(added to District Questionnaire)

1. END OF QUEUE DETECTION AND WARNING- INTERSTATE / LANE CLOSURE [618] (ADDED 5-16-24 M)

Description. Furnish a smart work zone system capable of detecting and protecting the end of queue.

General.

End of Queue Detection and Warning. Furnish, install, maintain, adjust, and remove smart work zone technology to warn traffic of slow or stopped traffic. Install this system at locations upstream of the interstate lane closure taper at locations approved by the Project Manager.

Install radar sensors at the following signs: W4-2 and both W3-5’s.

Install a variable message board capable of displaying messages based on the input from the sensors 1500 feet from the estimated max queue location.

Adjust the radar sensors and message boards accordingly to protect the end of the queue.

Provide an online dashboard capable of showing the systems function and performance in real time; including but not limited to:

Traffic speed at the individual sensors.

Battery life.

System connectivity; and

Message displayed on the variable message board. The following table lists the approved messages to display for each condition:

|  |  |  |
| --- | --- | --- |
| Average Speed at W4-2 | VMS Phase 1 | VMS Phase 2 |
| Free flow Speed | Single Ln Traffic Ahead | Road Work Ahead |
| < 45 MPH | Slow Traffic Ahead | Prepare to Stop |
| < 10 MPH | Stopped Traffic Ahead | Prepare to Stop |
| Traffic Stopped at any Sensor | Stopped Traffic Ahead | Prepare to Stop |
| Fail Safe Mode | Flashing Caution | Flashing Caution |

The system must provide the following:

* A failsafe system if communications go down or a fault is detected in the system for more than 2 minutes.
* A system that will revert to a failsafe mode in which the message board displays the message shown above.
* A network extender if installed in areas with little or no cell network coverage.
* Speed data from sensors at the request of and no cost to the Department.

Sensor and message board locations must be included in the traffic control plan and approved by the Project Manager.

Portable variable message signs. Furnish portable variable message signs that can execute the requirements set forth above. Furnish VMS that meet MUTCD requirements including 18” character height.

Non-intrusive sensors. Furnish sensors that are portable, non-intrusive, capable of recording speed, detect traffic over multiple lanes, detect stopped traffic, and maintain performance in all weather conditions.

If a safe and visible installation location cannot be found, construct a pad that provides a safe, level location to install the message board adjacent to traffic.

Select the following option for TC-unit bid item:

Method of Measurement. Smart Work Zone Systems are measured by each system per day. One system is defined as one message board and 3 sensors.

Basis of Payment. Smart Work Zone Systems will be paid for by each system at a rate of 500 units per day.

This item will be paid under group 37 of traffic control rate schedule.

Select the following option for TC-Lump Sum or TC-Day bid item:

* 1. Measurement and Payment. Smart Work Zone Systems will be included in the Traffic Control – Lump Sum or Traffic Control – Day bid item.