# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

June 3, 2021

SUBJECT   FAI Route 55 (I-55)
Project NHPP-L1VM(532)
Section 2018-043-BD&BJR
Will County
Contract No. 62H03
Item No. 155, June 11, 2021 Letting
Addendum B

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal.  This addendum involves revised and/or added material.

1.   Revised pages 182-184 of the Special Provisions
2.   Revised sheets 1, 2, 32, 85 & 86 of the Plans
3.   Added sheets 32A & 32B to the Plans

Prime contractors must utilize the enclosed material when preparing their bid and must include any changes to the Schedule of Prices in their bid.

Very truly yours,

Jack A. Elston, P.E.
Bureau Chief, Design and Environment

MTS

**SMART TRAFFIC MONITORING SYSTEM**
Effective: September 1, 2021
701.16T

Description:  This work shall consist of furnishing, installing, maintaining, removing, and programming various components of an automated Smart Traffic Monitoring (STM) System.  The STM System shall cover IDOT Contract 62H03.  This work shall be done according to Section 701 of the Standard Specification, described herein, and as directed by the Engineer.

Lane Closures:  the STM System shall display messages from the System for lane closures in place on I-55on the following Contract:

***ROUTE FAI Route 55 (Interstate 55)***
***SECTION 2018-043-BD&BJR***
***COUNTY WILL***
***DESCRIPTION OF WORK Bridge Widening***

Schedule:  The STM System shall be 100% operable prior to lane closures going in place on northbound and southbound I-55 in stages 2 & 4The STM System shall be in operation 24 hours a day and 7 days per week until stages 2 and 4 in Contract 62H03 are7 complete and all lanes are opened to traffic.

Function:  The components include Smart Traffic Monitoring Devices (SMD), portable changeable message signs (PCMS) control software, and communications system.

The STM System shall collect real time vehicle travel data at strategic locations prior to and within the work zones to provide drivers with advance information about travel time and delay through the work zone and stopped traffic ahead.  The real time vehicle travel data shall be automatically transmitted and processed by control software which remotely commands PCMS to display programmed messages based on the travel data.

The STM System shall be capable of providing dynamic lane merging by use of pre-programmed conditions to allow the system to determine when early merging should be required (generally low volumes and high speed), and when late merging should be required (generally high volumes and low speeds).  The STM System components shall have the capacity and the accuracy to determine to implement the specific messages for each type of merging and to prevent frequent and unnecessary changes in merge type.  Dynamic lane merging will require PCMS throughout the expected queue area, as well as advance warning signing.

The messages shall be in real time and dynamically based on the data collected by SMD.  In addition, the STM System shall also have the capability to inform the District Office of traffic delays via the internet or through the District' Operations and Communications Center.

The STM System shall calculate and notify drivers via PCMS of the actual traffic backup delay time for the entire work zone.  The calculation method of the backup delay time shall be submitted to the Engineer for approval.  The STM System shall notify drivers of multiple levels of travel time delay based on user-definable speed thresholds (e.g. speeds less than 30 mph) and shall be capable of displaying the distance to slow or stopped traffic with an accuracy of a half mile a minimum of 7 miles in advance of slowed or stopped traffic by displaying messages on PCMS located on mainline I-55 placed every 1 mile in advance of the work zone and directed by the Engineer.  The message library and number of PCMS displaying travel time delay related messages will be determined by the Engineer.

Revised 6/3/2021

Smart Monitoring Devices:  The Contractor shall provide a device that is MUTCD compliant consistent with the work zone channelizing devices used throughout the regular construction work zone.  The SMD shall be crashworthy as defined by NCHRP 350 or MASH, easy to carry and deploy, and lightweight so that it can be positioned by any one member of a construction crew with no special skill requirements or lifting machinery.  The SMD shall be independent of all local or regional power and communications networks to provide continuous, uninterrupted, data collection even during power or communication interruptions.  The SMD shall communicate in series and real time with multiple other SMD and PCMS.  The SMD shall gather real-time data, provide 95% accuracy on all vehicle detection, have GPS functionality, transfer data to web-based communications for monitoring, and communicate with the PCMS 24 hours per day 7 days per week.  The web-based interface shall provide vehicle speed, volume, and queue at each device location and maintain data history for a minimum of 12 months.  The number and proper location of SMD needed to provide dynamic, travel time messages from the System shall be recommend by the manufacturer and approved by the Engineer.  The limit of this systems detection is intended to extend beyond the limits of queueing from the project and suggest using an alternate route. *Vehicle detection shall cover a distance along Northbound I-55 from 9 miles south of Illinois Route 53 to Illinois Route 53 and along Southbound I-55 from 7 miles north of Joliet Rd. to Joliet Rd. Portable Changeable Message Signs and traffic detectors shall be strategically placed in sufficient quantity and frequency to provide travel time delay and queue length data within 0.5 mile accuracy.*

Control Software:  The control software shall be web-based.  Authorized IDOT personnel shall be enabled to view all devices via the Internet.  The software shall be configurable to meet project requirements.  The software shall offer both a public information side and a password protected agency-only side.

The control software shall include a map feature showing real time traffic conditions.  This shall be offered in an easy to understand visual format via the Internet, such as color coding.  It shall also display the devices on the project. By "clicking" on any device, the user shall be able to learn its current condition and operating properties.  SMD shall display current speeds and/or volumes and changeable message sins shall display current message(s).  The device information will also include a data and time stamp showing when they last reported to the control software.  The software shall include user-settable parameters to dynamically trigger in real time new messages to be displayed on the roadside changeable message signs.  The software shall also make it easy for authorized personnel to override the current message with a new one in emergencies or when conditions warrant it.

The software shall provide email and/or text alerts to specified IDOT personnel when speeds or queue lengths exceed IDOT defined parameters.

The software shall provide an XML data feed to IDOT on request and shall hold an archive or data for a period of not less than 1 year in a manner that is readily accessible to IDOT personnel with no additional assistance and at no additional cost.

All public agencies authorized by IDOT shall be granted user accounts at no additional cost to IDOT or the agencies.

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Portable Changeable Message Signs:  The PCMS shall meet the requirements of Article 701 of the Standard Specifications.  The signs shall be equipped with communications equipment fully compatible with the STM System and shall wirelessly communicate with the SMDs and control software independent of the PCMS manufacturer.  PCMS shall be provided in sufficient quantity and strategic placement to cover the variable level conditions approaching and within the work zone.  The placement plan shall include placing PCMS at 1 mile spacing over the anticipated queue.  PCMS shall be placed one every mile between 9 miles in advance of the work zone and IL-53 along northbound I-55, and one every mile between 7 miles in advance of the work zone and Joliet Rd. along southbound I-55.  Preferred locations of PCMS may be suggested by the Engineer.  The final number and location of the PCMS shall be recommended by the Contractor and approved by the Engineer.  The trailer shall be installed beyond the edge of shoulder and shall not block any part of a lane or shoulder.  The Contractor may have to temporarily widen embankments with sandbags or other temporary material to properly install the trailer.  The costs associated with temporarily widening embankments and restoring the embankment upon completion shall be according to Section 109 of the Standard Specifications.

Protection:  All communications in the STM System shall be protected to prevent unauthorized personnel from accessing the data or changing the displays on the PCMS.

Performance Requirements:  Device shall gather and report real-time data during the work zone hours or as required as a single unit or as a system.  Website shall report data overlaying work zones onto an interactive map.  Work zones shall be represented by a single symbol and present data in a pop-up window when selected.  Data shall include the data, time, and average speed through the work zone.  Symbols shall also be color coded to represent general speed conditions.  Website shall have web access granted accounts for all public-sector entities.  For strategic speed enforcement, law enforcement agencies shall be granted an account in their jurisdiction at their request at no additional cost.  Web access shall allow stakeholders to download archive data such as counts, travel time, speed bin, and speed history.

System Communications:  All communication networks used in the STM System shall be provided by the Contractor.  When any part of the STM System has not been functions for ten minutes, the System shall notify the Engineer of the malfunction.  Upon direction of the Engineer, the System shall also notify the Contractor and/or the District's Operations and Communications Center.

Penalties:  The Engineer shall notify the Contractor when any components of the STM System is not functions properly at any time 24 hours a day and 7 days per week.  Once the Contractor has been notified that the STM System is not functioning properly, the Contractor shall have four hours to repair the System. After four hours a monetary penalty shall be assessed to the Contractor.  The penalty shall be $2,000 for each hour or portion thereof until the System is functioning properly.

Method of Measurement:  This work will be measured for payment on a lump sum basis.

Basis of Payment:  This work will be paid for at the contract unit price per lump sum for SMART TRAFFIC MONITORING SYSTEM.
(a)  After the STM System is set up and 100% operable, 25% of the pay item will be paid.
(b)  After each month of use, 65% of the pay item will be paid on a prorated monthly basis.
(c)  After the STM System is completely removed, 10% of the pay item will be paid.

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