using a modern comparative cost/capability evaluation of preferably "off-the-shelf" systems. This method is intended to eliminate issues related to the rapid growth and change in software technology, and to help ensure the City is satisfied with the final product.

The City is seeking a vendor to supply a Certified Off the Shelf System (COTS) ATMS software, along with a proposal for installation, configuration, integration, and fine tuning that will be capable of serving both current and future requirements for efficient management of the City's traffic management and related services. As such, the general specifications which follow are intended to provide vendors with an understanding of the capabilities which are of major interest to the City.

The City, at its sole discretion, reserves the right to invite a responding party or parties to do a system demonstration and/or evaluation of their product. Exhibit 6 and Exhibit 7 contains the City's ATMS Functional Requirements matrix and the Traffic Signal Controller Requirements Table in a Microsoft Excel spreadsheet that each Vendor is required to complete as part of its submittal. Sections below explain the category associated with each requirement as it relates to each function. The list of Functional Requirements shall be considered a binding document that will be specifically incorporated into the final contract with the selected vendor and utilized in the development of acceptance testing plans. The requirements are not a comprehensive listing of details necessary for system implementation. Vendors may include, in the written response of their proposal, a description of additional functionalities provided by their software outside of the requirements outlined by the City.

It is the vendor's responsibility to provide and implement the system such that it will fulfill the agreed upon requirements. The vendor shall provide all software licenses required for a functional ATMS installation, including operating systems third party software and application software, for all TMC servers, workstations, tablets, and laptops, as applicable.

The Functional Requirements are presented in tabular format in Exhibit 4. Each vendor must complete and submit the matrix as part of their submittal. Submittals that do not include them shall be deemed non-responsive.

The City realizes that no single software system is likely to meet all the requirements listed in the Functional Requirements matrix. The City will select the submittal that presents the best combination of requirements satisfied along with additional features, cost, suitability and other evaluation factors as described in this RFP. The Functional Requirements matrix, including Traffic Signal Controller Requirements specified in Exhibit 6 and 7 will be scored as part of the RFP evaluations.

## General Requirements

The general system requirements for the new ATMS equipment are provided below:

- Provide reliable coordination of local traffic signal controllers.
- Provide reporting of failed local control subsystems such as radar or video detectors, pedestrian push buttons, pre-emption, and other devices.
- Continuous, automatic central system monitoring of traffic signals and provision to monitor future identified Intelligent Transportation Systems (ITS) devices.
- Traffic signal operational failure monitoring, alert, and logging to include the ability to create user-defined reporting of failures and alarms.
- Perform management of special events and incidents through central deployment of appropriate timing plans to impacted signals.
- Monitor traffic on local streets during normal operating conditions.
- Ability to integrate with various controller manufacturers and utilize primary functionality of the controllers.
- Adapt signal operations in a traffic responsive manner to better serve fluctuating traffic conditions involving both recurring and non-recurring congestion utilizing automatically collected field data.
- Automatically collect and store high resolution Automated Traffic Signal Performance Measures (ATSPM) data
- Utilize ATSPM data
  - To minimize delays on corridors during normal operating conditions.
  - To diagnose inefficiencies of signal timing
  - To diagnose failures of vehicle detection sub-systems
- Include provision for adaptive traffic control
  - To dynamically  modify signal timing to minimize delays on local streets due to traffic that has diverted off major routes during an accident, an incident or a special event.
  - To dynamically modify coordination along primary corridors in response to abnormal traffic congestion due to incidents or inclement weather.
- Provide various modes of operation including adaptive, coordination, free, and traffic responsive.
- Integrate with the Traffic Management Center (TMC) infrastructure.

- Provide new Advanced Traffic Controllers designed to work seamlessly with the new ATMS.
- Provide simple and easy to read interactive maps and graphics.
- Provide data analytics with automatic post processing.
- Generate meaningful performance measures and produce simple and valuable reports.
- Provide an intuitive and user-friendly application environment.

# Content – Statement of Work
The contents for the statement of work is outlined below.

## Contents

## Project Management

Project management shall be a key responsibility and a continuous function of the selected vendor. The vendor shall designate a Project Manager (PM) for this project. The PM shall be the single point of contact for the City. The PM shall be responsible for coordinating all efforts involved in this project and shall have the authority to make commitments and decisions that are binding on the vendor. The PM shall be responsible for their team.

The vendor's PM shall develop and maintain a master project schedule and oversee expenditures to ensure tasks are completed on time and within budget. The PM shall be responsible for all work performed by the vendor and must review and approve all deliverables and documentation prior to submittal to the City. The PM is expected to oversee acceptance testing, training of City staff, and any software customization undertaken as part of this project. The PM shall prepare progress reports and attend progress meetings. The PM shall approve and submit invoices to the City PM.

Progress meetings will be scheduled once every two weeks (or as needed) and must be attended by the vendor and City's PM, along with additional staff as needed. These meetings will be used to review progress reports, open action items, upcoming activities and written correspondence exchanged since the last meeting. During these progress meetings, the vendor is expected to discuss technical aspects of the project and to review comments on documents submitted for approval. Any software customization reviews by the City can coincide with these meetings if approved by both PMs. Alternatively, these progress meetings may occur by

phone if both PMs agree to do so. The vendor's PM will be responsible for developing and distributing meeting minutes via email, project reports, etc.

Under the Project Management task, include the following information in the proposal:

- Organization Chart: Include an organization chart listing all key staff that would be involved in this project (also include the names of staff from consultants and subcontractors that might be involved). In addition, provide a table with the names of each key staff member proposed for this project, their title, area of expertise, role on this project, years of experience, years with the company, percent available and office location.
- Proposed Schedule: It is required that all tasks included in this project be completed within a maximum of 120 calendar days from the Notice-To-Proceed (NTP). The vendor shall complete all Training and Final Acceptance Testing within an additional 60 calendar days. This testing period can be extended beyond 90 days at the discretion of the City. The vendor is encouraged to provide any alternative schedule duration, if necessary or appropriate. The consultant will need to identify in the schedule the need for City IT Department support and schedule associated with implementation/integration of the system. Availability of IT staff may warrant the need to adjust the schedule to accommodate such coordination.

However, if the vendor can complete the project sooner, please highlight that in the schedule as the City would like to complete this project as soon as practical. Describe your approach in meeting this schedule. Provide a detailed schedule in your proposal to include both a beginning and an end for each of the tasks. It should be noted that the City wishes to bring the signals online to the new ATMS at a manageable pace such that there are enough City resources available to assist. The project schedule developed should reflect this. Upon award of the project, the vendor must define the timeline for conducting each work activity and develop an overall project schedule that will be updated and submitted monthly to the City. Identify those activities that will require input or deliverables from the City and highlight those in each monthly submittal.

Milestone assumptions for separate hardware purchase, delivery, and setup will need to be made and accounted for in the schedule since those are separate purchasing actions of the City. With each monthly submittal, note and explain any changes in the previously submitted schedule that forecast a delay or acceleration in completion of the project. Throughout the development and implementation period, the vendor will be required to prepare and submit monthly (or as needed) written progress reports to the City PM. The monthly reports shall at minimum:
- Update the project schedule indicating progress for each task, percent complete, and milestone dates.
- For any risk and problem identified, state the impact on the project schedule.
- Identify all changes in the project schedule that affect personnel, equipment, facilities, and resources of the City (which will be required for the vendor to perform its services) a minimum of 2 weeks in advance of the need.

# CONTROLLER AND FIRMWARE REQUIREMENTS

The vendor is required to supply a minimum of seventy (70) 330X Style controllers as part of this project.   These controllers shall comply with NTCIP 1202 version v03 communication protocol.  Controllers shall also provide superior performance in all signal control applications with advanced functionality for complex phasing, detector processing, coordination, preemption, communications, ATMS systems operation, transit signal priority (TSP), and provisions for Connected/Autonomous Vehicle applications.

The controller shall have enhanced usability that includes a large front panel with high contrast for day and night time use, large keypad.  The display shall utilize an intuitive, text based user interface, or, optionally, provide an intuitive graphical user interface. A web-based interface is preferred that allows remote operation via a smart phone, tablet or laptop.

The preferred controller will have printed timing sheets that match controller menu interface options.

The 330X style signal controllers shall be Caltrans TEES 2009 compliant.  The preferred features of the signal controllers are listed below.


**User Interface Display**
- Display
    - high-brightness/sunlight readable display
- Keypad
- Speaker supports tones and audio
- Active LED Indicator
- Graphical Mode and/or Classic Text mode software interface
- Secured via predetermined user name and password login

**Communication Interfaces**
- Minimum 1 100/1000Mb Ethernet Port
- Minimum 2 USB 2.0 or 3.0  Ports
- Minimum 2 Serial Ports
    - Console Port
    - SDLC Port
- Communications Card Slot
    - ATC compatible "A2" card slot

**Signal Interfaces**
   C1S, 104 pin, parallel I/O interface Connector


**Removable Storage**
- USB Port
- SD Card (optional)
- Data Key (optional)

**Physical**

- Recessed surfaces for USB Port, Datakey (optional), SD Card (optional) and communications slot
- Moisture sealed touch panel and keypad
- Voltage: 89 – 135 VAC, 60 Hz
- Power: 10 – 90 Watts
- Temperature: -37 deg. C to + 74 deg C
- Humidity: 95 percent or less, non-condensing

The controller software shall provide flexibility to be applied in almost any type of traffic signal control scenario. This software shall be compliant with ATC, NEMA, and NTCIP standards. Features shall include advanced coordination logic, multiple preemption recovery modes, flashing yellow arrow (FYA) support and custom I/O logic statements to allow flexibility. The controllers shall also include the following minimum features:

- NTCIP 1202 version v03 Compliant Database (with additional proprietary modules allowed – Please Detail)
- Browser Based GUI secured via predetermined user name and password login
- Minimum 16 Vehicle and Pedestrian Phases and 16 Overlaps
- Overlap Detector Mapping
- Independent Ped Overlaps
- Minimum 6 alternate Signal Timing Tables
- Minimum 24 Coordination Patterns
- Coordination Synchronization Modes (Long, Short, Dynamic Short)
- NTCIP – based Scheduler with user friendly features
- ATSPM High Resolution Data Logging
- Flashing Yellow Arrow (FYA) Support and Mapping
- Flashing Yellow Arrow (FYA) by time-of-day
- Controller Alarms (i.e. cabinet door, UPS system notifications, etc.)
- Pedestrian Friendly FYA Support
- Gap Dependent FYA Support
- HAWK signal and Dedicated Pedestrian Phase Programming
- Minimum of 8 Preemption Routines
- Dynamic Preemption Exit
- Minimum of 32 Channels of Detection with Failure Diagnostics
- Full Status and Diagnostics Screens
- Real-Time I/O Status Viewer
- Re-assignable 1/O in any mode
- Provision for Peer-to Peer communications for adaptive control

## ATMS System

The vendor shall furnish an ATMS that is National Transportation Communication for ITS Protocol NTCIP 1201 and NTCIP 1202 version v03 compliant and satisfies the requirements as described in this RFP, including database, middleware, imaging software, and other required third-party software. If any customization is required to the COTS system, the vendor shall be responsible for the following:
- Identification of any risks to the COTS product by performing this customization.

- Recommendations for any incremental development of customization to minimize risks to the stability of the COTS product.
- Provide active customer involvement with the City during the customization process through software prototyping.
- Development and submittal of a sealed cost schedule for furnish/installation/ customization task(s).
- Utilize software configuration management and version control for the customized portion of the COTS software.

The successful vendor will be responsible for fully integrating all aspects of the software and hardware into the City's communication infrastructure to include field integration, if necessary, as detailed in this RFP. This will specifically include interfacing, as applicable, with all new or existing servers, existing databases of traffic signal controller data, field equipment, firewalls, and staff knowledgeable on technology and/or traffic signal systems. This includes having the TCP/IP protocols to communicate through the City's Moxa Ethernet multi-port VPN/NAT/Firewall/Router/switch devices in each of the City's 120 traffic signal cabinets. The vendor will have documented experience with successful C2C implementation; however, this integration will not fall under the scope of this project. The vendor shall be responsible for the integration into a fully operational ATMS with the following components:
- The ATMS software and other software provided by the vendor. To be considered fully operational the ATMS must provide all functionality as described by the vendor.
- Additional required components supplied by the vendor.
- Computers, servers, and associated equipment as specified and supplied by the vendor to the City requirements.
- Up to 130 (70 initially) traffic signal intersections.

The City requires the new system to be able to provide the capabilities / modules listed below through the base ATMS software, addition of COTS modules offered by the vendor, or through customization of the software:
- Support traffic responsive operations. Vendor shall elaborate on the traffic responsive functionality in their ATMS.
- Support primary and secondary pre-emption operations. Vendor shall elaborate on the primary and secondary pre-emption functionality in their ATMS.
- High resolution ATSPM data collection and management system module - to provide the capability to monitor traffic and travel conditions.
- Support remote access operations for local controllers via laptop and smartphone. Vendor shall elaborate on the remote access operations functionality.
- Support future adaptive signal control utilizing V2I or equivalent technology
- Integration with multiple CCTV and video detection operating systems

Vendors shall identify all supporting hardware, switches, firewall settings, required server and services required by their application. For example: database servers, application servers, web servers, file system access, and other back office requirements. For each identified component, vendors shall:
- Identify all supported hardware (server and client) platforms and operating systems on which the component runs.

- Identify all COTS software required to implement this project, including middleware (e.g., data integration, message oriented, object request brokers, etc.) and imaging software (e.g., multi-resolution seamless image database, etc.), that the City will be paying for (directly or indirectly).
- Identify the number of installations of each supported component / hardware platform / operating system / COTS software combination.
- Identify their primary / best supported component / hardware platform / operating system / COTS software combination.
- Identify all cabling types, connector types, and cable lengths needed to support the implementation.

Vendors shall identify GIS requirements, including Economic Social Research Institute (ESRI) desktop versions required, other digital data software platforms (Microsoft Bing, OpenMap maps), and other GIS back office requirements.

## Network and System Security Requirements
The vendor shall coordinate system security requirements with the City's IT Department staff. At a minimum the system shall comply with all Federal, State and local regulations regarding securing the traffic signal system. The systems must all be secured by implementing the following:
- Must provide secure authentication
- All unnecessary ports and services must be disabled or turned off
- Role Base Access must be configurable
- Remote access must be accessed through secure VPN access provided by the City of Greeley
- Provide active directory functionality

## Hardware
**General**
The signal master requirements shall include the following:
- Server and support equipment shall be installed at the Traffic Signal TOC

## Computer Hardware and Software
The vendor shall install the ATMS software on the City's IT virtual 2016 Windows server. The vendor is responsible for working with IT to ensure that the software is fully operable.

## Generate Databases, Maps and Configuration Files
The vendor shall create the signal timing databases based on existing timing plans for a set of 120 traffic signals at locations specified by the City. The vendor shall populate on-screen maps and generate all configuration files utilized by the ATMS. This effort shall include development of aerial images for each project intersection developed from the City's GIS map imagery in coordination with imaging software and/or COTS graphics software.

## Cabling and Cable Management

The Vendor shall be responsible for furnishing all necessary cabling and design of the proposed cable management. Cabling is expected to include all cords, cables, connectors, clips, brackets, CAT6 patch panels, labels and other miscellaneous components needed for a functioning system that is neat and well organized. All cables will be labeled at each connector. Labels must also be placed on the servers and backup hardware indicating its function and IP address, as applicable.

## Alternate Configuration

The City will entertain a cloud based solution for the Central server and software. Vendor shall meet all requirements of the specifications for functionality; however, a modified hardware solution that uses cloud based technology will be evaluated. The vendor, in addition to supplying the required information in the RFP, will give a detailed description and a list of exceptions to the RFP requirements.

## System Integration Requirements

The vendor shall be responsible for the integration into a fully operational ATMS the following components:

- The ATMS software and other software provided by the vendor. To be considered fully operational the ATMS must provide all functionality as described by the vendor.
- Additional required components supplied by the vendor.
- Computers, servers, and associated equipment as specified and supplied by the vendor to the City.
- Up to 130 (70 initially) traffic signal intersections.

The vendor shall work with IT representations to install and configure the ATMS client software onto the existing workstations, laptops, and tablets of City's staff. The City prefers an ATMS program software license that allows staff the capability of installing the ATMS program on new computers without involvement of the vendor. It is anticipated that there will be up to 12 client installations of this type with 12 clients running simultaneously initially.

The City anticipates that the new ATMS software shall become operational in phases through the use of its existing and expanded communication system. The following implementation steps are proposed, though the vendor may propose an alternative process with reasonable justification approved in writing by the City. The vendor shall become fully aware of existing communications equipment and inform the City of any modifications necessary.

## System Acceptance and Validation

The vendor shall have tested all components of the system, hardware (as applicable) and software, at its facility prior to installation at the City. All documentation of system acceptance and validation test results performed at the City shall be provided to the City.

Successful completion of the system validation shall be achieved when the vendor has demonstrated, to the satisfaction of the City PM or designee, that the installation has met all of the Functional Requirements set forth in the vendor's completed forms (submitted with its proposal), and in accordance with the system validation test procedures. Acceptance is also contingent on the City having a full comprehension of the training materials. See below sections for additional testing, acceptance, validation and documentation requirements and for training.

## Installation and Warranty

The Vendor shall provide comprehensive system specifications and proposed product submittals, including a summary of power requirements (Watts) and heat output (BTU/hour), for review and approval by City. The Vendor shall be responsible for the system installation

## Testing Requirements

The successful vendor will be responsible for developing and executing the testing requirements of the ATMS software for the following:
- The City's ATMS functional requirements
  - Interfaced with any controller and firmware noted by the vendor in its proposal as having compatibility with the ATMS and procured separately by the City, if applicable.
- Functionality of any COTS software customization performed by the vendor to fulfill the Functional Systems Requirements (Exhibit 5).

Since the successful implementation of the ATMS software is dependent on a complex, integrated blend of software, hardware and processes, the City considers this aspect of the procurement to be a critical part of the deployment to assure that "what was required is what was delivered."

All tests will be conducted by the vendor in the presence of the City's Project Manager, staff, and/or other assigned staff member. The vendor shall document and record all test results. A variance report shall be prepared by the Proposer each time a test results is not meeting a functional requirement. The vendor shall document corrective actions to correct the variance.

Acceptance testing must confirm that system hardware, software and integration have been implemented successfully, are in compliance with the functional requirements, and exhibit stable and reliable performance. The test must also show the new software is capable of managing the traffic signals with no functional regressions in traffic flow. The test period for final acceptance shall not include days spent by the vendor correcting errors or the City verifying that the errors have been corrected without the introduction of new errors. If significant errors are discovered, the City, at its sole discretion, may choose to restart acceptance testing at no additional cost to the City. The vendor must provide on-site technical support, as needed, for all components of the central hardware and software during acceptance testing. Testing will be broken down into two areas: software and hardware.

## Acceptance Test Plan

Prior to any testing, the vendor shall prepare a comprehensive acceptance test plan for review and approval by the City. The plan must serve as a guide to operationally test system hardware, software and integration. The plan must include a detailed description of the tests to be conducted and the purpose of each test. Each test should be mapped to at least one of the functional requirements. Test procedures, including specific steps and the sequence of steps to be followed, must be specified.

A testing schedule shall be included in the acceptance test plan. This schedule must demonstrate the order in which tests are to be performed, as well as the expected duration of each test. The testing schedule must include 20 days of final acceptance testing and 20 days of continuous operations.

The acceptance test plan shall include evaluation criteria for each test based on the functional requirements matrix. The criteria set forth by the plan will be used as the standard by which the City will judge the success or failure of each test. Sample test report forms shall also be provided in the acceptance test plan. Report forms must be designed for successful tests as well as anomalies and failures during testing. A form to report corrective actions, including changes to the software must also be designed and included in the plan.

The City will review the acceptance test plan to ensure appropriate procedures have been designed to rigorously test the system software, hardware and integration. To assist the City in this review, the acceptance test plan must include a compliance matrix that confirms the tests evaluate all Functional Requirements. Upon written approval from the City, the vendor can begin acceptance testing.

## Software Testing

This testing applies to software that resides on and executes from servers procured and configured as part of this project, including any customization to the COTS product. The vendor shall be responsible for incorporating the requirements herein into the test plan they develop. It applies to the following:

- The operating system software including device handlers and communication interfaces that support the ATMS application software. It also includes basic 3rd party software used by the ATMS software such as database management software, middleware), backup/cluster utilities and report generation utilities.
- The ATMS application software for field device management (e.g., traffic signal controllers, school flashers, special electronic signage, etc.), user services (e.g., GUI, GIS interface, imaging software, third-party backup applications, etc.) and external users (e.g., remote desktop, VPN access, etc.).

Since the ATMS software has the potential for being a semi-custom software product, design verification and prototype testing shall be required. This will include the specific customizations

for the City, including school flashers and special event signal timing plans, as well as any other customizations if these capabilities are not available as part of the COTS product.

## Environmental Testing

This testing will be used to verify that the ATMS software product operates properly in the installed environment within the City's TOC.

## Functionality Testing

Functionality testing verifies that the ATMS software performs all of the testable requirements listed in the ATMS software Functional Requirements submitted by the vendor as part of its proposal.

## Performance Testing

Performance requirements testing will include such items as interactive response time between an operator command input and a display update and the change that comes as a response to that command input. It will also apply to items such as the maximum time interval between map display updates and the minimum number of traffic signal controllers that the ATMS software can effectively control and coordinate.

## Software Maintenance

Software maintenance involves implementing changes to a controlled software baseline for the purposes of correcting errors and implementing enhancements. It is expected that the ATMS software will be maintained by the vendor under a written maintenance agreement or product use license and warranted to the City.

## Hardware Testing

Hardware testing applies to the hardware provide by the vendor as part of this RFP.

Hardware testing shall conform to the following phases:
1. Factory Acceptance Testing
2. Field Installation Testing
3. Burn-In Testing
4. Final Acceptance Testing

## Final Acceptance Testing

Final acceptance testing shall be in accordance with the procedures specified in the approved acceptance test plan. Final acceptance testing shall include tests for the customized ATMS software (if applicable), additional software modules implemented, interfaces to new/existing hardware and software and communications between the field devices and the TMC components. The test period for the final acceptance testing must be 20 work days and must follow a testing schedule created by the vendor. The vendor must conduct all phases of final acceptance testing in coordination with City staff. Final acceptance testing should include appropriate vendor and City staff and should occur at a time agreeable to both parties.

Software testing must be conducted on an operator workstation in the TOC and using the operational server infrastructure. Historical and operational data, system parameters and live data must be used for testing. Final acceptance testing must verify the following:

- Central ATMS software is properly installed and configured.
- All functional requirements are met.
- Verify remote accessibility.
- Integration of the ATMS software and the communications network is complete and successful.
- Interfaces between the ATMS software and additional software customizations or COTS modules, as applicable, function properly.
- Data conversion by the vendor is complete and valid.
- Alarms and reports are generated as designed.
- System executable files are generated.
- Bug fixes are successful.
- Graceful failure of system under hardware, software and communications fault.
- Quick and full recovery.

All tests will be conducted by the Proposer in the presence of the City's Project Manager, staff, and/or other assigned agency partner. The Proposer shall document and record all test results. A variance report shall be prepared by the Proposer each time a test results is not meeting a functional requirement. The Proposer shall document corrective actions to correct the variance.

The City will evaluate the success of each test using the evaluation criteria set forth in the acceptance test plan. Any revisions to the plan must be approved by the City prior to implementation and must be documented.

## Test Reports
The vendor shall record all test results. Each report should follow the steps enumerated in the test procedures. The following items must be included in the test reports:

1) Reference to the appropriate test and test procedures.
2) Date of test.
3) Test results for each test segment, including a pass/fail indication and any modifications made to the procedures during the test.
4) Identification of the vendor's tester and the City's representative witnessing the test.
5) Provision for comments by the City's representative.
6) Copies of any variance reports generated.
7) System logs or printouts saved as part of the test. (softcopy preferred)
8) Repeatability.

## Final Acceptance and Warranty Period
The City will grant final acceptance of the ATMS software, hardware, configuration, data conversion, training and other services following the vendor's completion of all such work in

accordance with the contract and after twenty (20) work days of continuous, successful and error-free operation of the ATMS software in the City's operating environment. If any portion of the vendor-supplied system or services is deemed unacceptable to the City, it will notify the vendor within ten (10) work days following such operation period. The vendor must repair or replace unacceptable ATMS hardware, software, customizations or services within a mutually agreed upon time period at no additional charge to the City. Another ten (10) work days of successful operation must follow any corrections or replacements.

If the vendor does not correct or replace the unacceptable system component or services within the specified time period, or such system component or services are deemed unacceptable by the City, it may, at its option, withhold payment until acceptable remedy is completed.

The City will issue a Letter of Acceptance after the twenty (20) work days of operation are complete and all variances are resolved. The established acceptance date will mark the beginning of the vendor's initial 1 year warranty and associated maintenance period(s) and approval for the City to make the appropriate milestone payment.

## Training

The vendor shall provide training onsite for engineering, maintenance staff, traffic signal staff, contract maintenance staff, and City's IT staff during each aspect of implementation and system operations, including while installation is in process. This should include both "hands-on" and classroom training for both field and central system components. This should take place throughout the entire project schedule, and be such that existing City staff requires minimal support by the vendor when the system goes live.

Within the time periods and by the completion dates set forth in the project schedule, the vendor shall prepare and provide to the City for approval a written comprehensive training program that shall outline the content, sequence and duration of each segment of each training session necessary to thoroughly and comprehensively train City and contract staff to fully utilize the ATMS (henceforth referred to as the "Training Plan"). The Training Plan will outline all subjects necessary to train City staff to fully understand and utilize all user functions of the ATMS. In the Training Plan, the vendor shall provide City staff with a written description of the types of the precise training classes that will be conducted. All training will be conducted onsite as listed in this section.

Without limiting the vendor's obligations hereunder, the vendor will provide the Training Plan which will include each of the following courses, as a minimum (the Vendor will elaborate if different):

- System Overview
- System Setup
- Graphics Setup
- Basic Operations
- Advanced Operations

- Reports and Alarms Generations
- System Maintenance
- Troubleshooting

The training will be delivered three times over the implementation period, and 2 other instances within the remaining 2-year warranty period. The schedule for the three training sessions is after the installation but before acceptance testing, 4-6 months after acceptance testing and at the end of the 2-year warranty period.

The vendor will provide a documentation template in electronic format so that the City can replicate all training material and pass it out to City staff and other authorized users of the ATMS. The vendor will also provide eight (8) hardcopies of the documentation for staff.

The Training Plan provided by the vendor during the Project will include the following information:
   a) Course summary/outline.
   b) Duration of training for each module.
   c) Location of training.

The vendor shall supply all training aids and course materials for the training. For each course referenced in the chart included in this section, the vendor shall provide, at a minimum, the number of complete sets of all course materials and training aids for each class equal to the number of students shown on the chart.

The City shall be entitled (but not required) to record video of all training classes provided by the vendor, and to use the recorded video as a permanent training aid as part of the ongoing City ATMS training program. The City shall have royalty free unrestricted rights to reproduce an unlimited number of copies of the Training Program, the course lesson plan and all vendor supplied course materials and training aids (including the recorded video), for use by the City as part of its ongoing training.

All training required for City staff to successfully operate and manage the ATMS shall be provided as part of the contract price. Any travel expenses for training shall be included in the contract price.

## Training Locations
Training will be conducted at the City Center South, training facilities as appropriate and/or other approved venue(s).

## Instructor
The instructor or instructors provided by the vendor must be well versed in the use of and configuration of the ATMS software and hardware. Instructors must demonstrate a thorough knowledge of the material covered in the training and familiarity with the training manuals. If prerecorded lectures or other video presentations are part of the training, the instructor must

also supplement recorded material. The instructor must present all material to the City in person.

The City reserves the right to review and approve all instructors. Should an instructor prove unsatisfactory to the City, the vendor must provide a suitable replacement.

## Manuals and Instructional Aids

The vendor shall prepare training manuals and submit them to the City for review prior to the start of classroom instruction. The training manuals must be prepared specifically for use as training aids; reference, maintenance and user's manuals may be used as supplementary training material, but not as the primary training manual. Principal documents used for training must be tailored to reflect the City's actual hardware and software configuration.

Upon completion of the training, all training materials, including but not limited to instructor's manuals, training manuals, video and DVD/CDs will become the property of the City as a work-for-hire to the extent that the vendor has copyrights to those materials. As part of the documentation, the vendor must provide the City with all changes and revisions to the training manuals and other training documentation. The City reserves the right to copy all training manuals and aids for use in future City training sessions.

The vendor must provide the City with licenses for any materials that the vendor does not own copyright. The vendor must furnish for use during training all training aids and any other materials required to train course participants. The number of training aids must be adequate for the number of participants attending the course.

## Documentation

The vendor shall provide the following system documents in electronic and physical format (5 copies) to support operation of the ATMS, controllers, communication infrastructure, and any other hardware/software deployed as part of this project:

- System operations/configuration manuals
- Users manuals
- Maintenance manuals
- Troubleshooting guides
- Provide data connection drawing schematic showing network control head, server and PCs, labeling of any fixed IP addresses and configuration information, master account and password list for any devices or software programs

The vendor shall provide the City with complete documentation of the ATMS software. Each document must be identified by a City contract number and date. Where a document is revised for any reason, each such revision must be indicated by the revision number, date and explanation in a revision block along with an indication of official approval by the vendor's PM.

The City requires a copy of all final vendor-supplied documentation in an electronic file format compatible with commercially available Microsoft Office software, such that it can be maintained and updated. Final documentation must be easily reproducible by the City.

## Configuration Management and Documentation Requirements

The vendor shall have a defined, documented, and successful configuration management process in place to maintain the consistency of their software throughout the development and testing processes. A high-level outline and approach for the configuration management plan will be required from the selected vendor, and must be made available for comment and revision.

## Software Terms

The vendor shall provide the City with software licensing, warranties, technical support and upgrades for all software products in the ATMS software, including COTS, customized, third party products and database software. The vendor must provide the terms for each software component. Third-party licenses must be covered within the warranty and maintenance periods.

## Licensing Terms

The central management system software license shall include:

- Management of all traffic signals owned or operated by the City (up to 130 traffic signal controllers).
- Optional components of central management system software license include:
  1) Allowances for future integration of other controller firmware.
  2) Allowances for future integration with other traffic management systems.

The vendor shall provide all necessary software licenses, including for database, middleware, and other third-party software, used for this project including installations of software in servers, workstations, tablets, and field laptops. It is the vendor's responsibility to state clearly the licensing terms that are included within the scope and budget of its proposal.

All software license terms shall be indefinite with no yearly fees. The terms and conditions of software licenses will be incorporated into the final contract. Prior to finalizing any contract, the City reserves the right to negotiate terms of the software license.

## Warranty Terms

The vendor shall provide all necessary on-site/off-site support as appropriate during the course of implementation. In addition, following full completion and acceptance of the system, the vendor shall support the software (supplying both error corrections and version updates) for a period as requested in the cost schedule (Exhibit 8).

The cost of the warranties (2 years initial period), as required in each vendor's proposal, must be included in the cost of the software licenses for the City. The warranty period, including manufacturer warranty, will begin on the date of final acceptance. The duration of the warranty

period does not include time spent repairing significant software failures. The terms and conditions of the software warranty will be incorporated into the final contracts.

## Maintenance Terms

The vendor shall provide technical support for the duration referenced in the cost schedule (Exhibit 8). The vendor shall be responsible for identifying and performing preventive maintenance of the central management system and for software updates addressing glitches and substandard performance. The vendor shall be available to provide technical support coverage for all maintenance related activities for all elements of the supplied system within 24 hours on weekdays and on the following day after weekends and the day after holidays. The vendor shall resolve demonstrated software and hardware failures. Restrictions or limitations shall be clearly identified.

## Technical Support Terms

Technical support shall be provided by the vendor to assist the City with routine questions regarding the use of the software.

The vendor must provide technical support during system integration, the warranty period and the maintenance periods identified in the cost schedule (Exhibit 8). The vendor must describe the proposed maintenance terms, including the proposed methods of communication (e.g., phone, email, Web, on-site, etc.), hours of availability and maximum response times, including for each agency on the pricing structure.

## Installation (for updates and upgrades)

Where installation assistance is required by the City for system updates and upgrades that fall outside of what is covered in the warranty and maintenance agreements, the vendor shall provide an hourly cost for technicians that would provide support to the City as referenced in the cost schedule (Exhibit 8).

## Technical Support

Where technical support is required by the City for items that fall outside of what is covered in the warranty and maintenance agreements (e.g., networking issues, firewall problems, etc.), the vendor shall provide an hourly cost for technicians that would provide support to the City as referenced in the sealed cost schedule (Exhibit 8).

## Upgrade Terms

Software upgrades shall be considered enhancements to the software code to add new features or functions to the system or software patches to correct errors, defects, malfunctions and security issues.

The vendor must provide all released upgrades to the system, at no cost other than the City's configuration requirements, through the warranty period. Additional upgrades provided during the maintenance period, at no additional charge, will be evaluated in the ranking of the written responses by the selection committee. The ATMS software must retain all system, user

configuration and preference changes when upgrades are applied. The vendor must describe the upgrade terms and how new version releases will accommodate prior system customization.

The vendor shall clearly identify any separate upgrade costs for software customization to the ATMS resulting from requests by the City for additional functionality as part of this contract, especially if these customizations are not included in the base COTS ATMS software.

The vendor shall document its practices with respect to the support of future releases of operating systems (e.g., Vendor releases an update within six months of a major OS update).

## Proposal Submittal Requirements

Qualified Professionals interested in performing the work described in this request for proposals must submit a complete proposal which addresses all elements of this RFP. Proposals shall not exceed 50 double-sided pages (100 single-sided), excluding cover pages, dividers and Proposal Acknowledgement Form (See page 12 of RFP). Responses must include all items listed below.

1. Scope of Work – Provide a description of the project scope and objectives based on your understanding of the City's request for proposals. Include the specific project approach, details, ideas, suggestions, schedule, proposed equipment, implementation, training, testing and validation of the system. Following award of the contract, the scope of work will be refined in collaboration with City staff to formulate the final scope of work for the project.

2. Assigned Personnel – Provide a list of key personnel who will be involved, their roles and availability to administer these services. Include specific staff resumes, experience and documentation showing that all required qualifications are met. Provide the names and responsibilities of any subcontractors/subconsultants who will be involved in the program.

3. Firm Capability – Provide information regarding the experience and qualifications of the firm and staff proposed to complete the required work for this project. Provide three (3) examples of your firm's experience in providing a "complete" ATMS and traffic signal controller upgrade projects during the past three (3) years for a muncipality. Each example must include a brief description of the services provided. Include the name and address of each referenced company/agency as well as the name, title and phone number of the referenced contact person.

4. Proposed Schedule – The City intends to install the upgraded ATMS and traffic signal controllers as soon as possible immediately following award. Provide schedules for providing services including the delivery of necessary traffic signal controller equipment/devices, deployment of the ATMS system, and training to complete this ATMS and traffic signal controller upgrade project.

5. Rates/Fees
   Provide a cost for providing a "complete" system for the Advance Transportation Management System and local traffic signal controllers that meet the functional needs described in this request for proposal (RFP)

6. Traffic Signal System Functional Requirements

This RFP and the related attachments contain functional requirements for the ATMS and Traffic Signal Controllers. The Vendor is required to respond to every requirement in Exhibit 6 and 7 regardless of the requirement category designation. For each requirement, the Vendor shall indicate if it is currently met, will be met, or will not be met. Provide a written description for each response. The Requirements contain the following requirements categories: Mandatory, Secondary and Traffic Signal Controller/Firmware.

## B.      Period of Award
The completion date of providing the required product and services for each year under this phased plan shall be completed within six month from the notice to proceed.

If the City desires to extend the contract, no later than thirty (30) days prior to expiration, the City's Purchasing Contact may send a notice in writing to the vendor requesting firm pricing for the next twelve-month period.  After the City evaluates the firm pricing proposal from the vendor, it will determine whether to extend the contract.  All awards and extensions are subject to annual appropriation of funds.  The provisions of the foregoing paragraphs with respect to extensions of the terms of the contract shall be null and void if the contract has been terminated or revoked during the initial term or any extension thereof.  All decisions to extend the contract are at the option of the City.

## SECTION III.        ADMINISTRATIVE INFORMATION

**A.        Issuing Office:**
The City's contact name listed herein is to be the sole point of contact concerning this RFP.  Offerors shall not directly contact other personnel regarding matters concerning this RFP or to arrange meetings related to such.

**B.        Official Means of Communication:**
All official communication from the City to offerors will be via postings on an electronic solicitation notification system, the Rocky Mountain Bid System (www.rockymountainbidsystem.com).  The Purchasing Contact will post notices that will include, but not be limited to, proposal document, addenda, award announcement, etc. It is incumbent upon offerors to carefully and regularly monitor the Rocky Mountain Bid System for any such postings.

**C.        Inquiries:**
Prospective offerors may make written inquiries by e-mail before the written inquiry deadline concerning this RFP to obtain clarification of requirements.  There will be opportunity to make inquiries during the pre-proposal conference, if any.  No inquiries will be accepted after the deadline.  Inquiries regarding this RFP (be sure to reference RFP number) should be referred to:

E-Mail:         doug.clapp@greeleygov.com
Subject Line:   RFP #FD20-01-005

Response to offerors' inquiries will be published as addenda on the Rocky Mountain Bid System in a timely manner.  Offerors cannot rely on any other statements that clarify or alter any specification or other term or condition of the RFP.

**Should any interested offeror, sales representative, or manufacturer find any part of the listed specifications, terms and conditions to be discrepant, incomplete, or otherwise questionable in any respect, it shall be the responsibility of the concerned party to notify the Purchasing Contact of such matters immediately upon discovery.**

**D.        Insurance:  (Exhibit 4)**
The successful contractor will be required to provide a Certificate of Insurance or other proof of insurance naming the City of Greeley as "additional insured".  Coverage must include COMMERCIAL GENERAL LIABILITY coverage with minimum limits of $2,000,000, and WORKER'S COMPENSATION coverage with limits in accordance with State of Colorado requirements.

COMPREHENSIVE AUTOMOBILE LIABILITY with minimum limits for bodily injury and property damage coverage of at least $1,000,000, plus an additional amount adequate to pay related attorneys' fees and defense costs, for each of Consultant's owned, hired or non-owned vehicles assigned to or used in performance of this Agreement.

The City shall be named as additional Insured for General and Auto Liability Insurance.

Awarded offeror must present the City with proof of PROFESSIONAL LIABILITY COVERAGE with a minimum limit of $1,000,000.

**E.     Modification or Withdrawal of Proposals:**
Proposals may be modified or withdrawn by the offeror prior to the established due date and time.

**F.     Minor Informalities:**
Minor informalities are matters of form rather than substance evident from the response or insignificant mistakes that can be waived or corrected without prejudice to other vendors. The Manager may waive such informalities or allow the vendor to correct them depending on which is in the best interest of the City.

**G.     Responsibility Determination:**
The City will make awards only to responsible vendors.  The City reserves the right to assess offeror responsibility at any time in this RFP process and may not make a responsibility determination for every offeror.

**H.     Acceptance of RFP Terms:**
A proposal submitted in response to this RFP shall constitute a binding offer.  The autographic signature of a person who is legally authorized to execute contractual obligations on behalf of the offeror shall indicate acknowledgment of this condition.  A submission in response to this RFP acknowledges acceptance by the offeror of all terms and conditions as set forth herein.  An offeror shall identify clearly and thoroughly any variations between its proposal and the RFP in the cover letter.  Failure to do so shall be deemed a waiver of any rights to subsequently modify the terms of performance, except as outlined or specified in the RFP.

**I.     Protested Solicitations and Awards:**
Right to protest. Any actual or prospective bidder, offeror or contractor who is aggrieved in connection with the solicitation or award of a contract must protest in writing to the City Manager as a prerequisite to seeking judicial relief.  Protestors are urged to seek informal resolution of their complaints initially with the Purchasing Manager. A protest shall be submitted within ten (10) calendar days after such aggrieved person knows or should have known of the facts giving rise thereto. A protest with respect to an invitation for bids or request for proposals shall be submitted in writing prior to the opening of bids or the closing date of proposals, unless the aggrieved person did not know and should not have known of the facts giving rise to such protests prior to bid opening or the closing date for proposals.

1.     Stay of procurement during protests. In the event of a timely protest under Subsection (A) of this Section, the Purchasing Manager shall not proceed further with the solicitation or award of the contract until all administrative and judicial remedies have been exhausted or until the City Manager makes a written determination on the record that the award of a contract without delay is necessary to protect substantial interest of the City. (Ord. 75, 1984 §2 (part))

**J. Confidential/Proprietary Information:**
All proposals will be confidential until a contract is awarded and fully executed. At that time, all proposals and documents pertaining to the proposals will be open for public inspection, except for the material that is proprietary or confidential. However, requests for confidentiality can be submitted to the Purchasing Contact provided that the submission is in accordance with the following procedures. This remains the *sole responsibility* of the offeror. The Purchasing Contact will make no attempt to cure any information that is found to be at a variance with this procedure. The offeror may not be given an opportunity to cure any variances after proposal opening. **Neither a proposal in its entirety, nor proposal price information will be considered confidential/proprietary.** Questions regarding the application of this procedure must be directed to the Purchasing Contact listed in this RFP.

**K. Acceptance of Proposal Content**:
The contents of the proposal (including persons specified to implement the project) of the successful contractor shall become contractual obligations into the contract award. Failure of the successful offeror to perform in accordance with these obligations may result in cancellation of the award and such offeror may be removed from future solicitations.

**L. RFP Cancellation:**
The City reserves the right to cancel this RFP at any time, without penalty.

**M. Negotiation of Award:**
In the event only one (1) responsive proposal is received by the City, the City reserves the right to negotiate the award for the services with the offeror submitting the proposal in lieu of accepting the proposal as is.

**N. Contract:  (Exhibit 2)**
A sample copy of the contract award the City will use to contract for the services specified in this RFP is included as Exhibit 2 for your review.  The attached contract is only a sample and is not to be completed at this time.

**O. RFP Response/Material Ownership:**
All material submitted regarding this RFP becomes the property of the City of Greeley, unless otherwise noted in the RFP.

**P. Incurring Costs:**
The City is not liable for any cost incurred prior to issuance of a legally executed contract and/or a purchase order.

**Q. Utilization of Award by Other Agencies:**
The City of Greeley reserves the right to allow other State and local governmental agencies, political subdivisions, and/or school districts to utilize the resulting award under all terms and conditions specified and upon agreement by all parties.  Usage by any other entity shall not have a negative impact on the City of Greeley in the current term or in any future terms.

**R.    Non-Discrimination:**
The offeror shall comply with all applicable state and federal laws, rules and regulations involving non-discrimination on the basis of race, color, religion, national origin, age or sex.

**S.    News Releases:**
Neither the City, nor the offeror, shall make news releases pertaining to this RFP prior to execution of the contract without prior written approval of the other party.  Written consent on the City's behalf is provided by the Public Information Office.

**T.    Certification of Independent Price Determination:**
1.    By submission of this proposal each offeror certifies, and in the case of a joint proposal each party, thereto certifies as to its own organization, that in connection with this procurement:
   a)    The prices in this proposal have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other offeror or with any competitor;
   b)    Unless otherwise required by law, the prices which have been quoted in this proposal have not been knowingly disclosed by the offeror and will not knowingly be disclosed by the offeror prior to opening, directly or indirectly to any other offeror or to any competitor; and
   c)    No attempt has been made or will be made by the offeror to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.

2.    Each person signing the Request for Proposal form of this proposal certifies that:
   a)    He/she is the person in the offeror's organization responsible within that organization for the decision as to the prices being offered herein and that he/she has not participated, and will not participate, in any action contrary to (1.a) through (1.c) above; or
   b)    He/she is not the person in the offeror's organization responsible within that organization for the decision as to the prices being offered herein but that he/she has been authorized in writing to act as agent for the persons responsible for such decision in certifying that such  persons have not participated, and will not participate, in any action contrary to (1.a) through (1.c)above, and as their agent does hereby so certify; and he/she has not participated, and will not participate, in any action contrary to (1.a) through (1.c) above.

2.    A proposal will not be considered for award where (1.a), (1.c), or (2.) above has been deleted or modified.  Where (1.b) above has been deleted or modified, the proposal will not be considered for award unless the offeror furnishes with the proposal a signed statement which sets forth in detail the circumstances of the disclosure and the City's Purchasing  Manager, or designee, determines that such disclosure was not made for the purpose of restricting competition.

3. The Contract Documents may be executed in two or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same document. The Contract Documents, including all component parts set forth above, may be executed and delivered by electronic signature by any of the parties and all parties consent to the use of electronic signatures.

**U.    Taxes:**
The City of Greeley is exempt from all federal excise taxes and all Colorado State and local government sales and use taxes.  Where applicable, contractor will be responsible for payment of use taxes.

**V.    Assignment and Delegation:**
Neither party to any resulting contract may assign or delegate any portion of the agreement without the prior written consent of the other party.

**W.    Availability of Funds:**
Financial obligations of the City of Greeley payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted and otherwise made available.  In the event funds are not appropriated, any resulting contract will become null and void without penalty to the City.

**X.    Standard of Conduct:**
The successful firm shall be responsible for maintaining satisfactory standards of employees' competency, conduct, courtesy, appearance, honesty, and integrity, and shall be responsible for taking such disciplinary action with respect to any employee as may be necessary.

The City may request the successful firm to immediately remove from this assignment any employee found unfit to perform duties due to one or more of the following reasons:

1.    Neglect of duty.
2.    Disorderly conduct, use of abusive or offensive language, quarreling, intimidation by words or actions or fighting.
3.    Theft, vandalism, immoral conduct or any other criminal action.
4.    Selling, consuming, possessing, or being under the influence of intoxicants, including alcohol, or illegal substances while on assignment for the City.

Agents and employees of Contractor or Consultant working in City facilities shall present a clean and neat appearance. Prior to performing any work for the City, the Contractor or Consultant shall require each of their employees to wear ID badges or uniforms identifying: the Contractor or Consultant by name, the first name of their employee and a photograph of their employee if using an ID badge. Their employee shall wear or attach the ID badge to the outer garments at all times.

**Y.    Damages for Breach of Contract:**
In addition to any other legal or equitable remedy the City may be entitled to for a breach of this Contract, if the City terminates this Contract, in whole or in part, due to Contractor's

breach of any provision of this Contract, Contractor shall be liable for actual and consequential damages to the City.

**Z.**      **Other Statutes:**
1. The signatory hereto avers that he/she is familiar with Colorado Revised Statutes , 18-8-301, et seq. (Bribery and Corrupt Influence) and 18-8-401, et seq. (Abuse of Public Office) as amended, and that no violation such provisions is present.

2. The signatory hereto avers that to his/her knowledge, no City of Greeley employee has any personal or beneficial interest whatsoever in the service or property described herein.  See CRS 24-18-201 and CRS 24-50-507.

## SECTION IV.  PROPOSAL SUBMISSION

Following are the response requirements for this RFP.  All specific response items represent the minimum information to be submitted.  Deletions or incomplete responses in terms of content or aberrations in form may, at the City's discretion, render the proposal non-responsive.

**Offerors shall submit in a sealed package:**

- 5 Hard Copies and Two (2) complete copy of Proposal on a flash drive

To facilitate the evaluation, offeror shall submit and organize all responses in the same order as listed in Section V.  Proposals that are determined to be at a variance with this requirement may not be accepted.  The City only accepts proposals in hard copy format and does not accept proposals submitted via fax or email.

Late proposals will not be accepted.  It is the responsibility of the offeror to ensure that the proposal is received at the City of Greeley's Purchasing Division on or before the proposal due date and time.

The outside of the package will include the following information:

- Company Name
- RFP Number
- RFP Title
- Due Date and Time

## SECTION V.  RESPONSE FORMAT

The following items are to be included in your proposal, in the order listed.  Deviation from this may render your proposal non-responsive.

**A.**      **Cover Letter.**  Include a cover letter introducing your company, summarizing your qualifications, and detailing any exceptions to this RFP (please note that significant exceptions may make your proposal non-responsive).  This letter should also provide

principal contact information for this RFP, including address, telephone number, fax number, e-mail, and website (if applicable).

**B.     Use of Subcontractors/Partners.**  There may be areas for use of subcontractors or partners in this project.  If you are utilizing this approach, your proposal must list the subcontractors/partners, their area(s) of expertise, and include all other applicable information herein requested for each subcontractor/partner.  Please keep in mind that the City will contract solely with your company, therefore subcontractors/partners remain your sole responsibility.

**C.     Company Information**
1.  Provide the following information as listed: Company Name, Address, Phone Number, and Names of Principals.
2.  Identify the year in which your company was established and began providing technical services.
3.  Describe any pending plans to sell or merge your company.
4.  Provide a comprehensive listing of all the services you provide.

**D.     Evaluation Criterion #1 - e.g., Company and Personnel Qualifications**
1.  Describe your customer service philosophy.
2.  Provide information from at least three accounts of similar scope.  Include, at a minimum, the following information:  1) company name, 2) contact name, 3) phone number, 4) fax number, 5) email address, 6) brief description of project scope and value, 7) status of project.  The City reserves the right to contact the references provided in your proposal as well as other references without prior notification to you.
3.  List the number of people that you can commit to working on this project and the amount of time each is expected to spend on the project.  (List any discipline you would like to see - examples for a design services might be - design of HVAC, mechanical systems, electrical systems, architectural, structural, geotechnical, etc.)
4.  Provide the names and resumes of the key personnel that will be performing the proposed services, including the primary project manager.
5.  List the names of the subcontractors you expect to use, the services to be provided by the subcontractors and the amount of time that each is expected to spend on the project.  Also, include the names and resumes of the key subcontractor personnel who will be working on the project.
6.  Provide a specific timeline or schedule for the work. (Spell out mile marks if needed. Example: including development of preliminary design & cost estimates, meetings with City staff, completion of final design, cost estimates and bidding documents.) Show milestones and completion dates on the schedule.
7.  Describe the methods and timeline of communication your firm will use with the City's project manager, other involved City staff, and other interested parties.

**Evaluation Criterion #2 – e.g., Approach to Scope of Work**
2.  Describe any project approaches or ideas that you would apply to this project and that you feel would enhance the quality of your services. Provide specific project approach, details, ideas, suggestions, schedule, proposed equipment, implementation, training, testing and validation of the system.

3. Describe how the team will handle quality control, specifically how design issues would be monitored and resolved, hardware/software/firmware checked and cross-referenced and bid documents ensured to be complete, accurate, and coordinated with subcontractors.

**Evaluation Criterion #3 - e.g., Traffic Signal Functional Requirements**
This RFP and the related attachments contain functional requirements for the ATMS. The Vendor is required to respond to every requirement in Exhibit 6 & 7, Requirements and Verification Plan, regardless of the requirement category designation. For each requirement, the Vendor shall indicate if it is currently met, will be met, or will not be met. Provide a written description for each response. The Requirements contain the following requirements categories:  Mandatory, Secondary and Traffic Signal Controller /Firmware requirements.

Mandatory – This requirement shall be met by the Vendor. Mandatory requirements and the Vendor's approach to satisfying Mandatory requirements are considered in the evaluation process. If a Vendor cannot meet a mandatory requirement, a written response shall be provided.

Secondary – This requirement describes features and/or functionality that the City prefers, but is not mandatory. The Vendor's approach to satisfying Secondary requirements is considered in the evaluation process.

Traffic Signal Controllers - Clearly describe which traffic controller and local firmware(s) for the proposed signal system. Also, describe which features are met in accordance with the CONTROLLER AND FIRMWARE REQUIREMENTS (Exhibit 6).

**Evaluation Criterion #4 - e.g., Value/Cost of Efforts**
1. Provide a cost for the consulting services broken down per task listed under the *Fee Proposal (Exhibit 8)*.  This cost shall include all reimbursable expenses required including subcontractor's cost to complete the work.  These rates will be considered valid throughout the project.

**E.      Proposal Acknowledgement:  (Exhibit 1)**
Include this form as provided in Exhibit 1.

**SECTION VI.  EVALUATION AND AWARD**

**A.      Proposal Evaluation**

All proposals submitted in response to this RFP will be evaluated by a committee in accordance with the criteria described below.  Total scores will be tabulated, and the highest ranked firm will enter into negotiations.

If the City requests presentations by short-listed offerors, committee members may revise their initial scores based upon additional information and clarification received in this phase. Please note that presentations have been tentatively scheduled per the Schedule of Events on the first page of this RFP. If your company is invited to give a presentation to the committee, these dates may not be flexible.

In preparing responses, offerors should describe in great detail how they propose to meet the specifications as detailed in the previous sections. Specific factors will be applied to proposal information to assist the City in selecting the most qualified offeror for this contract. Following is the evaluation criteria that will be used. Criteria will be assigned a points value.

| Criteria | Maximum Points | Initial Score Proposal | Final Score Proposal |
|---|---|---|---|
| **Organizational Experience & Capabilities** | 10% | | |
| **Proposed Project Approach** (Vendor must provide specific project approach, details, ideas, suggestions, schedule, proposed equipment, implementation, training, testing and validation of the system. | 10% | | |
| **Ability to Meet Mandatory and Secondary System Requirements for ATMS System** (Vendor must complete the System Requirements table (Exhibit 5) and provide a written description of how each requirement will be met) | 40 % | | |
| **Ability to Meet Mandatory Traffic Signal Controller Requirements** ((Vendor must complete the Signal Controller Requirements table (Exhibit 6) and provide a written description of how each requirement will be met) | 20% | | |
| **Fee Proposal** (With pricing being worth twenty points the lowest bid will receive the full twenty points. The other vendors' points will come from ranking the bids from lowest to highest. If there were four bids that means the multiplier is five. The vendor with the highest price bid would be ranked one and multiplied by five for this example giving them a total score of five for pricing.) | 20% | | |

A presentation and/or demonstration may be requested by short-listed offerors prior to award. Scores may be adjusted higher or lower based on additional information obtained during the interview process. However, a presentation/demonstration may not be required, and therefore, complete information should be submitted with your proposal.

## B.     Determination of Responsibility of the Offeror
The City of Greeley awards contracts to responsible vendors only. The City reserves the right to make its offeror responsibility determination at any time in this RFP process and may not make a responsibility determination for every offeror.

The City of Greeley's Municipal Code defines a "Responsible Offeror" as one who has "the capability in all respects to perform fully the contract requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment, and credit which will assure good faith performance." The City reserves the right to request information as it deems necessary to determine an offeror's responsibility. If the offeror fails to supply the requested information, the City shall base the determination of responsibility upon any available information or may find the offeror non-responsible if such failure is unreasonable.

**EXHIBIT 1**
**PROPOSAL ACKNOWLEDGEMENT**

The offeror hereby acknowledges receipt of addenda numbers _____ through _____.

Falsifying this information is cause to deem your proposal nonresponsive and therefore ineligible for consideration.  In addition, falsification of this information is cause to cancel a contract awarded based on one or both of the above preferences.

By signing below, you agree to all terms & conditions in this RFP, except where expressly described in your cover letter.

_____
Original Signature by Authorized Officer/Agent


_____          _____
Type or printed name of person signing          Company Name


_____          _____
Title                                                                    Phone Number


_____          _____
Vendor Mailing Address                                Fax Number


_____          _____
City, State, Zip                                            Proposal Valid Until (at least for 90 days)


_____          _____
E-Mail Address                                           Website Address


**Project Manager:**

_____          _____
Name (Printed)                                           Phone Number


_____          _____
Vendor Mailing Address                                Fax Number


_____          _____
City, State, Zip                                            Email Address

**EXHIBIT 2**
## SAMPLE CONTRACT
CONTRACT FOR CONSULTING/PROFESSIONAL SERVICES
**BID TITLE AND NUMBER**

This Contract is made as of _____, by and between the City of Greeley, Greeley, Colorado, hereinafter referred to as the CITY, and **Vendor Name** authorized to do business in the State of Colorado, hereinafter referred to as the CONSULTANT, whose address is **Vendor Address**.

In consideration of the mutual promises contained herein, the CITY and the CONSULTANT agree as follows:

### ARTICLE 1 - SERVICES

The CONSULTANT'S responsibility under this Contract is to provide professional/consultation services in the area of **Summary of Services Providing**.

More specifically, the scope of services is attached.  The services of the CONSULTANT shall be under the direction of the Project Manager who has been designated by the Director of **Name of Department** to act as the CITY'S representative during the performance of this Contract.

### ARTICLE 2 - SCHEDULE

The CONSULTANT shall commence services upon execution of the Contract and complete all services on or before **Completion Date**, in conjunction with the attached schedule.

### ARTICLE 3 - PAYMENTS TO CONSULTANT

A.  The CITY shall pay to the CONSULTANT for services satisfactorily performed, based on sum not to exceed **Bid Amount**, which includes all direct charges, indirect charges, and reimbursable expenses stated in the attached document.  The CONSULTANT will bill the CITY on a monthly basis or as otherwise provided for services rendered toward the completion of the Scope of Work.  The amounts billed shall represent the sum of billable time (including overhead and profit) for labor hours expended plus any other allowable costs and expenses for services stated in the attached document.  The CONSULTANT shall track expenditures and inform the CITY of any possible cost overrun prior to completing work that would overrun the maximum contract sum.  The CITY may choose to increase the budget for the work using a mutually acceptable contract amendment or it may choose not to increase the budget and terminate the work accordingly.

B.  Invoices received from the CONSULTANT pursuant to this Contract will be reviewed and approved by the Project Manager, indicating that services have been rendered in conformity with the Contract and then will be sent to the Finance Department for payment.

### ARTICLE 4 - TRUTH-IN-NEGOTIATION CERTIFICATE

Signature of this Contract by the CONSULTANT shall act as the execution of a truth-in-negotiation certificate certifying that the wage rates and costs used to determine the compensation provided for in this contract are accurate, complete, and current as of the date of this Contract.

The said rates and costs shall be adjusted to exclude any significant sums should the CITY determine that the rates and costs were increased due to inaccurate, incomplete, or non-current wage rates or due

to inaccurate representations of fees paid to outside consultants. The CITY shall exercise its rights under this "Certificate" within one (1) year following final payment.

## ARTICLE 5 - TERMINATION

This Contract may be terminated by the CONSULTANT upon 30 days' prior written notice to the CITY in the event of substantial failure by the CITY to perform in accordance with the terms of this Contract through no fault of the CONSULTANT. It may also be terminated by the CITY, with or without cause, immediately upon written notice to the CONSULTANT. Unless the CONSULTANT is in breach of this Contract, the CONSULTANT shall be paid for services rendered to the CITY'S satisfaction through the date of termination. After receipt of a Termination Notice and except as otherwise directed by the CITY the CONSULTANT shall:

A.  Stop work on the date and to the extent specified.

B.  Terminate and settle all orders and subcontracts relating to the performance of the terminated work.

C.  Transfer all work in process, completed work, and other material related to the terminated work to the CITY.

D.  Continue and complete all parts of the work that have not been terminated.

The CONSULTANT shall be paid for services actually rendered to the date of termination.

## ARTICLE 6 - PERSONNEL

The CONSULTANT represents that it has, or will, secure at its own expense all necessary personnel required to perform the services under this Contract. Such personnel shall not be employees of or have any contractual relationship with the CITY.

All of the services required hereinunder shall be performed by the CONSULTANT or under its supervision, and all personnel engaged in performing the services shall be fully qualified and if required, authorized or permitted under state and local law to perform such services.

Any changes or substitutions in the CONSULTANT'S key personnel, as may be listed in the proposal for the work, must be made known to the CITY'S representative and written approval granted by the CITY before said changes or substitutions can become effective.

The CONSULTANT declares that all services shall be performed by skilled and competent personnel to the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions.

## ARTICLE 7 – SUB-CONSULTANT

The CITY reserves the right to accept the use of a sub-consultant or to reject the selection of a particular sub-consultant and to inspect all facilities of any sub-consultants in order to make a determination as to the capability of the sub-consultant to perform properly under this Contract. The CONSULTANT is encouraged to seek minority and women business enterprises for participation in subcontracting opportunities.

If a sub-consultant fails to perform or make progress, as required by this Contract, and it is necessary to replace the sub-consultant to complete the work in a timely fashion, the CONSULTANT shall promptly do so, subject to acceptance of the new sub-consultant by the CITY.

## ARTICLE 8 - FEDERAL AND STATE TAX

The CITY is exempt from payment of Colorado State Sales and Use Taxes. The CITY will sign an exemption certificate submitted by the CONSULTANT. The CONSULTANT shall not be exempted from paying sales tax to their suppliers for materials used to fulfill contractual obligations with the CITY, nor is the CONSULTANT authorized to use the CITY'S tax exemption number in securing such materials.

The CONSULTANT shall be responsible for payment of his/her own FICA and Social Security benefits with respect to this Contract.

## ARTICLE 9 - AVAILABILITY OF FUNDS

When funds are not appropriated or otherwise made available to support continuation of performance in a subsequent fiscal period, the contract may be cancelled and the CITY shall reimburse the CONSULTANT for expenses incurred during the contract period.

## ARTICLE 10 - INSURANCE

A. The CONSULTANT shall not commence work under this Agreement until he/she has obtained all insurance required under this paragraph and such insurance has been approved by the CITY.

B. All insurance policies shall be issued by companies authorized to do business under the laws of the State of Colorado. The CONSULTANT shall furnish Certificates of Insurance to the CITY prior to the commencement of operations. The Certificates shall clearly indicate that the CONSULTANT has obtained insurance of the type, amount, and classification as required for strict compliance with this paragraph and that no material change or cancellation of the insurance shall be effective without ten (10) days prior written notice to the CITY. Compliance with the foregoing requirements shall not relieve the CONSULTANT of its liability and obligations under this Contract.

C. The CONSULTANT shall maintain, during the life of this Contract, professional liability insurance (errors and omissions) in the amount of $1,000,000 per occurrence to protect the CONSULTANT of claims for damages for negligent acts, errors or omissions in the performance of professional services under this Contract, whether such acts, errors or omissions be by the CONSULTANT or by anyone directly employed by or contracting with the CONSULTANT.

D. The CONSULTANT shall maintain, during the life of this Contract, comprehensive automobile liability insurance in the amounts of $1,000,000 combined single limit bodily injury and $50,000 property damage to protect the CONSULTANT from claims for damages for bodily injury, including wrongful death, as well as from claims for property damage, which may arise from the ownership, use, or maintenance of owned and non-owned automobiles, including rented automobiles whether such operations by the CONSULTANT or by any directly or indirectly employed by the CONSULTANT.

E. The CONSULTANT shall maintain, during the life of this Contract, adequate Workmen's Compensation Insurance and Employer's Liability Insurance in at least such amounts as are required by law for all of its employees performing work for the CITY pursuant to this Contract.

F. All insurance, other than Workmen's Compensation and Professional Liability, is to be maintained by the CONSULTANT shall specifically include the CITY as an "Additional Insured".

## ARTICLE 11 - INDEMNIFICATION

The CONSULTANT shall indemnify and save harmless and defend the CITY, its agents, servants, and employees from and against any and all claims, liability, losses, and/or cause of action which may arise from any negligent act or omission of the CONSULTANT, its agents, servants, or employees in the performance of services under this Contract.

## ARTICLE 12 - SUCCESSORS AND ASSIGNS

The CITY and the CONSULTANT each binds itself and its partners, successors, executors, administrators, and assigns to the other party of this Contract and to the partners, successors, executors, administrators, and assigns of such other party, in respect to all covenants of this Contract.  Except as above, neither the CITY nor the CONSULTANT shall assign, sublet, convey, or transfer its interest on this Contract without the written consent of the other.  Nothing herein shall be construed as creating any personal liability on the part of any officer of agent of the CITY which may be party hereto, nor shall it be construed as giving any rights or benefits hereunder to anyone other than the CITY and the CONSULTANT.

## ARTICLE 13 - REMEDIES

This Contract shall be governed by the laws of the State of Colorado.  Any and all legal action necessary to enforce the Contract will be held in Weld County and the contract will be interpreted according to the laws of Colorado.  No remedy herein conferred upon any party is intended to be exclusive of any other remedy, and each and every other remedy given hereunder or now or hereafter existing at law or in equity or by statute or otherwise.  No single or partial exercise by any party of any right, power, or remedy hereunder shall preclude any other or further exercise thereof.

In any action brought by either party for the enforcement of the obligations of the other party, the prevailing party shall be entitled to recover reasonable attorney's fees.

## ARTICLE 14 - COLORADO LAW

The Colorado Law shall prevail as the basis for contractual obligations between the CONSULTANT and the CITY for any terms and conditions not specifically stated in this Contract.

## ARTICLE 15 - CONFLICT OF INTEREST

The CONSULTANT represents that it presently has no interest and shall acquire no interest, either direct or indirect, which would conflict in any manner with the performance of services required hereunder, as provided for in Colorado Statutes and ordinances of the City of Greeley.  The CONSULTANT further represents that no person having any interest shall be employed for said performance.

The CONSULTANT shall promptly notify the CITY in writing by certified mail of all potential conflicts of interest for any prospective business association, interest or other circumstance which may influence or appear to influence the CONSULTANT'S judgment or quality of services being provided hereunder.  Such written notification shall identify the prospective business association, interest or circumstance, the nature of work that the CONSULTANT may undertake and request an opinion of the CITY as to whether the association, interest or circumstance would, in the opinion of the CITY, constitute a conflict of interest

if entered into by the CONSULTANT.  The CITY agrees to notify the CONSULTANT of its opinion by certified mail within 30 days of receipt of notification by the CONSULTANT.  If, in the opinion of the CITY, the prospective business association, interest or circumstance would not constitute a conflict of interest by the CONSULTANT, the CITY shall so state in the notification and the CONSULTANT shall, at his/her option, enter into said association, of interest with respect to services provided to the CITY by the CONSULTANT under the terms of this Contract.

## ARTICLE 16 - EXCUSABLE DELAYS

The CONSULTANT shall not be considered in default by reason of any failure in performance if such failure arises out of causes reasonably beyond the CONSULTANT'S control and without its fault or negligence.  Such causes may include, but are not limited to: acts of God; the CITY'S omissive and commissive failures; natural or public health emergencies; labor disputes; freight embargoes; and severe weather conditions.  If failure to perform is caused by the failure of the CONSULTANT'S sub-consultant(s) to perform or make progress, and if such failure arises out of causes reasonably beyond the control of the CONSULTANT and its sub-consultant(s) and is without the fault or negligence of either of them, the CONSULTANT shall not be deemed to be in default.

Upon the CONSULTANT'S request, the CITY shall consider the facts and extent of any failure to perform the work and, if the CONSULTANT'S failure to perform was without its fault or negligence, the Contract Schedule and/or any other affected provision of this Contract shall be revised accordingly; subject to the CITY'S rights to change, terminate, or stop any or all of the work at any time.

## ARTICLE 17 - ARREARS

The CONSULTANT shall not pledge the CITY'S credit or make it a guarantor of payment or surety for any contract, debt, obligation, judgment, lien, or any form of indebtedness.  The CONSULTANT further warrants and represents that it has no obligation or indebtedness that would impair its ability to fulfill the terms of this Contract.

## ARTICLE 18 - DISCLOSURE AND OWNERSHIP OF DOCUMENTS

The CONSULTANT shall deliver to the CITY for approval and acceptance, and before being eligible for final payment of any amounts due, all documents and materials prepared by and for the CITY under this Contract.

All written and oral information not in the public domain or not previously known, and all information and data obtained, developed, or supplied by the CITY or at its expense will be kept confidential by the CONSULTANT and will not be disclosed to any other party, directly or indirectly, without the CITY'S prior written consent unless required by a lawful order.  All drawings, maps, sketches, and other data developed, or purchased, under this Contract or at the CITY'S expense shall be and remain the CITY'S property and may be reproduced and reused at the discretion of the CITY.  The CITY shall indemnify and hold CONSULTANT harmless for any claim or liability arising from any use or reuse of the documents for any purpose other than the project and scope of work for which they were prepared.

## ARTICLE 19 – INDEPENDENT CONSULTANT RELATIONSHIP

The CONSULTANT is, and shall be. Om the performance of all work services and activities under this Contract,
as Independent Consultant, and not an employee, agent, or servant of the CITY.  All persons engaged in any of the work or services performed pursuant to this Contract shall at all times, and in all places, be subject to the CONSULTANT'S sole direction, supervision, and control.  The CONSULTANT shall exercise

control over the means and manner in which it and its employees perform the work, and in all respects the CONSULTANT'S relationship and the relationship of its employees to the CITY shall be that of an independent CONSULTANT and not as employees or agents of the CITY.

The CONSULTANT does not have the power or authority to bind the CITY in any promise, agreement, or representation other than specifically provided for in this agreement.

## ARTICLE 20 - CONTINGENT FEES

The CONSULTANT warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the CONSULTANT to solicit or secure this Contract and that is has not paid or agreed to pay any person, company, corporation, individual, or firm, other than a bona fide employee working solely for the CONSULTANT, any fee, commission, percentage, gift, or any other consideration contingent upon or resulting from the award or making of this Contract.

## ARTICLE 21 - ACCESS AND AUDITS

The CONSULTANT shall maintain adequate records to justify all charges, expenses, and costs incurred in performing the work for at least three (3) years after completion of this Contract. The CITY shall have access to such books, records, and documents as required in this section for the purpose of inspection or audit during normal business hours, at the CITY'S cost, upon five (5) days written notice.

## ARTICLE 22 - NONDISCRIMINATION

The CONSULTANT declares and represents that all of its employees are treated equally during employment without regard to race, color, religion, physical handicap, sex, age, or national origin.

## ARTICLE 23 - SURVIVAL

All covenants, agreements, representations, and warranties made herein, or otherwise made in writing by any party pursuant hereto, including but not limited to any representations made herein relating to disclosure or ownership of documents, shall survive the execution and delivery of this Contract and the consummation of the transactions contemplated hereby.

## ARTICLE 24 - ENTIRETY OF CONTRACTUAL AGREEMENT

The CITY and the CONSULTANT agree that this Contract sets forth the entire agreement between the parties, and that there are no promises or understandings other than those stated herein. None of the provisions, terms, and conditions contained in this Contract may be added to, modified, superseded or otherwise altered, except by written instrument executed by the parties hereto.

## ARTICLE 25 - ENFORCEMENT COSTS

If any legal action or other proceeding is brought for the enforcement of this Contract, or because of an alleged dispute, breach, default, or misrepresentation in connection with any provisions of this Contract, the successful or prevailing party or parties shall be entitled to recover reasonable attorney's fees, court costs, and all expenses (including taxes) even if not taxable as court costs (including, without limitation, all such fees, costs, and expenses incident to appeals), incurred in that action or proceeding, in addition to any other relief to which such party or parties may be entitled.

## ARTICLE 26 - AUTHORITY TO PRACTICE

The CONSULTANT hereby represents and declares that it has and will continue to maintain all licenses and approvals required to conduct its business, and that it will at all times conduct its business activities in a reputable manner.

## ARTICLE 27 - SEVERABILITY

If any term or provision of this Contract, or the application thereof to any person or circumstances shall, to any extent, be held invalid or unenforceable, to remainder of this Contract, or the application of such terms or provision, to person or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected, and every other term and provision of this Contract shall be deemed valid and enforceable to the extent permitted by law.

## ARTICLE 28 - AMENDMENTS AND MODIFICATION

No amendment and/or modifications of this Contract shall be valid unless in writing and signed by each of the parties.

The CITY reserves the right to make changes in the work, including alterations, reductions therein or additions thereto.  Upon receipt by the CONSULTANT of the CITY'S notification of a contemplated change, the CONSULTANT shall (1) if requested by CITY, provide an estimate for the increase or decrease in cost due to the contemplated change, (2) notify the CITY of any estimated change in the completion date, and (3) advise the CITY in writing if the contemplated change shall effect the CONSULTANT'S ability to meet the completion dates or schedules of this Contract.

If the CITY so instructs in writing, the CONSULTANT shall suspend work on that portion of the Work affected by a contemplated change, pending the CITY'S decision to proceed with the change.

If the CITY elects to make the change, the CITY shall issue a Contract Amendment or Change Order and the CONSULTANT shall not commence work on any such change until such written amendment or change order has been issued and signed by each of the parties.

## ARTICLE 29 – FEDERAL REQUIREMENTS.

The Vendor must comply with the Federal Requirements as outlined in Exhibit 5 - Federal Contract Provisions.

## ARTICLE 30 - COMPLIANCE WITH C.R.S. § 8-17.5-101

A.  By signing this Agreement, the CONSULTANT certifies that at the time of the Certification, it does not knowingly employ or contract with any Illegal alien who will perform work under this Contract.

B.  By signing this Agreement, the CONSULTANT certifies that it shall not knowingly employ or contract with any illegal aliens to perform work under this contract; nor enter into a contract with any sub-consultant that knowingly employs or contracts with an illegal alien to perform work under this contract.

C.  CONSULTANT has confirmed the employment eligibility of all employees who are newly hired for employment to perform work under this public contract for services

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through participation in either the E-Verify program or the Colorado Department of Labor and Employment Program.

D.	The CONSULTANT is prohibited from using the E-Verify program or the Department of Labor and Employment Program procedures to undertake pre-employment screening of job applicants while the public contract for services is being performed.

E.	By signing this agreement the CONSULTANT affirmatively acknowledges that if the consultant obtains actual knowledge that a sub-consultant performing work under the public contract for services knowingly employs or contracts with an illegal alien, the consultant shall be required to:
(i)  notify the sub-consultant and the contracting state agency or political subdivision within three days that the consultant has actual knowledge that the sub-consultant is employing or contracting with an illegal alien; and
(ii)  terminate the subcontract with the sub-consultant if within three days of receiving the notice required pursuant to sub-subparagraph (i) of this subparagraph the sub-consultant does not stop employing or contracting with the illegal alien; except that the consultant shall not terminate the contract with the sub-consultant if during such three days the sub-consultant provides information to establish that the sub-consultant has not knowingly employed or contracted with an illegal alien.

F.	The CONSULTANT shall comply with all reasonable requests made in the course of an investigation by the Colorado Department of Labor and Employment.

G.	The CONSULTANT shall, within twenty days after hiring an employee who is newly hired for employment to perform work under this contract, affirm that the CONSULTANT has examined the legal work status of such employee, retained file copies of the Documents required by 8 U.S.C. § 1324(a) , and not altered or falsified the identification documents for such employees.  The CONSULTANT shall provide a written notarized copy of the affirmation to the CITY.

H.	If CONSULTANT violates any provision of this Contract pertaining to the duties imposed by Subsection 8-17.5-102, C.R.S. the CITY may terminate this Contract. If this Contract is so terminated, CONSULTANT shall be liable for actual and consequential damages to the CITY arising out of Consultant's violation of Subsection 8-17.5-102, C.R.S.

I.	By signing this Agreement, the CONSULTANT certifies that it shall in all respects comply with the provisions of C.R.S. § 8-17.5-101, et seq.

<div align="center">ARTICLE 31 – ELECTRONIC SIGNATURES</div>

The Contract Documents may be executed in two or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same document. The Contract Documents, including all component parts set forth above, may be executed and delivered by electronic signature by any of the parties and all parties consent to the use of electronic signatures.

## ARTICLE 32 - NOTICE

All notices required in this Contract shall be sent by certified mail, return receipt requested, and if sent to the CITY shall be mailed to:

City of Greeley
Project Representative Information
Scott Logan
1300 A Street, Suite H
Greeley, CO   80631
Ph:     970-350-9555
Email:  scott.logan@greeleygov.com


and if sent to the CONSULTANT shall be mailed to:

Vendor Information
Ph:
Fax:
Email:

**EXHIBIT 5**
**REQUIRED CONTRACT PROVISIONS**
**FEDERAL-AID CONSTRUCTION CONTRACTS**

## I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.
Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.
Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

## II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO: r

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:
"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.
d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.
a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

 a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:**
The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:**
The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:
(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will

be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

## III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

## IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1.  **Minimum wages**

    a.  All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

> b.  (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
(ii) The classification is utilized in the area by the construction industry; and
(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for

determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

    c.  Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

    d.  If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## 2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

## 3. Payrolls and basic records
a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act),

daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee ( e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

      (i)      That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

      (ii)     That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from

the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii)     That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

## 4.  Apprentices and trainees

### a. Apprentices (programs of the USDOL).
Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under

the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

    d.  Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

## 5.  Compliance with Copeland Act requirements.
The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

## 6.  Subcontracts.
The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

## 7.  Contract termination: debarment.
A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

## 8.  Compliance with Davis-Bacon and Related Act requirements.
All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

## 9.  Disputes concerning labor standards.
Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

## 10.  Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

## V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

### 1. Overtime requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

### 2. Violation; liability for unpaid wages; liquidated damages.

In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

### 3. Withholding for unpaid wages and liquidated damages.

The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other

federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.**

The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:
(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. 5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety

and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

## VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.
In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

  "Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

  Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

  Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

## IX.IMPLEMENTATION OF CLEAN AIR ACT AND FEDERALWATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Actor Section 306 of the Clean Air Act.

2.  That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

## X.CERTIFICATION REGARDING DEBARMENT,SUSPENSION, INELIGIBILITY AND VOLUNTARYEXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

### 1. Instructions for Certification – First Tier Participants:

a.By signing and submitting this proposal, the prospectivefirst tier participant is providing the certification set out below.

b.The inability of a person to provide the certification set outbelow will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

 c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

 d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred,""suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees bysubmitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

**2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:
(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**2. Instructions for Certification - Lower Tier Participants:**
(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

    a.  By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

    b.  The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

    c.  The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d.  The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e.  The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f.  The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g.  A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h.  Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i.  Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered

transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.
2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file

the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

## ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

    a. To the extent that qualified persons regularly residing in the area are not available.

    b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

    c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is

substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

**EXHIBIT 6**
**Traffic Signal System Functional Requirements**

# Traffic Signal System Functional Requirements

| Category | | | Function | Requirement | | Function Compliance (System Included in Base Proposal) | | | Function Compliance (System Included with additional fees to Base Proposal) | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Required | Preferred | Considered | | Central | Local | Compliant | Partially Compliant | Not Compliant | Compliant | Partially Compliant | Not Compliant | |

## 1.0 Standards

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | | | System should support integration with existing cabinet components such as controller, Cabinet Management Unit (CMU)/Malfunction Management Unit (MMU), power supply, detector units (veh & ped), Bus Interface Unit (BIU), load switches, transfer relays and solid- state flasher. **1.1** | | X | | | | | | | |
| X | | | System shall support all mandatory and optional National Transportation Communications for ITS Protocol 1201 objects **1.2** | X | X | | | | | | | |
| X | | | System shall support all mandatory and optional NTCIP 1202 objects **1.3** | X | X | | | | | | | |
| X | | | Conformance to the NTCIP communication protocols previously stated shall not be accomplished through the use of embedding proprietary protocols. **1.4** | X | X | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | X | | | System application software shall be compatible with shipping and currently supported server-class versions of the Micros®o f(tMS) Windows® Operating Systems (OS). List all OS systems supported in Comments. | X | | | | | | | | | |
| 1.6 | X | | | System application software shall be compatible with shipping and currently supported workstation and laptop versions of MS Windows® operating systems. List all OS systems supported in Comments. | X | | | | | | | | | |
| 1.7 | X | | | System servers and workstations shall not require a "dongle" or hardware key for software copy protection | X | | | | | | | | | |
| 1.8 | X | | | System servers shall utilize Active Directory for network administration and security | X | | | | | | | | | |
| 1.9 | X | | | System software shall have a demonstrable ability to run in a virtual server environment. Please list supported platforms, host CPU/OS and guest CPU/OS, as applicable | X | | | | | | | | | |
| 1.10 | | X | | System shall support data outputs in Extensible Markup Language (XML) format. | X | | | | | | | | | |
| 1.11 | X | | | System shall employ and operate on a standards-based database storage platform. Please list database systems supported in Comments section. | X | | | | | | | | | |
| 1.12 | X | | | System application software shall access database using Open Database Connectivity (ODBC) interface. | X | | | | | | | | | |
| | | | | System shall support user access to the system as listed below. Describe means of access for each in Comments section. | | | | | | | | | | |
| 1.12.1 | X | | | Networked computer (workstation, tablet PC or laptop) | X | | | | | | | | | |
| 1.12.2 | | X | | Direct database sync using a laptop or tablet PC | X | | | | | | | | | |
| 1.12.3 | X | | | Remote connection via Virtual Private Network (VPN) access | X | | | | | | | | | |
| 1.12.4 | X | | | System shall provide manual or user-defined time intervals per day for time synchronization from network time server using the Simple Network Time Protocol (SNTP). | X | | | | | | | | | |
| 1.13 | | X | | System should support Universal Resource Locator (URL) parameters at the local TCP/IP system level and the Internet. | X | | | | | | | | | |
| | | | | | | | | | | | | | | |

| | | | | 2.0 Communications | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.1 | X | | | System shall support Internet Protocol (IP) addressable field controllers | X | X | | | | | | | |
| 2.2 | X | | | System shall utilize an IP address mapped to the Medium Access Control (MAC) address without the use of a serial converter. | X | X | | | | | | | |
| 2.3 | X | | | System shall support Central and Field data communication over a 10/100/1000/10000 Mbps Ethernet network (i.e., fiber and wireless spread spectrum radio). | X | X | | | | | | | |
| 2.4 | | X | | Central system shall support a direct connection (Ethernet) with CMU/MMU. User shall also be able to access CMU/MMU via local controller. List compatible CMU/MMU vendors and connection type in Comments section. | X | X | | | | | | | |
| 2.5 | | X | | Central system shall support a direct connection (Ethernet) with UPS. User shall be able to access UPS via local Ethernet switch and/or controller | X | X | | | | | | | |
| 2.6 | | X | | Central system shall support a direct connection (Ethernet) with preemption detector cards. User shall be able to access detector cards via local Ethernet switch and/or controller. List compatible preemption vendors, supported connections and connection type in Comments section. | X | X | | | | | | | |
| 2.7 | X | | | System shall provide second by second polling to signalized intersection | X | X | | | | | | | |
| 2.8 | | X | | System shall provide exception-based polling to signalized intersection | X | X | | | | | | | |
| 2.9 | | X | | If exception-based polling to signalized intersections is utilized, the system shall support a non-requested "heartbeat" or "status" response from the field using dynamic objects or traps at intervals not less than four times each minute. | X | X | | | | | | | |
| 2.10 | X | | | System shall communicate with standard IEEE 802.3x Ethernet specifications | X | X | | | | | | | |
| 2.11 | X | | | System shall transmit a Gratuitous Address Resolution Protocol (GARP) reply packet when first connected to an Ethernet network even though no request has been made. | | X | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.12 | X | | | System shall be able to extract Virtual Local Area Networks (VLANs) from a tagged trunk of VLANs being received from the Ethernet network. | | X | | | | | | | |
| | | | | | | | | | | | | | |

**3.0 Graphical User Interface**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | X | | | GUI shall be uniform and consistent in its use of buttons, function keys, menus and screen designs using accepted industry standards such as Multiple Document Interface (MDI) and Tabbed Document Interface (TDI) to manage the system's window workspace environment. | X | | | | | | | | |
| 3.2 | X | | | The system will be provided with complete graphics of all existing 118 signals. System shall provide templates for intersection graphics and the ability to copy/paste existing intersection graphics. | X | | | | | | | | |
| 3.3 | X | | | The system shall support the display of signalized intersections | X | | | | | | | | |
| 3.3.1 | X | | | Multi-level, logical groupings regardless of intersection's physical location, jurisdiction or communication channel | X | | | | | | | | |
| 3.3.2 | X | | | Geographical location in Greeley | X | | | | | | | | |
| 3.3.3 | X | | | Device or IP address | X | | | | | | | | |
| 3.3.4 | X | | | Specific corridors | X | | | | | | | | |
| 3.3.5 | X | | | Membership to a group or groups | X | | | | | | | | |
| 3.4 | | X | | System shall interface with ESRI ArcGIS 10.xx (or other currently supported version used by City) so that GIS maps and aerials may be used as a base for system maps. List currently supported versions and other options (i.e. Microsoft Bing, OpenMaps maps) in Comments. | X | | | | | | | | |
| 3.5 | X | | | System shall allow hyperlinks from the GUI to other Windows®-based applications to facilitate a "loosely integrated" multifunction system. | X | | | | | | | | |
| 3.6 | X | | | System shall provide full Signal System manual access from the application software | X | | | | | | | | |
| 3.7 | X | | | System shall provide a graphical display for scheduling and reviewing scheduled event | X | | | | | | | | |
| 3.8 | | | | System should support customizable graphics configuration to include the following option | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.8.1 | | X | | User customizable window display (organize window display, show/hide tools, savable customized windows configurations for each user) | X | | | | | | | | |
| 3.8.2 | | X | | User selectable map layers (drop down box of available layers | X | | | | | | | | |
| 3.8.3 | | X | | User configurable links (each individual link) to be placed on map display | X | | | | | | | | |
| 3.8.4 | X | | | View all intersections at once (system level map) | X | | | | | | | | |
| 3.8.5 | X | | | View one intersection at a time (intersection level map | X | | | | | | | | |
| 3.8.6 | X | | | View user defined subset of intersections (section level map) | X | | | | | | | | |
| 3.8.7 | X | | | Capability to window in/out of the main map using the cursor | X | | | | | | | | |
| 3.9 | | | | System should support user defined Graphic Display options for current traffic conditions and individual intersection status as follows: | | | | | | | | | |
| 3.9.1 | X | | | System shall show intersection coordination status for one or multiple intersection | X | | | | | | | | |
| 3.9.2 | X | | | Real-time split status | X | | | | | | | | |
| 3.9.3 | X | | | Phase max reached | X | | | | | | | | |
| 3.9.4 | X | | | Phase gap out | X | | | | | | | | |
| 3.9.5 | X | | | Phase force off | X | | | | | | | | |
| 3.9.6 | X | | | Full signal indications (green/yellow/red | X | | | | | | | | |
| 3.9.7 | X | | | Control status (i.e., free, coordinated, preempt, transition, flash, off-line, bad communication | X | | | | | | | | |
| 3.9.8 | X | | | Transition status (i.e., short, long) | X | | | | | | | | |
| 3.9.9 | X | | | Current timing plan (including local cycle timer | X | | | | | | | | |
| 3.9.10 | X | | | Timing plan requested | X | | | | | | | | |
| 3.9.11 | X | | | Manual commands active (including police, stop time) | X | | | | | | | | |
| 3.9.12 | X | | | Preemption events | X | | | | | | | | |
| 3.9.13 | | | X | Transit signal priority event | X | | | | | | | | |
| 3.9.14 | | X | | System should support user configurable GUI tool that allows split time utilization (phases 1-8 on standard dual ring controller) | X | | | | | | | | |
| 3.10 | | | | System should support zoom options as follows | | | | | | | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.10.1 | | X | | User defined zoom preset | X | | | | | | | | | | |
| 3.10.2 | | X | | User defined zoom box | X | | | | | | | | | | |
| 3.10.4 | | X | | Dynamic zoom in-out | X | | | | | | | | | | |
| 3.10.5 | | X | | User selectable home view zoom | X | | | | | | | | | | |
| 3.10.6 | | X | | User selectable auto layers for user specified layers at predefined zoom level | X | | | | | | | | | | |
| 3.11 | | | | System shall display detector information including the following | | | | | | | | | | | |
| 3.11.1 | X | | | Detector actuations (per detector and/or per phase | X | | | | | | | | | | |
| 3.11.2 | X | | | Volume/occupancy from system detectors | X | | | | | | | | | | |
| 3.11.3 | | X | | Speed | X | | | | | | | | | | |
| 3.11.4 | | | X | Classification | X | | | | | | | | | | |
| 3.11.5 | X | | | Pedestrian phase serviced | X | | | | | | | | | | |
| 3.11.6 | X | | | System shall display signal programming sheets | X | | | | | | | | | | |
| 3.12 | X | | | User shall be able to select the signal timing sheet to display | X | | | | | | | | | | |
| 3.13 | X | | | System should support user configurable links to signalized intersection as-builts and intersection photo | X | | | | | | | | | | |
| 3.14 | | X | | System shall be able to display a graphical representation of the controller's front panel display in near real-time | X | | | | | | | | | | |
| 3.15 | X | | | System should create and display real-time time-space diagrams | X | | | | | | | | | | |
| 3.16 | X | | | System should show green progression on the real-time time-space diagram | X | | | | | | | | | | |
| 3.17 | | X | | System shall be able to display a virtual sticky note as a reminder or status indication to system operators about any equipment or operational parameters that may need to be checked, such as incidents, construction and special events, work on traffic signals. | X | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

**4.0 Traffic Signal Operation and Control**

**Basic Timing Parameters**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | X | | | The System shall be supplied with all existing timing plans in field controllers uploaded into the server and integrated with the GUI intersection graphics | X | X | | | | | | | | | |

| | X | | | | X | X | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.2 | X | | | System shall default to standard eight-phase, dual-ring operation | X | X | | | | | | | | |
| 4.3 | X | | | System shall provide a minimum of four rings | X | X | | | | | | | | |
| 4.4 | X | | | System shall provide a minimum of 16 vehicle phases | X | X | | | | | | | | |
| 4.5 | X | | | System shall provide a minimum of four pedestrian phases | X | X | | | | | | | | |
| 4.6 | X | | | System shall support fixed-time operation | X | X | | | | | | | | |
| 4.7 | X | | | System shall provide capability to control multiple intersections with one controller | X | X | | | | | | | | |
| 4.8 | X | | | System shall support interval advance | | X | | | | | | | | |
| 4.9 | X | | | System shall provide capability to modify left-turn phasing by TOD/DOW plans | X | X | | | | | | | | |
| 4.10 | X | | | System shall allow nesting schedules in local software (delectable events) | X | X | | | | | | | | |
| 4.11 | X | | | System shall support soft recall | X | X | | | | | | | | |
| 4.12 | X | | | System shall support time-based coordination | X | X | | | | | | | | |
| 4.13 | X | | | System shall maintain last scheduled plan if communication is lost and revert back to Time of Day (TOD) plan after running special event plans. | X | X | | | | | | | | |
| 4.14 | X | | | System shall support traffic responsive operation (setup menu, parameters (V, O, K & W), plan and pattern selection | X | X | | | | | | | | |
| 4.15 | X | | | System shall base the traffic-responsive algorithm on the UTCS signature matching algorithm or other TOCR/DRCOG approved traffic responsive algorithm. | X | X | | | | | | | | |
| 4.16 | X | | | System shall, in traffic responsive operation, select the timing plan that is best suited to the existing traffic conditions as measured by the system detectors and analyzed by the system's traffic responsive process. | X | X | | | | | | | | |
| 4.16 | X | | | System shall, in traffic responsive operation, command the selected timing plan to the intersections on a continuous basis until the traffic responsive process recognizes, based on sufficient change in traffic conditions, the need to command a different timing plan. | X | X | | | | | | | | |
| 4.17 | | | | In order to enhance traffic responsive operations, the following four traffic responsive process points shall be implemented: | | | | | | | | | | |

| Req # | | | | Description | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.17.1 | X | | | Each logical grouping of signals shall be capable of being associated with zero other groupings, one of which shall be designated as the master grouping. When traffic conditions warrant a traffic responsive timing plan change for the master grouping, the system shall automatically change the timing plans for the other associated groupings. If no other groupings are associated with the process, only that grouping shall change timing plans. | X | X | | | | | | | |
| 4.17.2 | X | | | The operator shall be able to define a single detector station as a grouping. When the traffic responsive process detects that this station has exceeded operator defined thresholds, the associated groupings shall implement the appropriate traffic responsive plan. This process is intended for use in conjunction with special events, such as a surge of traffic leaving a parking lot at the end of an event. | X | X | | | | | | | |
| 4.17.3 | X | | | Logical groupings of signals shall be changeable on a time-of-day basis. The intersections within a grouping shall be changeable, allowing intersections to be in different groupings depending on the time-of-day. Definition of master groupings and associated groupings shall be changeable, allowing groupings to be associated with different master groupings depending on the time-of-day. | X | X | | | | | | | |
| 4.17.4 | X | | | If an operator-definable number (or percent) of controllers or detectors are offline due to a communications failure then the traffic responsive plan shall not be initiated. | X | X | | | | | | | |
| 4.17.5 | X | | | System application software shall provide stop time | X | | | | | | | | | |
| 4.18 | | | | Basic phase timing and status shall be accessible using : | | | | | | | | | |
| 4.18.1 | X | | | Laptop | X | | | | | | | | | |
| 4.18.2 | | X | | Tablet computer | X | | | | | | | | | |
| 4.18.3 | X | | | Smartphone | X | | | | | | | | | |
| 4.19 | X | | | System shall allow access to all timing tables offered by the local controller firmware. | X | | | | | | | | | |
| 4.20 | X | | | System shall monitor for duplicated commands programmed from central and warn user prior to implementation. | X | | | | | | | | | |

| # | | | Requirement | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.21 | | X | System shall allow single or continuous actuation (vehicle or pedestrian phases) remotely without changes to timing plans. | X | | | | | | | | |
| 4.22 | X | | System shall allow remote recall (vehicle or pedestrian phases) without changes to timing plans. | X | | | | | | | | |
| 4.23 | | X | System should have a control hierarchy (e.g., manual, TOD, standby/local controller default) via GUI menus. | X | | | | | | | | |
| 4.24 | | X | Manual override Assignment screen - groups all defined manual step entries and actions (Enabled, entity, entity description, action, authorized by start date/time, stop date/time, duration, description) via GUI menus | X | | | | | | | | |
| 4.25 | | X | Action set editor menu - Allows for a series of actions to be applied to various entities in a single entry | X | | | | | | | | |
| 4.26 | X | | System shall allow the user to send manual commands to a controller to initiate patterns, free operation or flash | X | X | | | | | | | |
| 4.27 | X | | System shall provide the user with the ability to initiate a single manual command to one or all intersections to turn on/off free operation and, by phase, turn on/off max recall and adjust max green. | X | X | | | | | | | |
| 4.28 | X | | System shall support TOD, DOW, WOY and central scheduling | X | X | | | | | | | |
| 4.29 | X | | System shall provide editing capabilities of all timing parameters | X | X | | | | | | | |
| 4.30 | X | | System shall store a backup of intersection timings organized by intersection numbers or names. | X | | | | | | | | |
| 4.31 | X | | System shall have the capability to store a minimum of three versions of timing parameters for each intersection | X | | | | | | | | |
| 4.32 | X | | System to allow local and remote download/upload of controller database to/ from the field | X | X | | | | | | | |
| 4.33 | X | | User shall be able to upload or download user-defined data one timing page at a time | X | | | | | | | | |
| 4.34 | | X | System shall allow the user to select, single, multiple, or user-defined groups of intersections to upload/download timing tables at one time. | X | | | | | | | | |
| 4.35 | X | | System shall provide upload and download capabilities for user-defined or all timing parameters to one or multiple controllers | X | | | | | | | | |

| # | | | | Description | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.36 | X | | | System shall allow user to compare and display differences in the uploaded controller database versus the database stored on the server. | X | | | | | | | | | | |
| 4.37 | X | | | System shall allow remote upload/download of entire intersection database from the field to the central database via the controller's front panel. | X | | | | | | | | | | |
| 4.38 | X | | | System shall support automatic upload and comparison of timing plans by the central system at user-defined time intervals. | X | | | | | | | | | | |
| 4.39 | X | | | System shall not experience local data crashes during uploads or downloads that would place controllers into flashing operation. | X | | | | | | | | | | |
| 4.40 | X | | | System shall support the use of a rugged, portable and non-volatile memory data storage device (e.g., data key, USB flash drive, etc.) that can be used by field personnel for controller data transport and firmware updates. | X | | | | | | | | | | |
| 4.41 | X | | | System shall provide the ability to copy controller timing data from one controller to another through user selection of one or multiple pages of a controller's database. | X | | | | | | | | | | |
| 4.42 | | | | System shall allow for automatic synchronization of timing data with field personnel' | | | | | | | | | | | |
| 4.42.1 | X | | | Laptop | | | | | | | | | | | |
| 4.42.2 | | X | | Tablet computer | X | | | | | | | | | | |
| 4.42.3 | | X | | Smartphone | X | | | | | | | | | | |
| 4.43 | X | | | System shall provide a configurable start and end time of manual commands | X | | | | | | | | | | |
| 4.44 | X | | | User shall be able to configure new templates for signal timing data | X | | | | | | | | | | |
| 4.45 | X | | | User shall be able to manually download server time to the controllers in the field | X | | | | | | | | | | |
| 4.46 | X | | | System shall provide the capability to select for automatic implementation of special signal and/or timing plans to accommodate traffic flow patterns during special events. | X | X | | | | | | | | | |
| 4.47 | X | | | User shall be able to schedule any command for execution at any time. For example; patterns, pedestrian/vehicle calls. | X | | | | | | | | | | |

| # | | | | Description | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.48 | X | | | System shall be able to support the operation of a flashing yellow arrow (FYA) graphically and within the controller. | X | | | | | | | | | |
| | | | | | | | | | | | | | | |

**Overlaps**

| # | | | | Description | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.49 | X | | | System shall provide a minimum of eight overlaps | X | X | | | | | | | | |
| 4.50 | X | | | System shall support right-turn overlap phasing without additional programming | X | X | | | | | | | | |
| 4.51 | X | | | System shall support a "Negative Pedestrian Overlap" (run a right-turn overlap green arrow with the adjacent though movement based on whether there is an active ped call). | X | | | | | | | | | |
| | | | | | | | | | | | | | | |

**Preemption and Priority**

| # | | | | Description | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.52 | X | | | System shall support a minimum of 8 multiple class-based preemption routines. | X | X | | | | | | | | |
| 4.53 | X | | | System shall support a minimum of 8 multiple class-based priority routines. | X | X | | | | | | | | |
| 4.54 | X | | | System shall support priority service without skipping phases. | X | X | | | | | | | | |
| 4.55 | X | | | System shall operate priority service in either free or coordinated modes. | X | X | | | | | | | | |
| 4.56 | X | | | System shall support multiple simultaneous conflicting priority calls from different approaches. This will allow a second priority request to be stored and served following the active request. | X | X | | | | | | | | |
| 4.57 | X | | | System shall provide early green/green extension for multiple priority routines. | X | X | | | | | | | | |
| 4.58 | X | | | System shall support separate max and walk times for use during priority service | X | X | | | | | | | | |
| 4.59 | | X | | System shall continue background cycle timer and have the option to exit preemption in sync or choose exit phases and not be in sync. | X | X | | | | | | | | |
| 4.60 | X | | | After preempt, system shall allow capability to serve all other phases, that have a demand, before a second preempt. | X | X | | | | | | | | |
| 4.61 | | | X | System shall be able to operate a transit queue jump signal that allows a parallel bus through movement to | X | X | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | start a user programmed amount of time before the adjacent through traffic. | | | | | | | | | | | |
| 4.62 | X | | System shall support green extension. Ability to extend the designated low priority phase green a pre-determined amount of time when a low priority call is received during the priority phase | X | X | | | | | | | | | |
| 4.63 | X | | System shall support early green. Ability to truncate selected non-priority phases to a pre-determined value when a low priority call is received while the intersection is in a phase other than the priority phase. | X | X | | | | | | | | | |
| 4.64 | X | | System shall log all early green and green extension events. | X | X | | | | | | | | | |
| 4.65 | X | | System shall stay in coordination while truncating or extending phases for a low priority call. | X | X | | | | | | | | | |
| 4.66 | X | | System shall provide a frequency timer that controls the amount of time that must pass before the next low priority is served. | X | X | | | | | | | | | |
| 4.67 | X | | System shall support ability for the user to select whether a low priority call is locked in when the signal is initially received or if it only stays active as long as the call is present. | X | X | | | | | | | | | |
| 4.68 | X | | System shall support user selection of non-conflicting vehicle phases during a heavy rail preemption. | X | X | | | | | | | | | |
| 4.69 | X | | System shall support pedestrian inhibit, restricting pedestrian movements upon receiving an advanced rail input separate from the preempt input. | X | X | | | | | | | | | |
| | | | | | | | | | | | | | | |
| **Detectors and Input** | | | | | | | | | | | | | | |
| 4.70 | X | | System shall support a minimum of 32 addressable detector inputs | X | X | | | | | | | | | |
| 4.71 | X | | System shall support expansion of addressable detector inputs up to 64 | X | X | | | | | | | | | |
| 4.72 | | X | User defined detector parameters (Volume, Occupancy, Speed, logging, display, and exporting | X | X | | | | | | | | | |
| 4.73 | | X | User defined detector parameters (Volume, Occupancy, Speed, logging, display, and exporting | X | X | | | | | | | | | |
| 4.74 | | X | User defined collection time period and error threshold parameters | X | X | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.74 | | X | | Configurable Historical Volume, Speed & Occupancy Data Display (tabular or graphical format) through GUI | X | X | | | | | | | |
| 4.75 | | X | | Data exportable to comma delimited text files | X | X | | | | | | | |
| 4.76 | | X | | System detectors supply real time roadway data to update link displays | X | X | | | | | | | |
| 4.77 | | X | | User defined parameter(s) to update link display status (Volume, Occupancy, Speed, Weighted Volume-Occupancy) via GUI menu | X | | | | | | | | |
| 4.78 | X | | | System shall provide vehicle and pedestrian detector diagnostics, stuck calls, no calls, based on user defined time frame | X | X | | | | | | | |
| 4.79 | X | | | System shall provide conflict monitor diagnostics | X | X | | | | | | | |
| 4.80 | X | | | System shall provide user-definable cabinet input function mappings. This will allow the user to map any detector input to one or more phases. | | X | | | | | | | |
| 4.81 | X | | | System shall provide user-definable cabinet output function mappings. This will allow the user flexibility to drive signs, flashing beacons, etc. | | X | | | | | | | |
| 4.82 | X | | | System shall provide logic editor to drive inputs/outputs based on test | | X | | | | | | | |
| | | | | | | | | | | | | | |

**Coordination**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.83 | X | | | System shall support a minimum of 24 signal timing plans/patterns, which can call for coordinated, free, or programmed flash operation. | X | | | | | | | | |
| 4.84 | X | | | System shall support plan (pattern) selection manually and local TOD scheduler at the local field controller | X | | | | | | | | |
| 4.85 | X | | | System shall support event-based pattern selection based on volume-occupancy and logic time | X | | | | | | | | |
| 4.86 | X | | | System shall be able to coordinate with single and/or multiple band permissive | X | | | | | | | | |
| 4.87 | X | | | System shall support maximum recall phases by plan | X | X | | | | | | | |
| 4.88 | X | | | System shall support minimum recall phases by plan | X | X | | | | | | | |
| 4.89 | X | | | System shall support pedestrian recall phases by plan | X | X | | | | | | | |
| 4.90 | X | | | System shall support reservice phases by plan (conditional service). | X | X | | | | | | | |
| 4.91 | X | | | System shall support pedestrian rest-in-walk. | X | X | | | | | | | |

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| 4.92 | X | | | System shall allow the user to select phases not to shorten when using short way transition method | X | X | | | | | | | | | |
| 4.93 | X | | | Controller shall support multiple offset recovery options (short way, long way, dwell, return to coordination | X | X | | | | | | | | | |
| | | | | | | | | | | | | | | | |

**5.0 Security/User Access**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.1 | X | | | System shall provide scheduled deletion of log and system detector data (user selectable time intervals). | X | | | | | | | | | | |
| 5.2 | X | | | System shall log all users' (local or central) activities (upload/download, etc. | X | X | | | | | | | | | |
| 5.3 | X | | | System shall provide the option to require comments when timing changes are made (system administrator can select as required or optional). | X | | | | | | | | | | |
| 5.4 | X | | | System shall allow access for a minimum of 20 users | X | | | | | | | | | | |
| 5.5 | X | | | System shall allow users to access the system simultaneously | X | | | | | | | | | | |
| 5.6 | X | | | System shall allow users to view the same intersection data simultaneously | X | | | | | | | | | | |
| 5.7 | X | | | System shall simultaneously support all workstations at any one time for both networked and remote use | X | | | | | | | | | | |
| 5.8 | X | | | System shall provide a login screen with username and password protection, managed by the system administrator, with user selectable time interval for password expiration | X | | | | | | | | | | |
| | | | | System Administrator shall be able to set system configuration access privileges, including: | | | | | | | | | | | |
| 5.9 | X | | | Ability to define new controllers, groups, users, alarms, masters, system detectors, et | X | | | | | | | | | | |
| 5.10 | | | | System Administrator shall be able to configure access privileges by jurisdiction, including | | | | | | | | | | | |
| 5.10.1 | X | | | Read/write privileges | X | | | | | | | | | | |
| 5.10.2 | X | | | Upload/download privileges | X | | | | | | | | | | |
| 5.11 | | | | System Administrator shall be able to define users who can develop reports, including | | | | | | | | | | | |
| 5.11.1 | | X | | Ability to develop report queries | X | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.11.2 | X | | | Ability to set collection of reports | X | | | | | | | | | |
| 5.11.3 | X | | | System shall support configuration of individual user and group profile | X | | | | | | | | | |
| 5.11.4 | X | | | System shall allow the system Administrator to designate a user by jurisdiction | X | | | | | | | | | |
| 5.12 | | | | System shall log user access | | | | | | | | | | |
| 5.12.1 | X | | | System shall log user access date and time | X | | | | | | | | | |
| 5.12.2 | X | | | System shall log user ID | X | | | | | | | | | |
| 5.12.3 | X | | | System shall log amount of time user was logged into the system | X | | | | | | | | | |
| 5.12.4 | X | | | System shall display users currently logged in | X | | | | | | | | | |
| 5.13 | X | | | Edits to graphics and changes to system administration shall be refreshed after a save and all clients need to see made changes. | X | | | | | | | | | |
| | | | | | | | | | | | | | | |

**6.0 Data Collection/Reports**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.1 | X | | | Event Log, Signal Phase Data and Event Log Monitor - allow denoting loggable events and formatting how data is recorded and archived. | X | | | | | | | | | |
| 6.2 | X | | | Status reports should allow user defined event log and signal phase data monitoring (configurable table sizes to desired record count, tables can be individually managed and archived) via GUI menus. | X | | | | | | | | | |
| 6.3 | X | | | System should allow user defined filters for status reports | X | | | | | | | | | |
| 6.4 | | | | System shall allow the user to configure system detector logs including: | | | | | | | | | | |
| 6.4.1 | X | | | Volume - Every lane needs to be able to be counted and reported; reporting needs to be able to be stored in a user-defined format (TMC, 24 hour, etc.) without the software smoothing or rounding the numbers. | X | X | | | | | | | | |
| 6.4.2 | X | | | Occupancy | X | X | | | | | | | | |
| 6.4.3 | | X | | Speed | X | X | | | | | | | | |
| 6.4.4 | X | | | Pedestrian calls (locked and non-locked) | X | X | | | | | | | | |
| 6.4.5 | X | | | Pedestrian phased service (constant on | X | X | | | | | | | | |

| | X | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.5 | X | | | System shall provide user-definable report query by intersection and/or by failure. Queries shall have an option to be saved for future use. | X | | | | | | | | | | |
| 6.6 | X | | | System shall monitor and report the clock time error in real-time to verify the local offsets/clocks are accurate. | X | | | | | | | | | | |
| 6.7 | X | | | System shall utilize a 3rd party software product (e.g., Crystal Reports, SSRS, etc.) to allow users to design and generate custom reports | X | | | | | | | | | | |
| 6.8 | X | | | System shall allow user to directly export custom and summary reports to a universal format (e.g., HTML, PDF) for viewing, saving or printing. | X | | | | | | | | | | |
| 6.9 | X | | | User shall be able to select a print of all sheet | X | | | | | | | | | | |
| 6.10 | X | | | User shall be able to select a print out with only sheets containing timing data | X | | | | | | | | | | |
| 6.11 | X | | | User shall be able to select a print out with only user selected sheet | X | | | | | | | | | | |
| 6.12 | X | | | User shall be able to select a print out with only a user-configured set of sheet | X | | | | | | | | | | |
| 6.13 | X | | | System shall support predefined intersection diagrams (i.e.., T-intersection, ramp interchange, one way, etc.) with vehicles, pedestrians, detectors, coordination plans, etc. | X | | | | | | | | | | |
| 6.14 | | | | System shall report logs from the following or provide through a hyperlink | | | | | | | | | | | |
| 6.14.1 | X | | | CMU/MMU | X | | | | | | | | | | |
| 6.14.2 | X | | | UPS | X | | | | | | | | | | |
| 6.14.3 | X | | | EVP phase selector cards | X | | | | | | | | | | |
| 6.14.4 | X | | | Emergency Vehicle Pre-emption | X | | | | | | | | | | |
| 6.14.5 | X | | | System shall support HTML or XML data output for traffic flow map (real-time from system detectors | X | | | | | | | | | | |
| 6.15 | | | | System shall log and provide a report of the following performance data | | | | | | | | | | | |
| 6.15.1 | X | | | Real-time split usage | X | | | | | | | | | | |
| 6.15.2 | X | | | Phase max reached | X | | | | | | | | | | |
| 6.15.3 | X | | | Phase gap out | X | | | | | | | | | | |
| 6.15.4 | X | | | Phase force off | X | | | | | | | | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.15.5 | X | | | Coordination events & causes | X | | | | | | | | | | |
| 6.15.6 | X | | | Transition events & causes | X | | | | | | | | | | |
| 6.16 | | | | User shall be able to generate a system status report. System status report could be generated b | | | | | | | | | | | |
| 6.16.1 | | X | | A group of intersections | X | | | | | | | | | | |
| 6.16.2 | X | | | A group of intersections by event | X | | | | | | | | | | |
| 6.16.3 | X | | | All intersections | X | | | | | | | | | | |
| 6.16.4 | X | | | All intersections by event | X | | | | | | | | | | |
| 6.16.5 | X | | | An individual intersections | X | | | | | | | | | | |
| 6.5 | | X | | System should provide a report for system performance measures (average corridor travel times, stops, delays | X | | | | | | | | | | |

**7.0 Alarms**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.1 | X | | | User configurable alarm priority | X | | | | | | | | | | |
| 7.2 | X | | | TOCR Administrator shall be able to configure how an alarm will be delivered by the type of event (flash, preempt, transition, cabinet door, etc.) | X | | | | | | | | | | |
| 7.3 | X | | | User defined alarm hierarchy and corresponding on-call technician notification based on time of day, shift, day of week, etc. | X | | | | | | | | | | |
| 7.4 | | X | | Alarm notification (includes alarm text description and location) via GUI menu | X | | | | | | | | | | |
| 7.4.1 | | X | | Phone | X | | | | | | | | | | |
| 7.4.2 | | X | | Pop-up window (GUI) | X | | | | | | | | | | |
| 7.4.3 | X | | | Text message | X | | | | | | | | | | |
| 7.4.4 | X | | | Email | X | | | | | | | | | | |
| 7.4.5 | X | | | Report | X | | | | | | | | | | |
| 7.4.6 | | X | | Instant messaging | X | | | | | | | | | | |
| 7.5 | X | | | System shall provide a minimum of four user-defined redundant alarms. Alarms shall be configurable via controller log | X | | | | | | | | | | |
| 7.6 | X | | | System shall provide a date and time stamp for each alarm | X | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.7 | X | | | System shall have the capability to filter alarm types and allow predetermined collection of alarm | X | | | | | | | | | |
| 7.8 | X | | | System should allow for a trigger function based on an alarm | X | | | | | | | | | |
| 7.9 | | | | System shall allow the following alarm collection functions | | | | | | | | | | |
| 7.10 | X | | | Scheduled collection of alarms | X | | | | | | | | | |
| 7.11 | X | | | User-selected alarms to collect | X | | | | | | | | | |
| 7.12 | X | | | Automatically display selected alarms | X | | | | | | | | | |
| 7.13 | | | | System shall display user defined system/corridor/intersection alarms including the following | | | | | | | | | | |
| 7.13.1 | X | | | Cabinet flash (e.g., malfunction | X | X | | | | | | | | |
| 7.13.2 | X | | | Cabinet door open | X | X | | | | | | | | |
| 7.13.3 | X | | | Off-line | X | X | | | | | | | | |
| 7.13.4 | X | | | UPS activation | X | X | | | | | | | | |
| 7.13.5 | X | | | UPS inactive | X | X | | | | | | | | |
| 7.13.6 | X | | | Keyboard entry | X | X | | | | | | | | |
| 7.13.7 | X | | | Loss of communication | X | X | | | | | | | | |
| 7.13.8 | X | | | Bad communication | X | X | | | | | | | | |
| 7.13.9 | X | | | Loss of coordination and cause | X | X | | | | | | | | |
| 7.13.10 | X | | | Preemption timeout or exceeding a fixed time | X | X | | | | | | | | |
| 7.13.11 | | X | | Cycle failure | X | X | | | | | | | | |
| 7.13.12 | X | | | System and local clock drift/time error, based on user defined threshold | X | X | | | | | | | | |
| 7.13.13 | X | | | Police Panel Door open | X | X | | | | | | | | |
| 7.13.14 | X | | | Manual Operation | X | X | | | | | | | | |
| | | | | | | | | | | | | | | |

**8.0 System Configuration**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.1 | X | | | System is scalable, supporting up to 500 intersections. System shall be purchased with a 120 intersection site license for Greeley. | X | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.2 | | X | System is scalable, supporting up to 5,000 system detectors | X | | | | | | | | | |
| 8.3 | X | | System Administrator shall be able to assign an intersection ID number | X | | | | | | | | | |
| 8.4 | X | | ID numbers shall have a capability of seven digit | X | | | | | | | | | |
| 8.5 | X | | System Administrator shall be able to assign an intersection to logical groups. Intersections must also be able to exist in multiple groups and temporary groups created on the fly. All groups should be able to be created through selection in a map tree. | X | | | | | | | | | |
| 8.6 | X | | Intersection groups should be able to be assigned regardless of communication channels intersections are on. | X | | | | | | | | | |
| 8.7 | X | | System Administrator shall be able to assign an intersection to a jurisdiction. | X | | | | | | | | | |
| 8.8 | X | | System shall provide backup and storage capability for all data as frequently as possible without affecting overall system performance. This data shall be time stamped and archived for records for 5 years. The system shall also log and record all user activity tagged by date and time. | X | | | | | | | | | |
| 8.9 | X | | System shall be designed for unattended operations 24 hours per day, 7 days a week, without requiring an operator to be logged into the system. The system shall provide system control by coordinating intersection operations on an individual, grouping, or system- wide basis. | X | | | | | | | | | |
| 8.10 | X | | System shall be capable of dividing the traffic network into a minimum of 50 groupings of signals for items such as special events, pattern changes, traffic responsive, incident management, etc. | X | | | | | | | | | |
| 8.11 | | X | System must provide an automatic routine to systematically test all combination of inputs and outputs of a controller cabinet in a bench or test environment. | | X | | | | | | | | |
| | | | | | | | | | | | | | |

**9.0 System Interface**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.1 | | X | System should support upload/download of signal timing data to/from Synchro via UTDF format | X | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.2 | | X | | User should be able to select the individual UTDF data elements to upload/download | X | | | | | | | | |
| 9.3 | | X | | System shall have the capability to support deployed McCain 2070 controllers and future selected City ATC infrastructure to maximize future investments on new hardware. | X | | | | | | | | |
| 9.4 | X | | | System shall support cross-platform hardware interchangeability to ensure no sole source controller is required. | X | | | | | | | | |
| 9.5 | X | | | System shall provide the capability to select from a variety of traffic controller firmware as it relates to 9.3 and the functional requirements contained herein. | X | X | | | | | | | |
| | | | | | | | | | | | | | |

**10.0 Software Standards Compliance**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.1 | X | | | The system manufacturer shall utilize a methodology for software development, testing, configuration management and quality assurance processes using CMMI, IEEE, ISO or in-house developed procedures. | X | | | | | | | | |
| 10.2 | X | | | Testing for NTCIP 1201 and 1202 conformance shall be performed either in-house by the manufacturer or through an Independent Verification and Validation (IVV) process to perform and certify the results. | X | | | | | | | | |
| 10.3 | X | | | The system manufacturer must provide City with a Statement of Compliance (SOC) or certification from the IVV to substantiate NTCIP compliance for this procurement. | X | | | | | | | | |
| | | | | | | | | | | | | | |

**11.0 System Software**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.1 | X | | | System documentation shall include a user guide | X | | | | | | | | |
| 11.2 | X | | | System manufacturer shall be responsible for developing the test plan and procedures, however, it shall be submitted to City for review, modifications and written approval prior to its use. | X | | | | | | | | |
| 11.3 | X | | | The system manufacturer's test plan and procedures must include the functional requirements contained herein, as applicable. | X | | | | | | | | |
| 11.4 | | X | | System software compatible with off-shelf PC software (GIS, CAD, Spreadsheet | X | | | | | | | | |

| 11.5 | | X | | System software shall provide customizable tools to interface with other program | X | | | | | | | | | |
|------|--|---|--|----------------------------------------------------------------------------------|---|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

## EXHIBIT 7
## Traffic Signal Controller Preferred Requirements

## Please fill out one of these forms for every controller type you provide that works with your ATMS system

General

The vendor is required to supply a minimum of seventy (70) 330X Style controllers as part of this project.   These controllers shall comply with NTCIP 1202 version v03 communication protocol.  Controllers shall also provide superior performance in all signal control applications with advanced functionality for complex phasing, detector processing, coordination, preemption, communications, ATMS systems operation, transit signal priority (TSP), and provisions for Connected/Autonomous Vehicle applications.

The controller shall have enhanced usability that includes a large front panel with high contrast for day and night time use, large keypad.  The display shall utilize an intuitive, text based user interface, or, optionally, provide an intuitive graphical user interface. A web-based interface is preferred that allows remote operation via a smart phone, tablet or laptop.

The 330X style signal controllers shall be Caltrans TEES 2009 compliant.  The preferred  features of the signal controllers are listed below.

| # | Features | Number/Size Supplied | Function Compliance (Y/N) | Comment |
|---|---|---|---|---|
| | **Traffic Signal Controller Requirements** | | | |
| | | | | |
| | **ATC Engine Board** | | | |
| 1 | Size of DDR2 SDRAM | | | |
| 2 | Size of  NAND Flash Memory | | | |
| 3 | Size of SRAM | | | |

| | | | | |
|---|---|---|---|---|
| 4 | SD Card receptacle | | | |
| | | | | |
| | Graphics Processor Unit | | | |
| 5 | Number and size of Ethernet Ports | | | |
| 6 | USB 2.0 port (yes/no) | | | |
| 7 | TFT LCD Interface | | | |
| | | | | |
| | | | | |
| | Display | | | |
| 11 | o  Display  size  color/black and white | | | |
| 12 | o  Resistive touch pane | | | |
| 13 | o  lines and characters in display | | | |
| 14 | Keypad characteristics | | | |
| 15 | Speaker capabilities | | | |
| 18 | Graphical Mode and Classic Text mode software interface | | | |
| | Communication Interfaces | | | |
| 19 | Ethernet switches, per Engine Board Ethernet interface | | | |
| 20 | 10/1000 MB Ethernet Ports | | | |
| 21 | o  Ethernet ports per switch | | | |
| 22 | o  Ethernet port to Graphics Processor | | | |
| | Number of USB 2.0 Ports | | | |
| 23 | o   USB Ports from Engine Board | | | |
| 24 | o   USB Port to Graphics Processor | | | |
| | Serial Ports | | | |
| 27 | • ATC Console Port | | | |
| 28 | Dual color activity indicators | | | |
| | Communications Card Slot | | | |
| 29 | • ATC compatible "A2" card slot | | | |
| | | | | |
| | Signal Interfaces | | | |
| 30 | • C1S Pin Connector | | | |
| | | | | |

| | Removable Storage | | | |
|---|---|---|---|---|
| 31 | • SD Card | | | |
| 32 | • Data Key | | | |
| | • USB Port | | | |
| | | | | |
| | Physical | | | |
| 33 | Recessed surfaces for Datakey, SD Card and communications slot | | | |
| 34 | Moisture sealed touch panel and keypad | | | |
| 35 | Voltage: 89 – 135 VAC, 60 Hz | | | |
| 36 | Power: 10 – 90 Watts | | | |
| 37 | Temperature:  -37 deg. C to + 74 deg C | | | |
| 38 | Humidity: 95 percent or less, non-condensing | | | |
| | | | | |
| | **Controller Operating Features** | | | |
| 39 | NTCIP Compliant Database | | | |
| 40 | Browser Based GUI | | | |
| 41 | Vehicle and Pedestrian Phases and  Overlaps | | | |
| 42 | Overlap Detector Mapping | | | |
| 43 | Independent Ped Overlaps | | | |
| 44 | Alternate Signal Timing Tables | | | |
| 45 | Coordination Patterns | | | |
| 46 | Coordination Synchronization Modes (Long, Short, Dynamic Short) | | | |
| 47 | NTCIP – based Scheduler with user friendly features | | | |
| 48 | ATSPM High Resolution Data Logging | | | |
| 49 | Flashing Yellow Arrow (FYA) Support and Mapping | | | |
| 50 | Pedestrian Friendly FYA Support | | | |
| 51 | Gap Dependent FYA Support | | | |
| 52 | HAWK signal and Dedicated Pedestrian Phase Programming | | | |
| 53 | Preemption Routines | | | |
| 54 | Dynamic Preemption Exit | | | |
| 55 | Channels of Detection with Failure Diagnostics | | | |

| 56 | Full Status and Diagnostics Screens | | | |
|----|-------------------------------------|---|---|---|
| 57 | Real-Time I/O Status Viewer | | | |
| 58 | Re-assignable 1/O in any mode | | | |
| 59 | Peer-to Peer capability | | | |

# EXHIBIT 8
## Fee Proposal

**PROPOSAL PRICE SCHEDULE**

Provide all labor, material, and equipment for the Advance Transportation Management System and local traffic signal controllers Project in accordance with the specifications and provisions contained in this bid. This includes supplying seventy (70) ATC traffic signal controllers with the most recent technology complete with software programs to enhance reliability and improved functionality.  As part of this work, the firm will create a system map for the ATMS operations and ensure that program is successfully monitoring activities at each of the 120 signalized locations.

All pricing quoted shall be allowed to be negotiated prior to the signing of the contract. Pricing shall be in the format of the cost schedule contained below. Do not include cost and price figures anywhere except in the cost schedule. Alternative approaches for the pricing of the requested products and services may be provided; however, such alternate approaches shall be described separately and must be in addition to the format. Do not include cost or price figures anywhere except in the cost schedule. All pricing shall be guaranteed for 180 days from proposal submittal.

**The City reserves the right to increase and/or decrease the number of traffic signal controllers subject to available funding.**

| ASTM System Fee Proposal (Base) | | | | | |
|---|---|---|---|---|---|
| # | Quant. | Unit | Description | $/Unit | Total $ |
| 1 | 1 | LS | Project management. | | |
| 2 | 1 | LS | Furnish and install central system software in a virtual environment with a 2016 Windows server, including database, middleware, and other 3rd party software. Include all costs for hardware required in the RFI. | | |
| 3 | 130 | EA | Software licensing fee for central system. | | |
| 4 | 130 | EA | Software licensing fee for database, middleware, and other 3rd party software. | | |
| 5 | 1 | LS | System configuration and integration for 120 signalized intersections including generate databases, maps, intersection graphics, configuration files, and integration. | | |

| # | Quant. | Unit | Description | $/Unit | Total $ |
|---|--------|------|-------------|--------|---------|
| 6 | 1 | LS | Module for Primary/Secondary Vehicle Pre-emption (**Provide details**) | | |
| 7 | 1 | LS | Module for Infrastructure to Vehicle (I2V) including the Spat application (**Provide details**) | | |
| 8 | 1 | LS | Module for traffic responsive operation. (**Provide Details**) | | |
| 9 | 1 | LS | Module for peer-to-peer operation. (**Provide details**) | | |
| 10 | 1 | LS | Data Collection and Management system module. (**Provide details**) | | |
| 11 | 1 | LS | Data Collection and Management system module. (Deployment & Configuration) (**Provide details**) | | |
| 12 | 1 | LS | Module for Tablet PC and/or smartphone software (support upload/download to controllers in the field and synchronize database files with central system). (**Provide details**) | | |
| 13 | 1 | LS | Advanced CCTV module. (**Provide details**) | | |
| 14 | 4 | $YR | Central system software maintenance agreement (4 years) | | |
| 15 | 70 | EA | Rack Mounted ATC 330X Style Controllers compatible with the ATMS system. (**Provide details**) | | |
| 16 | 3 | EA | Training sessions hosted at City provided facilities. | | |
| 17 | 1 | $YR | Automated Signal Performance Measures Data Collection | | |
| | | | **Total Costs** | | |

| Optional ATMS System Costs | | | | | |
|---|--------|------|-------------|--------|---------|
| # | Quant. | Unit | Description | $/Unit | Total $ |
| 18 | 1 | $/YR | Central system software warranty each year for 5 year period | | |
| 19 | 1 | LS | Module for traffic adaptive operation. (License) | | |
| 20a | 40 | Ea | Module for traffic adaptive operation. (Implementation) | | |

| | | | | | |
|---|---|---|---|---|---|
| 20b | 1 | LS | Module for traffic adaptive operation. (Annual Support & Maintenance) | | |
| 21 | 1 | LS | Cloud based solution for the Central server and software backup | | |
| 18 | | | Other ATC Controllers TS-2 Type or Rack Mounted ATC Controllers with ATMS system with lesser capabilities | | |
| 19 | 1 | LS | Alternative  controller 1   Attach detailed specifications | | |
| 20a | 1 | Ea | Alternative  controller 2   Attach detailed specifications | | |
| 20b | 1 | LS | Alternative  controller 3   Attach detailed specifications | | |
| 21 | 1 | Hr | Technical Support (not covered by service agreements/warranty) | $/HR | |