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DEPARTMENT OF TRANSPORTATION
TRAFFIC OPERATIONS DIVISION
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CLAY BRIGHT
COMMISSIONER

BILL LEE
GOVERNOR

TO: Will Reid, Assistant Chief Engineer of Program Delivery

FROM: Brad Freeze, Director of Traffic Operations

SUBJECT: **Proprietary Item Request and Justification**
City of Franklin

The City of Franklin is requesting the following items be used in all signalization projects within their jurisdiction over the next three years where Federal and/or State funding are used.

1) **Traffic Signal Controllers:** Siemens Controllers including the M60 ATC Series.
2) **Malfunction Management Units (MMU):** EDI-MMU2-16LE(ip) MMUs.
3) **Load Switches:** Power Distribution & Control, Inc. PDC SSS86I/O Load Switches.
4) **Traffic Signal Video Detection:** Miovision SmartView 360.
5) **Traffic Signal Radar Detection:** Wavetronix Radar Detection including SmartSensor Matrix, SmartSensor Advance, SmartSensor HD Systems.
6) **Wireless Magnetometer Detection:** Sensys Detection including Model FlexMag.
7) **Emergency Pre-Emption System:** Global Traffic Technologies Opticom GPS Emergency Vehicle Priority Control System.
8) **Accessible Pedestrian Signal (APS) System:** Polara APS System.

The above items are essential for synchronization with existing facilities. The City of Franklin staff has been extensively trained to install, operate, maintain, program, troubleshoot, and repair these items. This allows technicians to quickly diagnose issues which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to ensure maximum capacity of the synchronized system. By utilizing these items as the standard for the City of Franklin, there will be a cost savings in stocking replacement equipment and will result in faster and less costly repair. See attached letter for additional justification details of this request.

I, Brad Freeze, Director of the Traffic Operations Division of the Tennessee Department of Transportation, do hereby certify that in accordance with the requirements of 23 CFR 635.411(a) (2) that the patented or proprietary items listed above are essential for the synchronization of existing facilities.

Phillip Freeze (Aug 6, 2021 11:15 CDT)

Director of Traffic Operations

Will Reid (Aug 13, 2021 15:43 CDT)

Assistant Chief Engineer of Program Delivery

Aug 13, 2021

Date

ENGINEERING DEPARTMENT

Paul Holzen
Director/City Engineer

Dr. Ken Moore
Mayor

Eric S. Stuckey
City Administrator

HISTORIC
FRANKLIN
TENNESSEE

May 28, 2021

Stephen K. Bryan, P.E., PTOE
Traffic Engineer Section Manager
Tennessee Department of Transportation Traffic Operations Division
James K. Polk Bldg., 12th Floor
505 Deaderick St
Nashville, TN 37243

RE: Proprietary Item Request and Justification
Request for Proprietary Traffic Signal Products as Specification 730FR
City of Franklin - Williamson County, TN

Dear Mr. Bryan:

The City of Franklin, Tennessee, would like to request a proprietary product certification for the following traffic signal equipment over the next (3) three years where Federal and/or State funding are used. The use of these specific items is for the full synchronization capabilities within the existing and future traffic signal system;

1. **Traffic Controller** – Siemens M60 Series ATC
2. **MMU or Signal Monitor -** EDI MMU2-16LE(ip)
3. **Video Detection System (VDS)** – Miovision SmartView 360
4. **Radar Vehicle Detection System (RVDS)** – Wavetronix Radar Detection (models SmartSensor Matrix, SmartSensor Advance, SmartSensor HD)
5. **Wireless Magnetometer Detection System (WMDS)** – Sensys Detection (model FlexMag)
6. **Preemption** – Global Traffic Technologies Opticom GPS Emergency Vehicle Priority Control System
7. **Load Switches** – Power Distribution & Control, Inc. PDC SSS86I/O
8. **Accessible Pedestrian Signal (APS) System**– Polara iNavigator

The above items are essential for synchronization with the existing City of Franklin facilities. This request for this equipment is also to continue the standardization of the traffic system to ensure that the comprehensive maintenance and spare equipment programs can continue to be managed effectively. The City currently operates and maintains 124 traffic signals and 34 CCTVs throughout its system.

The City continually updates and expands communication infrastructure via a fiber optic IP Ethernet system to help synchronize and standardize the system. Currently 120 of 124 signal controllers and all CCTVs are connected to the fiber optic network. The traffic controller, MMU, battery backup system,

CCTV, and IP addressable detection listed in this request all communicate using the City's managed IP Ethernet system.

These specific items will help the City maintain the inventory of parts that the City's employees have already been trained to troubleshoot and maintain. They will also aid in the continuous efficiency of normal operations, maintenance activities and increase safety for the City of Franklin. Detailed descriptions of the model numbers, features and functionalities of the requested items is given below.

Traffic Signal Controller, Malfunction Management Unit (MMU), and Load Switches:
The City of Franklin is requesting that the Siemens M60 series ATC controllers, EDI MMU2 - 16LE(ip) Enhanced NEMA Malfunction Management Units, and PDC SSS86I/O load switches be used in all signalization projects within the City over the next three years where Federal and/or State funding are used.

The City of Franklin currently operates and maintains Siemens controllers at all signalized intersections within the City's jurisdiction. In 2018/2019, the City upgraded its traffic control system to the Siemens TACTICS 5.X Traffic Management software to better manage and operate the traffic signal system via the ATC platform. The City requires M60 series of the Siemens ATC controller to ensure that they have full functionality of the traffic signal controller and central software. This full functionality will be needed in the foreseeable future to provide for adaptive signal control as part of our arterial management process, emergency vehicle preemption, and priority vehicle control.

The EDI MMU2 - 16LE(ip) Enhanced NEMA Malfunction Management Units is necessary in order for the units to communicate with and be monitored by City employees at the City's Advanced Traffic Operations Center (TOC). This MMU is ethernet ready for turn-key communications with the existing system. The PDC SSS86I/O load switch is required due to its compatibility with Siemens controllers and associated parts inventoried by the City.

The City of Franklin staff has been extensively trained to install, operate, maintain, program, and troubleshoot Siemens controllers, EDI MMU and PDC load switches. This knowledge allows the technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to insure maximum capacity of the synchronized system. By utilizing the Siemens controller as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repair, as well as continuing compatibility with the central system software.

Traffic Signal Detection
It is realized that there are many types of detection available to maintaining agencies and per the TDOT 730 specifications. The City of Franklin utilizes various types of detection to enhance data collection and functionality of our signalized intersections. This includes single-camera video detection, microwave radar, and magnetometers for the new Adaptive Signal Control Technology (ASCT) system. Microwave radar is used at a majority of the City's intersections and is the preferred stop bar vehicle detection device for the City. Single-camera video detection is used for

monitoring of larger intersections and to collect signal performance measures at these intersection types. Magnetometer detection is used for advance, upstream detection for the ASCT system which currently has 19 intersections running adaptive control. Since a variety of detection devices are used, it is imperative for City maintenance and operation that the following device manufacturers and specific models are used.

Radar Vehicle Detection System (RVDS)

The City is requesting that Wavetronix traffic signal radar detection equipment be used in signalization projects within the City over the next three years where Federal and/or State funding are used. The radar detection equipment includes the following:

a. Stop Bar Presence detection and control – Wavetronix SmartSensor Matrix SS-225
b. Advanced detection and control – Wavetronix SmartSensor Advance SS-200V
c. Mid-block detection and monitoring – Wavetronix HD
d. Cabinet Interface Device – Wavetronix Click 656
e. Detector Rack Cards – Wavetronix Click 112/114
f. Serial to Ethernet – Wavetronix Click 301

This request is based on the necessity to provide highly reliable detection for the synchronization with the existing traffic signal systems operated and maintained by the City. The following are justification items for this request:

The City of Franklin currently operates and maintains Wavetronix radar detection at 63 signalized intersections within the City's jurisdiction. The City utilizes Wavetronix radar detection units to replace other detection technologies due to their unreliability which has resulted in increased efficiency of signalized intersection operations within the City. Reliable detection is a key component in the City's efforts to provide a more efficient traffic system and to reduce air pollution within the City of Franklin Area.

The City of Franklin staff has been extensively trained to install, operate, maintain, and troubleshoot the Wavetronix detection system. This allows our technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to insure maximum capacity of the synchronized system. By utilizing Wavetronix traffic signal radar detection equipment as the standard for the City, there will be a cost savings in stocking replacement equipment and will result in faster and less costly repair.

Video Detection System (VDS)

The City is requesting that Miovision video detection equipment be used in signalization projects within the City over the next three years where Federal and/or State funding are used and where specified by the City. The Miovision video detection equipment includes the following:

g. SmartView 360 camera
h. SmartSense cabinet interface device
i. SmartLink network device

The City currently utilized Miovision 360 cameras at two intersections. It has shown to be a reliable video detection device and provides accurate, organized and easy to use signal performance measures, such as turning movement counts. The City wishes to expand this technology to other larger intersections so that Automated Traffic Signal Performance Measures (ATSPM), data collection and HD camera visual access to the intersection is available. The City of Franklin staff has been extensively trained to install, operate, maintain, and troubleshoot the Miovision video detection system and continues to deploy this equipment.

Wireless Magnetometer Detection System (WMDS)
The City is requesting that Sensys detection equipment be used in signalization projects within the City over the next three years where Federal and/or State funding are used and where specified by the City. The wireless magnetometer detection equipment includes the following:

Sensys VSN240-F-2 Flush-Mount Sensor
Sensys FLEX-RPT3-SLR Solar Repeater
Sensys FLEX-ANT-2 Long Range External Antenna
Sensys FLEX-ANT-1 Standard External Antenna
Sensys FLEX-ISOL-M Isolator Module
Sensys APCC-SPP Digital Radio
Sensys FLEX-CTRL-M-E Control Module, Enhanced
Sensys FLEX-CONN-M Stand-Alone Unit

The City currently utilizes Sensys detection equipment at 19 intersections for the SCOOT Adaptive Signal Control Technology (ASCT) including almost 200 sensors in the pavement. The City of Franklin staff has been extensively trained to install, operate, maintain, and troubleshoot the Sensys magnetometer detection system. This allows our technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to insure maximum capacity of the ASCT system. By utilizing Sensys traffic signal magnetometer detection equipment as the standard for the City, there will be a cost savings in stocking replacement equipment and will result in faster and less costly repair

Emergency Vehicle Priority Control System
The City of Franklin is requesting that the Global Traffic Technologies Opticom GPS Emergency Vehicle Preemption equipment be used in all signalization projects within the City over the next three years where Federal and/or State funding are used. The following are justification items for this request:

The City of Franklin currently operates and maintains Opticom emergency vehicle preemption

equipment at 92 signalized intersections within the City's jurisdiction. The City is installing this type of emergency vehicle preemption equipment with new developments and with new City funded projects. The City of Franklin investigated several different types of preemption and found that Opticom emergency vehicle preemption equipment is the most reliable and best meets the City's needs. The desire of the City is to increase the efficiency of standard system operations as part of the City's Advanced Traffic Management System while providing quicker movement of the emergency vehicles through the system when needed. For these reasons the City is specifying GPS preemption equipment allowing GPS-based preemption routing. This equipment is already installed in the Franklin Fire and Williamson County fleet of Emergency Medical Service vehicles.

The City of Franklin staff has been extensively trained to install, operate, maintain, and troubleshoot Opticom GPS emergency vehicle preemption equipment. By utilizing the Opticom GPS emergency vehicle preemption equipment as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repairs.

Accessible Pedestrian Signal (APS) System

The City of Franklin is requesting that the Polara iNavigator equipment is used in all signalization projects within the City over the next three years where Federal and/or State funding are used and pedestrian signal detection is specified. The following is justification for this request:

The City currently operates 26 signals were the Polara iNavigator equipment is currently in place. The City continues to install this equipment with new developments and traffic signals within the City. The City of Franklin staff has been extensively trained to install, operate, maintain, and troubleshoot Polara iNavigator equipment and this equipment has shown great reliability for our signal system. By utilizing the Polara iNavigator equipment as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repairs.

Thank you for consideration of this request.

Respectfully, for the City of Franklin,

Adam Moser, P. E.
City Traffic Engineer
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