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John Bel Edwards, Governor
Shawn D. Wilson, Ph.D., Secretary

June 28, 2017

STATE PROJECT NO. H.012823
FEDERAL AID PROJECT NO. H012823
I-10 BRIDGES: JOINT REPAIRS: LAKE CHARLES
ROUTE I-10
CALCASIEU PARISH

SUBJECT: ADDENDUM NO. 01 (CONSTRUCTION PROPOSAL REVISION)

Gentlemen:

The following proposal revision dated 06/28/17 on the captioned project for which bids will be received on Wednesday, July 12, 2017 has been posted on <http://wwwapps.dotd.la.gov/engineering/lettings/>.

1. Revised the special provision entitled NS TEMPORARY QUEUE DETECTION (8 pages)

Please note this revision in the proposal and bid accordingly. Mandatory electronic bidding is required for this project, and electronic bids and electronic bid bonds must be submitted via www.bidx.com for this letting date.

Sincerely,

RANDAL D. SANDERS, P. E.
CONTRACTS & SPECIFICATIONS ENGINEER

Attachments

cc: Mr. Mike Vosburg
Mr. Donald Duberville
Mr. Tyson Thevis
Mr. Artur D'Andrea
Mr. James Street
Mr. Mark Chenevert

NS TEMPORARY QUEUE DETECTION (05/17):

DESCRIPTION:

This work shall consist of furnishing, installing, relocating, operating and maintaining an automated, portable, real-time queue detection system in accordance with plan details and the requirements noted herein, and providing the maintenance of the complete system during the duration of the project. Included in the operational responsibilities is the assumption of all communication costs such as FCC licensing, cellular telephone, wireless data networks, satellite and Internet subscription charges, solar system support and battery charging and maintenance. In addition to these requirements, the Contractor shall assume all responsibility for any damaged equipment due to crashes, vandalism, adverse weather, etc. that may occur during the systems deployment.

MATERIALS:

The contractor shall provide all equipment, signs, communications, power, data, etc. for a fully operational system as described in the plans and specifications.

The contractor shall submit prior to installation a system layout, component specifications, product brochures, test parameters, message scenarios, and system supplier references to the project engineer for approval prior to beginning work. The contractor shall provide, install, adjust and run subsystem tests of all materials and equipment necessary for the queue detection system as suggested by the supplier, ordered by the project engineer or as stated in the contract documents. The contractor shall submit a list of standard message scenarios that covers the continuous operation of the system. Testing shall verify that the queue detection system and control unit are compatible with the portable PCMS. Testing results shall be approved by the project engineer prior to activation of the queue detection system and the display of any message to the traveling public.

The queue detection system shall be a proven system that has been successfully deployed and operated in actual work zone or congestion areas.

GENERAL REQUIREMENTS:

The Contractor shall furnish this system for delivering condition-responsive messages to detour motorists for the areas **in advance of EASTBOUND INTERSTATE 10 EXIT 4 (East 90 to LA 109 Toomey Starks) and EXIT 21 (LA 27 Dequincy), and WESTBOUND INTERSTATE 10 EXIT 44 (US 165 Alexandria) and EXIT 33 (US 171 to LA 14 DeRidder Shreveport) as well as along the designated detour route (LA 109 to LA 12, LA 27 to LA 12, US 171 to US 190, US 165 to US 190).** This Contractor shall also furnish this system for measuring and delivering condition-responsive messages for the areas **along INTERSTATE 10, between EXIT 23 (LA 108 Cities Service Hwy) to EXIT 33 (US 171 to LA 14 DeRidder Shreveport), and INTERSTATE 210 in its entirety.** The system shall be maintained and operated for the duration of the project.

The queue detection system shall be required to send an email notification when the speed through the corridor decreases below 45 MPH. Email addresses shall be furnished at the start of project.

This speed threshold shall have the ability to be modified at any time throughout the project. A video feed shall be available for the Department to display on its website.

The queue detection system shall consist of the following components as a minimum. Refer to the Equipment Location section listed further down in this document for proposed device locations.

- Portable Changeable Message Signs (PCMS)
- Portable Queue Trailer/Sensors (PQT)
- Pan Tilt Zoom (PTZ) cameras
- Static Warning Signage (with flashing beacons) equipped with PTP (point-to-point) communications technology between the signs and queue sensors
- The Contractor shall provide 3 laptop computer with laptop travel case for Department use equipped with appropriate software, a wireless PC Modem and a dedicated high-speed communications connection (DSL/Cable/Satellite or approved alternative) with at least 0.5 Mbps upload and download wireless connection speed to the Internet.
- Communication equipment for all above pieces including wireless data networks, base stations, cell phone data interfaces, Ethernet network interfaces and internet interfaces
- Webpage integrated with the queue detection system capable of providing real-time traffic data to Contractor and Department personnel twenty-four (24) hours a day, seven (7) days a week

The following table provides roadway locations of approximate device layout. **The contractor shall propose the actual device layout to the Project Engineer for approval at least three (3) weeks prior to installation of the queue detection system.**

<u>Route</u>	<u>Milepoint</u>	<u>Intersecting Street</u>	<u>CS</u>	<u>Logmile</u>
I-10	2.483	EB I-10 in advance of US 90 EAST to LA 109 (TOOMEY STARKS)/Exit 4	450-91	2.183
I-10	3.461	EB I-10 in advance of US 90 EAST to LA 109 (TOOMEY STARKS)/Exit 4	450-91	3.161
I-10	21.01	EB I-10 in advance of LA 27(BEGLIS)/Exit 21	450-91	20.71
I-10	21.84	EB I-10 in advance of permanent DMS	450-91	21.54
I-10	23.98	EB I-10 for curves to east of LA 108/Exit 23	450-91	23.68
I-10	24.30	EB I-10 in advance of I-210 EAST (LAKE CHARLES BY-PASS)/Exit 25	450-91	24.00
I-10	24.83	EB/WB I-10 for fly ramps to East I-210 at I-210 West Interchange	450-91	24.53
I-10	26.04	EB I-10 for US 90(WEST)/PPG DR/TROUSDALE RD/Exit 26 Overpass	450-91	25.74
I-10	28.1	EB I-10 for Calc. River Bridge near LA 378/Exit 27	450-91	27.8
I-10	29.58	WB I-10 for Calc. River Bridge near LA 385/NORTH LAKESHORE DR/Exit 30A	450-91	29.28
I-10	30.29	EB/WB I-10 for LA 385 (Lakeshore Drive) Overpass	450-91	29.99
I-10	30.54	EB/WB I-10 for RYAN Overpass	450-91	30.24
I-10	30.62	EB/WB I-10 for BILBO Overpass	450-91	30.32
I-10	30.96	EB/WB I-10 for KIRKMAN Overpass	450-91	30.66
I-10	31.03	EB/WB I-10 for US 90 BUS(X)(EAST)/ENTERPRISE BLVD/Exit 31A Overpass	450-91	30.73
I-10	31.72	EB/WB I-10 for SHATTUCK Overpass	450-91	31.42
I-10	31.74	EB/WB I-10 for curves and US 90 Overpass	450-91	31.44

<u>I-10</u>	<u>32.38</u>	<u>WB I-10 for OPELOUSAS ST/Exit 32</u>	<u>450-91</u>	<u>32.08</u>
<u>I-10</u>	<u>33.30</u>	<u>WB I-10 in advance of US 171(NORTH)/DERIDDER/SHREVEPORT/Exit 33</u>	<u>450-91</u>	<u>33.00</u>
<u>I-10</u>	<u>33.58</u>	<u>WB I-10 in advance of US 171(NORTH)/DERIDDER/SHREVEPORT/Exit 33</u>	<u>450-91</u>	<u>33.28</u>
<u>I-10</u>	<u>35.34</u>	<u>WB I-10 in advance of permanent DMS</u>	<u>450-91</u>	<u>35.04</u>
<u>I-10</u>	<u>45.860</u>	<u>WB I-10 in advance of US 165(KINDER ALEXANDRIA)/Exit 44</u>	<u>450-03</u>	<u>1.366</u>
<u>I-10</u>	<u>47.072</u>	<u>WB I-10 in advance of US 165(KINDER ALEXANDRIA)/Exit 44</u>	<u>450-03</u>	<u>2.578</u>
<u>I-210</u>	<u>0.61</u>	<u>WB I-210 for fly ramp to East I-10 near I-210 Ramp/Exit 1</u>	<u>450-30</u>	<u>0.61</u>
<u>I-210</u>	<u>4.45</u>	<u>EB/WB I-210 for LA 1138-2 (Nelson Road) Overpass</u>	<u>450-30</u>	<u>4.45</u>
<u>I-210</u>	<u>4.94</u>	<u>EB/WB I-210 for HOLLY HILL RD. Overpass</u>	<u>450-30</u>	<u>4.94</u>
<u>I-210</u>	<u>5.43</u>	<u>EB/WB I-210 for LAKE ST. Overpass</u>	<u>450-30</u>	<u>5.43</u>
<u>I-210</u>	<u>5.96</u>	<u>EB/WB I-210 for ERNEST ST. Overpass</u>	<u>450-30</u>	<u>5.96</u>
<u>I-210</u>	<u>6.23</u>	<u>EB/WB I-210 for LA 385 (Ryan St) Overpass</u>	<u>450-30</u>	<u>6.23</u>
<u>I-210</u>	<u>6.49</u>	<u>EB/WB I-210 for COMMON ST. Overpass</u>	<u>450-30</u>	<u>6.49</u>
<u>I-210</u>	<u>6.74</u>	<u>EB/WB I-210 for KIRKMAN ST. Overpass</u>	<u>450-30</u>	<u>6.74</u>
<u>I-210</u>	<u>6.98</u>	<u>EB/WB I-210 for LOUISIANA AVE. Overpass</u>	<u>450-30</u>	<u>6.98</u>
<u>I-210</u>	<u>7.05</u>	<u>EB/WB I-210 for ENTERPRISE BLVD. Overpass</u>	<u>450-30</u>	<u>7.05</u>
<u>I-210</u>	<u>7.47</u>	<u>EB/WB I-210 for TEXAS ST. Overpass</u>	<u>450-30</u>	<u>7.47</u>
<u>I-210</u>	<u>7.92</u>	<u>EB/WB I-210 for 5TH AVE. Overpass</u>	<u>450-30</u>	<u>7.92</u>
<u>I-210</u>	<u>8.45</u>	<u>EB/WB I-210 for LA 14 Overpass</u>	<u>450-30</u>	<u>8.45</u>
<u>I-210</u>	<u>9.55</u>	<u>EB/WB I-210 for Railroad Overpass</u>	<u>450-30</u>	<u>9.55</u>
<u>I-210</u>	<u>10.12</u>	<u>EB/WB for LA 1138-3 (Legion St) Overpass</u>	<u>450-30</u>	<u>10.12</u>
<u>I-210</u>	<u>10.86</u>	<u>EB/WB I-210 for BROAD ST. Overpass</u>	<u>450-30</u>	<u>10.86</u>
<u>I-210</u>	<u>11.4</u>	<u>EB/WB for US 90 (Frugé St) Overpass</u>	<u>450-30</u>	<u>11.4</u>
<u>I-210</u>	<u>11.68</u>	<u>WB I-210 for fly ramp to West I-10</u>	<u>450-30</u>	<u>11.68</u>
<u>I-210</u>	<u>11.80</u>	<u>EB I-210 for Railroad Overpass</u>	<u>450-30</u>	<u>11.8</u>
<u>LA 109</u>	<u>11.248</u>	<u>NB LA 109 near Starks</u>	<u>187-01</u>	<u>11.248</u>
<u>LA 109</u>	<u>11.508</u>	<u>SB LA 109 near Starks</u>	<u>187-02</u>	<u>0.128</u>
<u>LA 12</u>	<u>4.951</u>	<u>EB LA 12 near Starks</u>	<u>012-02</u>	<u>4.890</u>
<u>LA 12</u>	<u>5.103</u>	<u>WB LA 12 near Starks</u>	<u>012-02</u>	<u>5.042</u>
<u>LA 27</u>	<u>101.485</u>	<u>NB LA 27 near DeQuincy</u>	<u>031-06</u>	<u>16.367</u>
<u>LA 27</u>	<u>101.917</u>	<u>SB LA 27 near DeQuincy</u>	<u>031-07</u>	<u>0.221</u>
<u>LA 12</u>	<u>21.804</u>	<u>EB LA 12 near DeQuincy</u>	<u>012-04</u>	<u>4.073</u>
<u>LA 12</u>	<u>22.366</u>	<u>WB LA 12 near DeQuincy</u>	<u>012-04</u>	<u>4.635</u>
<u>US 171</u>	<u>19.503</u>	<u>NB US 171 near Ragley</u>	<u>024-03</u>	<u>6.831</u>
<u>US 171</u>	<u>20.561</u>	<u>SB US 171 near Ragley</u>	<u>024-03</u>	<u>7.889</u>
<u>LA 12</u>	<u>34.021</u>	<u>EB LA 12 near Ragley</u>	<u>012-05</u>	<u>9.138</u>

<u>US 190</u>	<u>49.880</u>	<u>WB US 190 near Ragley</u>	<u>012-05</u>	<u>10.362</u>
<u>US 165</u>	<u>19.271</u>	<u>NB US 165 near Kinder</u>	<u>014-03</u>	<u>3.185</u>
<u>US 165</u>	<u>20.373</u>	<u>SB US 165 near Kinder</u>	<u>014-03</u>	<u>4.287</u>
<u>US 190</u>	<u>72.193</u>	<u>EB US 190 near Kinder</u>	<u>012-06</u>	<u>16.854</u>
<u>US 190</u>	<u>73.928</u>	<u>WB US 190 near Kinder</u>	<u>012-07</u>	<u>1.137</u>

Portable Changeable Message Signs (PCMS) shall meet the following requirements:

- Be capable of displaying eight characters on each of the three rows for each message
- Be trailer mounted
- Be at least 7 feet above the pavement and present a level appearance
- display character heights of 18 inches
- Be a 5 feet wide by 7 feet high or of similar proportions
- Be visible from ¼ mile under both day and night conditions
- Be legible from 800 feet
- Include automatic dimming for nighttime operations
- The message sign shall provide for remote sign operation via central computer base station and/or Website allowing operators to manually override the automated messaging in order to display a message at any time. The operator shall be able to cancel this override and initiate the systems automated messaging feature.
- Capable of center-justifying messages
- Have the capability for messages to be timed and changed at various times of the day and days of the week
- Have the solar charge current meter and the battery charger current meter visible
- Utilize a hydraulic lift to raise the unit to display height
- Have the capability for solar panel array to be sized to replace the power used in typical daily operation with less than four hours of sun
- Have adequate amp-hour capacity to operate the message board continuously in the absence solar recharge for a minimum of 30 days

Portable Queue Trailer/Sensors (PQT) shall meet the following requirements:

- The contractor shall provide only one type of technology for the system and shall not intermix detector types. The detectors shall have the capabilities to detect vehicle queues in one or more lanes and shall be capable of detecting traffic on one to four lanes with software modifications only and shall not require setup or adjustment except for their initial physical deployment.
- The detectors shall be of a type whose accuracy is not degraded by inclement weather or degraded visibility conditions including precipitation, fog, darkness, excessive dust, and road debris. The detectors shall not cause any damage or require any remediation to the pavement surface (travel lanes or shoulders) or pavement structure.
- Data collected shall at a minimum include average speed and total volume per lane for 5-minute intervals. Detectors shall provide 95 percent of the accuracy provided by pneumatic tube counters.

- The detection system shall have the ability to be relocated as needed as field conditions change or as directed by the project engineer.

Pan Tilt Zoom Camera (PTZ) shall meet the following requirements:

- Be capable of operating on both solar and A/C power.
- Be such that if visibility is degraded by inclement weather conditions including snow, precipitation, excessive dust and road debris, the Contractor shall be responsible for cleaning the camera housing to restore focus
- Ensure that the camera housing has a sunshield to reduce the solar heating of the camera.
- Ensure that the lower dome of the camera housing is distortion free clear plastic.
- Ensure that pressurized dome-type housings are capable of pressurization at 5 pounds per square inch (psi) using dry nitrogen, that they have a low-pressure alarm feature, and carry a NEMA 4X/IP-67 rating.
- Ensure that the nonpressurized enclosure has a NEMA 4/IP-66 rating.
- Ensure that the CCTV camera performs all required functions during and after being subjected to an ambient operating temperature range of -30° to 165° F as defined in the environmental requirements section of the NEMA TS 2 standard.
- Verify that the CCTV camera manufacturer certifies its device has successfully completed environmental testing as defined in the environmental requirements section of the NEMA TS 2 standard.
- Ensure that the housing protects the camera and other internal components from rain, dust, corrosive elements, and typical conditions found at a roadside environment.

In addition to the specified equipment, the following shall be provided for each PCMS, PQT and PTZ:

- Each shall be mounted on trailer units with solar power or other reliable power source
- Each shall be equipped with digital modems or wireless data interfaces as required
- Each shall be linked back to the Contractor's central computer server

Static Warning Signage (with flashing beacons) shall meet the following requirements:

- Be capable of immediate (1-2 seconds) activation of the flashing beacons utilizing PTP (point-to-point) communication between queue sensor and advanced notification hardware immediately upstream
- The wording to be used on the sign shall be approved by Project Engineer prior to fabrication.

Communication Equipment shall meet the following requirements:

- The Contractor performs the required configuration of the communications during system initialization.
- Each individual unit shall provide communications to the systems webpage for all data and video captured. The portable units and communication requirements listed are to ensure the successful delivery of the data and video to a Louisiana Department of Transportation & Development (LADOTD) approved network. The bidder is

expected to work with the LADOTD to develop the necessary software enhancements to integrate the data and video into the LADOTD system.

- Any proprietary component protocols must be disclosed to the LADOTD to develop the necessary software enhancements to integrate the data and video into the LADOTD system
- Communications shall be wireless with a 99.9 percent reliability rate. A mix of short and long-range wireless systems may be used.
- The communications shall be capable of communicating up to 30 miles (48 km) with repeater stations.
- Communications between central computer server and any individual PCMS or detector shall be independent throughout the full range of deployed locations and not rely on communications with any other PCMS or detector.
- All charges associated with license fees, installation and startup, equipment rentals, and monthly invoices for communications devices shall be the responsibility of the contractor.
- Communications shall be at no direct pay
- Communications between the server and any individual PCMS, PTZ and PQT sensor are independent through the full range of deployed locations and do not rely upon communications with any other PCMS, PTZ or PQT sensor.
- The communications system incorporates an error detection/correction mechanism to insure the integrity of all traffic conditions data and motorist information messages.
- The PCMS shall be located on the map and along with the corresponding message.
- The Department shall have the ability to log into the site via password protected link and view the current and archived data from the traffic detectors as well as the log of system events.
- The web site shall have the capability of providing a password protected link for approved personnel to have access to the operational characteristics of the system to manually override errant messages on the PCMS's due to communication interruptions or other system failures.
- The system software shall be configured so that appropriate personnel are notified by text message and email or approved equal each time a malfunction has occurred in the system and a malfunction record is made in the database. Configure the software so that any number of approved personnel can be notified in this manner. The text message shall also display an error message for the device or devices affected. Please note that Webpage Integrator is responsible for this notification procedure.
- The Website shall be configured to assess any type of malfunction that has occurred. This assessment includes communications disruption between any device in the system configuration, changeable message board malfunctioning, speed sensor malfunction, loss of power, low battery, etc.
- To support incident management, the system is programmed to allow project personnel to manually override motorist information messages for a user-specified duration, after which automatic operation will resume with display of messages appropriate to the prevailing traffic conditions. Any overriding message needs to have the message content and the username logged into the database.

- The website shall support the scheduling of messages by the operator. Such scheduling will allow the operator to set a message on a sign or group of signs to turn on and to turn off at times set in the future.
- No commercial advertising of any type shall be allowed on the contractor provided web site.
- Ensure that the system is furnished, installed and maintained by personnel who are experienced in this type of work and are locally available 24 hours per day 7 days a week to maintain the system components, move portable devices as necessary and to respond to emergency situations within 4 hours.
- Deficiencies of the system shall be corrected within 8 hours of notification.

SYSTEM OPERATION:

- The contractor shall provide a turnkey, fully functional, integrated automated queue detection system that determines accurate and timely traffic data and provides dissemination of current conditions to motorists on the PCMSs.
- The contractor shall provide a fully integrated software and hardware system that employs multiple devices for data input and output in the work zone.
- The contractor shall provide 24 hours a day, 7 days a week operation and maintenance of the system. The contractor shall assume complete responsibility for the operation of the system.
- Authorized Department personnel or those so designated shall have access to the queue detection via a designated website that displays the location of devices and their current status.
- The contractor shall provide automated email updates to designated Department personnel when conditions in the project area reach predefined thresholds. Via a designated toll-free telephone call, the Department may require the contractor to update the PCMSs messages on behalf of the Department, public safety, or emergency management.

MEASUREMENT:

The temporary queue detection system will be measured on a lump sum basis and will be subject to the following payment schedule:

- Twenty-five percent (25%) of the unit price will be paid when the queue detection system is installed and is proven to be operational through testing.
- After each month of use, sixty five percent (65%) of the unit price will be paid on a prorated monthly basis.
- The remaining ten percent (10%) of the unit price will be paid upon completion of the project or when the project engineer authorizes its removal.

Relocation of detectors, PCMS, and/or static signage may be required as field conditions change or as directed by the project engineer. Such relocations will not be measured for payment.

Relocation, repairs, and routine maintenance of the system shall not result in the overall system being down for more than 8 consecutive hours. The system is down either, when the system cannot detect and warn drivers of a potential queue or speed differential as required or when the web site is not functioning as required. If the system is not successfully restored within

8 hours of notification of its deficiencies, the contractor will be assessed a monetary penalty in the amount of \$2000 for each hour or portion thereof until the system is functioning properly.

PAYMENT

Payment for the Temporary Queue Detection System will be made at the contract unit price per lump sum. Payment shall be subject to the payment schedule contained herein.

Payment will be made under:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
NS-700-00260	Temporary Queue Detection System	Lump Sum