



## ADDENDUM

**DATE:** July 23, 2024

**ADD. NO.:** 1

**PROJECT:** CML 5406(033) – YOSEMITE AND PASADENA SIGNALIZATION IMPROVEMENTS

**BID. NO.:** 2024-03

**FROM:** Rob Marler, City Engineer

**TO:** All Bidders

**PAGES:** 1 of 10

This Addendum forms a part of the Contract Documents and modifies the original Proposal, Technical Specifications and Agreement, dated July, 2024. Acknowledge receipt of this Addendum when submitting the Proposal. Failure to do so may subject the bidder to disqualification.

- The attached “Special Provisions”, provided by the Caltrans Encroachment Permit Electrical Division, shall be added and included in the project’s specifications.

**End of Addendum**

**Add to section 86-1.01C:**

**86-1.01C(11) Cellular Router**

Submit:

1. Manufacturer's warranty documentation.
2. Certificate of compliance and the manufacturer's QC test data.
3. Operation manuals. The manual must include the following:
  - 3.1. Installation.
  - 3.2. Configuration settings.
  - 3.3. Troubleshooting.

**Replace section 86-1.01D(3) with:**

**86-1.01D(3) Warranty**

Provide minimum 4-year manufacturers replacement warranty for cellular router(s) and camera(s) against defective or failed material from date of installation. Warranty must cover all expenses for replacement of parts, technical support, and shipping. Warranty must show the California Department of Transportation as the owner. Deliver replacement parts to the following address:

Traffic Management Center  
1976 E Charter Way  
Stockton, CA 95205

**Add to section 86-1.01D:**

86-1.01D(5)(b) Cellular Router

Submit cellular routers to the Engineer and allow 14 days for activation and configuration. Once the routers have been activated and configured, they will be returned for installation.

**Add to section 86-1.02:**

**86-1.02AA Cellular Routers**

**86-1.02AA(1) General**

Cellular router(s) must:

1. Have rugged housing.
2. Have firmware, hardware, and protocol features that are fully compatible with the existing service providers in the area.
3. Be programmable and configurable remotely.
4. Have LED indicators for power, activity, signal strength and network.
5. Have MAC address filtering.
6. Support custom or private carrier Access Point Names (APNs).
7. Operate in a temperature range from -22 to 158 degrees F.
8. Operate in a non-condensing humidity range from 5 to 95 percent.
9. Support FirstNet.
10. Support 4G LTE Bands B3,B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B26, B29, B41, B66.
11. Support National Marine Electronics Association (NMEA) 0183 v3.0 GNSS protocol
12. Have minimum one USB communications port.
13. Have minimum 2 auto-carrier section SIM slots.
14. Have a (dc) power port and an operating input voltage from 9 to 33 V(dc).
15. Include minimum 4 years of cloud management support. Cloud management support must include remote:
  - 15.1. Configuration.
  - 15.2. Diagnostics.
  - 15.3. Cellular health.
  - 15.4. Node connection.

15.5. Speed test.

15.6. Technical support.

16. Have a 6 foot category 6 patch cable.

17. Have antenna mounting hardware.

18. Have a 120 V (ac) power adapter.

Cellular routers must have a minimum of two connectors and antenna for Wi-Fi. The Wi-Fi antenna must be a multiple-input and multiple-output antenna (MIMO) and be integrated with the cellular and GPS antenna. The router must support 2.4/5 GHz Wi-Fi bands. Wi-Fi must support:

1. Dual radio, 802.11 b/g/n/ac

2. Single Service Set Identifier (SSID) support per radio

3. Wi-Fi Protected Access 2 (WPA2) enterprise security

#### **86-1.02AA(2) Type 1 Cellular Routers**

Type 1 cellular router must:

1. Support minimum download speeds of 3 Gbps.

2. Support minimum upload speeds of 650 Mbps.

3. Support 5G NR Bands n1, n2, n3, n7, n8, n12, n20, n25, n28, n38, n, 40, n41, n66, n71, n77, n78 and n79.

4. Support automatic 4G fallback.

5. Have minimum 4 switchable WAN LAN female gigabit ethernet ports (RJ45).

6. Have four connectors for cellular antennas.

7. Have a multiple-input and multiple-output (MIMO) antenna of a low-profile design with 4 cellular antennas and a Global Navigation Satellite System (GNSS). antenna. The antenna must be multiple-band MIMO of a low-profile design with integrated ground plane for outdoor permanent mount using a threaded bolt with a metallic structure and compatible with cellular communications.

#### **86-1.02AA(2) Type 2 Cellular Routers**

Not Used

**Add to section 86-1.01C:**

**86-1.01C(12) Cameras**

Submit:

1. Manufacturer's warranty documentation and technical support contact information.
2. Certificate of compliance and the manufacturer's QC test data.
3. Manufacturer's video analytics accuracy data.
4. Maintenance and operation manuals. The manual(s) must include the following:
  - 4.1. Installation and wiring diagrams.
  - 4.2. Configuration and calibration settings.
  - 4.3. Communication configuration.
  - 4.4. Maintenance and part replacement documentation.
  - 4.5. Troubleshooting.

**Replace section 86-1.01D(2) with:**

**86-1.01D(2) Training**

Not Used

Arrange 8 hours of training by the manufacturer's representative 30 days prior to contract acceptance for up to 6 Department employees. Notify the Engineer 20 days in advance of the proposed training and obtain authorization for time and place of training. If an agreement cannot be reached, the Engineer determines the time and place of training. Provide training manuals and material.

Provide training for the following:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Replace section 86-1.01D(3) with:**

**86-1.01D(3) Warranty**

Provide manufacturers replacement warranty against defective or failed material from date of installation. Warranty must cover all expenses for replacement of parts, technical support, and shipping.

Provide warranty for the following:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Warranty must show the California Department of Transportation as the owner. Deliver replacement parts to the following address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Add to section 86-1.01D:**

**86-1.01D(4) Source Quality Control**

Not Used

Service equipment enclosures and cabinets must be inspected and tested at the source.

**Add to section 86-1.01D:**

**86-1.01D(5) Department Acceptance**

86-1.01D(5)(a) General

Not Used

Deliver material and equipment for testing to METS.

Allow 30 days for testing. The Department notifies you when testing is complete.

If the Department accepts the material or equipment, you must pick it up from the test site and deliver it to the job site.

If the Department rejects material or equipment, remove it within 5 business days after you are notified it is rejected. If it is not removed within that period, the Department may remove it and ship it to you and deduct the costs of labor, material and shipping.

Resubmit a new sample and allow 30 days for retesting. The retesting period starts when the replacement material or equipment is delivered to METS.

86-1.01D(5)(c) Cameras

86-1.01D(5)(c)(1) General

Not Used

Under climate norms and as applicable for the site, video analytics accuracy verification must be continuous for 48 hours, and consist of:

1. Presence detection in minimum 8 defined zones. The traffic counts must be accurate within:
  - 1.1. 5 percent for vehicle volumes, and pedestrian groups up to 4 people.
  - 1.2. 10 percent for bicyclists, and pedestrian groups of 5 or more people.
  - 1.3. 10 percent for vehicle classifications per group.
2. Field of view validation of minimum 25 objects tracked simultaneously.
  - 2.1. Vehicle speed. Speed must be accurate within 10 percent based on manufacturer recommended field of view and calibration.
  - 2.2. Traffic trajectory tracking.
3. An MP4 video recording. The video recording must be submitted to the Engineer and verified by a Department representative for accuracy. Allow 10 days for verification.

86-1.01D(5)(c)(2) Type 1 and Type 2 Cameras

Not Used

Prior to notifying the Engineer that the camera is ready for integration into the Departments central control application, use the default network settings to:

1. Verify the Iris adjust automatically to darken the image.
2. Verify the Iris adjust automatically to brighten the image.
3. Focus the camera on objects by using the full range of the lens.
4. Program 6 presets with various degrees of zoom, pan and tilt.
  - 4.1. The camera moves between presets in 4 seconds or less.
  - 4.2. The camera doesn't move unless directed by another command.
5. Program a tour with the 6 presets and demonstrate the camera moves freely between presets. Run the tour continuously for one hour.

6. Test the tilting and masking features and verify characters are superimposed on the image.

86-1.01D(5)(c)(2) Type 3 Cameras

Not Used

Prior to notifying the Engineer that the camera is ready for integration into the Departments central control application, use the default network settings to:

1. Verify the Iris adjust automatically to darken the image.
2. Verify the Iris adjust automatically to brighten the image.
3. Focus the camera on objects by using the full range of the lens.

#### **Add to section 86-1.02:**

#### **86-1.02AB Cameras**

##### **86-1.02AB(1) General**

Cameras must:

1. Have a CMOS imager.
2. Have a minimum operating temperature from -22 to 140 degrees F.
3. Have a minimum 256 GB of memory.
4. Operate in a non-condensing humidity range from 0 to 95 percent.
5. Support minimum of 3 independent video streams.
6. Have minimum shutter speed of 1/10,000 to 1 second.
7. Have fog detection image processing.
8. Have backlight compensation.
9. Have white balance (WB).
10. Support the following protocols:
  - 10.1. RTP/RTCP/RTSP.
  - 10.2. QoS DiffServ.
  - 10.3. HTTP/HTTPS.
  - 10.4. ONVIF Profiles G, M, S and T.
  - 10.5. IPv6.
11. Have a TCP/IP compliant video management network interface. The video management network interface must:
  - 11.1. Have full camera control and configuration for video analytics and network settings.
  - 11.2. Have temperature and humidity monitoring.
  - 11.3. Allow firmware updated.
  - 11.4. Have access to video files.
12. Have a Power over Ethernet (PoE)++ injector with RJ45 network input and output ports. The POE injector must be as recommended by the camera manufacturer and support a minimum of 75 Watts..
13. Include mounting hardware. Mounting hardware must be of the same color as the camera housing.
14. Support remote updates.
15. Have a minimum of 8 privacy masks.
16. Have an open application programming interface (API).
17. Have compatible video metadata for all types of cameras if from the same manufacturer.
18. Have the latest software and firmware available from the manufacturer installed. The software and firmware must be fully licensed and include updates from the manufacturer for a minimum 4 years.

Cameras must include continuous cloud storage and video management support for a minimum of 4 years from the date of installation. The cloud-based service must:

1. Store AI metadata stream, and analytic data stream for 4 years
2. Have secure camera-to-cloud communication via an encrypted 128 bit Secure Socket Layer (SSL) connection with certificate-based authentication at both ends

3. Have separate operational and development access. Only designated system operators may have administrative access to customer systems
4. Have servers physically located in the United States

Cameras must perform all video analytic computing through an on-board processor. Video analytics must:

1. Have automatic image pipeline optimization at a minimum rate of 15 frames per second.
2. Have automatic detection and image correction against sun glare, lights, and lens flare.
3. Detect and classify traffic in user defined zones.
4. Have individual records for detected traffic. The record must include:
  - 4.1. Classification.
  - 4.2. Speed.
  - 4.3. Object size.
  - 4.4. Trajectory.
  - 4.5. Time stamp.
  - 4.6. Location.
5. Have Artificial Intelligence (AI) classification analytics for:
  - 5.1. Pedestrians.
  - 5.2. Bicyclists.
  - 5.3. Vehicles. Vehicles must be classified per the Highway Performance Monitoring System (HPMS) groups:
    - 5.3.1. Group 1 - Motorcycles.
    - 5.3.2. Group 2 - Passenger vehicles, and Group 3 - Light trucks may be combined.
    - 5.3.3. Group 4 - Buses.
    - 5.3.4. Group 5 - Single unit vehicles, and Group 6 - Combination unit vehicles may be combined.
8. Have real time analytics and automated alerts for:
  - 8.1. Vehicle wrong way direction.
  - 8.2. Entering detection zone.
  - 8.3. Leaving detection zone.
  - 8.4. Idle objects.
9. Have metadata and attribute analytics for:
  - 9.1. Zone occupancy.
  - 9.2. Traffic trajectory tracking.
  - 9.3. Traffic speed.

### **86-1.02AB(2) Type 1 Cameras**

Not Used

Type 1 cameras must:

1. Be dome type.
2. Be IEC 60529 IP66 rated.
3. Weight 11 pounds or less.
4. Have a lens with minimum focal length of 7 to 120 mm.
5. Have a dome cover over the lens.
6. Have minimum 30x optical zoom.
7. Have minimum 12x digital zoom.
8. Support 30 frames per second at 1080p resolution.
9. Have a minimum tilt range of 200 degrees.
10. Have a minimum pan range of 360 degrees.
11. Support a minimum of 256 preset positions.
12. Support scene tours that automatically reposition the camera.
12. Support continuous traffic tracking using pan, tilt and zoom actions.
14. Support NTCIP protocol.
15. Have a Power a POE network port. The POE port must:
  - 15.1. Be POE++ and High POE compliant.

- 15.2. Support minimum 75 Watts.
- 15.3. Be IEEE802.3bt compliant.
- 15.4. Have integrated surge protection.
- 16. Have video analytics with automatic motion tracking and, minimum, 16 separate profiles. Automatic tracking must:
  - 16.1. Follow objects continuously including when passing behind a privacy mask.
  - 16.2. Allow users to define virtual scenes to exclude certain objects and prevent false triggers.

Type 1 cameras and accessories must be one of the following:

- 1. Axis Communications, Model No. AXIS Q6075-E PTZ
- 2. Bosch AUTODOME inteox 7000i, Model No. NDP-7602-Z30 PTZ 2MP 30x starlight clear pendant

The POE injector for a Type 1 camera must be one of the following:

- 1. Axis Communications, Model No. AXIS T8134 60 W Midspan 5900-334
- 2. Antaira Technologies, Model No. INJ-C201G-bt-H-100-24-T

The camera POE injector must be supplied from the same manufacturer as the camera.

### **86-1.02AB(3) Type 2 Cameras**

Not Used

Type 2 cameras must:

- 1. Be positioner type.
- 2. Be IEC 60529 IP68 rated.
- 3. Weight 20 pounds or less.
- 4. Have a lens with minimum focal length of 8 to 190 mm.
- 5. Have a clear lens cover, and lens wiper.
- 6. Have minimum 30x optical zoom.
- 7. Have minimum 12x digital zoom.
- 8. Support 60 frames per second at 1080p resolution.
- 9. Have minimum tilt range of 180 degrees.
- 10. Have minimum pan range of 360 degrees.
- 11. Have a minimum of 256 preset positions.
- 12. Support scene tours that automatically reposition the camera.
- 13. Support continuous traffic tracking using pan, tilt and zoom actions.
- 14. Support NTCIP protocol.
- 15. Have a POE network port. The POE port must:
  - 15.1. Be POE++ and High POE compliant.
  - 15.2. Support minimum 75 Watts.
  - 15.3. Be IEEE802.3bt compliant.
  - 15.4. Have integrated surge protection.
- 16. Have video analytics with automatic motion tracking and, minimum, 16 separate profiles. Automatic tracking must:
  - 16.1. Follow objects continuously including when passing behind a privacy mask.
  - 16.2. Allow users to define virtual scenes to exclude certain objects and prevent false triggers.

Type 2 cameras and accessories must be one of the following:

- 1. CostarHD Rise 4260HD, Model No. 4263-1000-03



2. [Wireless Technology Inc. \(WTI\) WTI Viper HD PTZ Camera, Model No. Viper H.265 HD30L](#)

The POE injector for a Type 2 camera must be one of the following:

1. [CostarHD High Temperature 75W PoE++ Supply, Model No. 7412007-003](#)

2. [Wireless Technology Inc. \(WTI\), Model No. WTI-POE-I-ALT](#)

The camera POE injector must be supplied from the same manufacturer as the camera.

#### **86-1.02AB(4) Type 3 Cameras**

Not Used

**Add to section 87-1.03:**

**87-1.03AB Cameras**

Mount cameras as shown, per the manufacturer's instructions, install and terminate communications cables.

Install the POE injector in the cabinet or enclosure.

Arrange with the Engineer to have a Traffic Operations Electrical representative configure the camera to the Departments network settings. The Traffic Operations Electrical representative will verify the camera's functionality.

A manufacturer's representative must calibrate the cameras video analytics.