STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TRAFFIC OPERATIONS DIVISION
SUITE 1800, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 253-1122

CLAY BRIGHT
COMMISSIONER

BILL LEE
GOVERNOR

TO: Will Reid, Assistant Chief Engineer of Operations

FROM: Brad Freeze, Director of Traffic Operations

SUBJECT: **Proprietary Item Request and Justification**
City of Spring Hill

1) **Traffic Signal Controllers**
2) **Traffic Signal Malfunction Management Units (MMU)**
3) **Traffic Signal Load Switches**
4) **Traffic Signal Vehicle Detection**
5) **Traffic Signal Emergency Vehicle Preemption**

1) **Traffic Signal Controllers:** The City of Spring Hill is requesting that McCain Eight Phase Omni ATC EX2 NEMA controllers 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 Spring Hill currently operates and maintains 22 signalized intersections. The City currently has installed McCain Eight Phase Omni ATC EX2 NEMA controllers at two signalized intersections within the City's jurisdiction. Additionally, the City is in the process of installing 12 more intersections with this brand of controllers within the next year. By standardizing controllers across all of its 22 signalized intersections, the City is preparing Advanced Traffic Management System (ATMS) plans to initiate further upgrading of its communication infrastructure system to a fiber optic system to further enhance synchronization and standardization of the overall signal system serving the City.

   The City of Spring Hill maintains an inventory of these controllers and their staff has been trained properly to install, operate, maintain, program, and troubleshoot McCain Eight Phase Omni ATC EX2 NEMA controllers. 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 ensure maximum capacity of the synchronized system. By utilizing these devices as the standard for the City, there will be a cost savings in stocking replacement equipment that will result in faster and less costly repair.

2) **Traffic Signal Malfunction Management Units (MMU):** The City of Spring Hill is requesting that EDI SSM-16LE(ip) Enhanced NEMA Malfunction Management Units (MMU) 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 Spring Hill currently has EDI SSM-16LE(ip) Enhanced NEMA MMUs installed at seven signalized intersections within the City's jurisdiction. Additionally, the City is installing three more intersections with this brand of MMUs within the next year. The EDI SSM-16LE(ip) Enhanced NEMA MMUs are necessary in order for the units to communicate and provide essential synchronization with all traffic signals throughout the City and to provide monitoring capabilities for the City. By standardizing controllers across all of its 22 signalized intersections, the device is Ethernet ready for turn-key communications with the City's existing signalized system.

   The City of Spring Hill maintains an inventory of these MMUs and their staff has been trained properly to install, operate, maintain, and troubleshoot EDI SSM-16LE(ip) Enhanced NEMA MMUs. 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 ensure maximum capacity of the synchronized system. By utilizing these devices as the standard for the City, there will be a cost savings in stocking replacement equipment that will result in faster and less costly repair.

3) **Traffic Signal Load Switches:** The City of Spring Hill is requesting that Power Distribution & Control (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 following are justification items for this request:

   The City of Spring Hill currently maintains PDC SSS86I/O load switches at all of its 22 signalized intersections within the City's jurisdiction. Each load switch is representative of a specific timing phase and their traffic signal cabinets have a range of 4-8 load switches per cabinet, depending on the traffic volume and traffic pattern at each signal.

   The City of Spring Hill maintains an inventory of these load switches and their staff has been trained properly to install, maintain, and troubleshoot PDC SSS86I/O 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 ensure maximum capacity of the synchronized system. By utilizing these devices as the standard for the City, there will be a cost savings in stocking replacement equipment that will result in faster and less costly repair.

4) **Traffic Signal Vehicle Detection:** The City of Spring Hill is requesting that the Wavetronix radar detection be used in all signalization projects within the City over the next three years where Federal and/or State funding is used. The following are justification items for this request:

   The City of Spring Hill currently has Wavetronix radar detection installed at two signalized intersections within the City's jurisdiction. This request is based on the necessity to provide highly reliable detection for the synchronization with the existing traffic signal systems maintained by the City because of the re-occurring maintenance costs of replacing loops. The use of Wavetronix radar detection increases the reliability of vehicle detection and directly relates to the overall full functionality operation and synchronization of signalized intersection network. The City of Spring Hill has prepared traffic signal standards and specifications that require Wavetronix radar detection to be installed at all traffic signal intersections and have published them on the City's website. This standardization of Wavetronix radar detection ensures that

design plans install this detection system on all new projects plus converting the detection system at existing signalized intersection as existing detection systems fail.

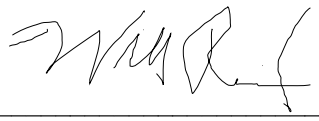
The City of Spring Hill maintains an inventory of these Wavetronix radar detection devices and their staff has been trained to install, operate, and maintain Wavetronix radar detection devices. This knowledge allows the technicians to quickly diagnose problems with field units which reduces the time 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 these devices as the standard for the City, there will be a cost savings in stocking replacement equipment that will result in faster and less costly repair.

5) **Traffic Signal Emergency Vehicle Preemption:** The City of Spring Hill is requesting that Sonem Model 2000 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 Spring Hill currently operates and maintains Sonem Model 2000 emergency vehicle preemption equipment emergency vehicle preemption equipment at 12 signalized intersections within the City's jurisdiction with all emergency vehicle preemption intersections containing Sonem equipment. Additionally, the City is in the process of installing three more intersections with this brand of emergency vehicle preemption equipment within the next year. The City is also in the process of synchronizing and increasing standardization across the entire system of signals for preemption with an Advanced Traffic Management System (ATMS) project and the eventual migration to GPS based preemption routing using existing emergency vehicle preemption equipment installed in all City emergency vehicles.

   The City of Spring Hill maintains an inventory of this emergency vehicle preemption equipment and their staff has been trained properly to install, operate, maintain, and troubleshoot Sonem Model 2000 emergency vehicle preemption equipment. 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 ensure maximum capacity of the synchronized system. By utilizing these devices as the standard for the City, there will be a cost savings in stocking replacement equipment that will result in faster and less costly repair.

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.



Assistant Chief Engineer of Operations

4/13/20

Date

March 10, 2020

Mr. 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 Street
Nashville, TN 37243

Re: Proprietary Item Request and Justification for Traffic Signal Products (Revised March 2020)

Dear Mr. Bryan,

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

1. Eight Phase Omni ATC EX2 NEMA Controllers with ABC harness manufactured by McCain
2. MMU or Signal Monitor EDI SSM-16LE(ip) Enhanced NEMA MMU
3. Preemption – Sonem Model #2000
4. Load Switches – Power Distribution & Control, Inc. (PDC SSS86I/O)
5. Wavetronix radar detection equipment

The above items are essential for synchronization with the existing signals located within the City of Spring Hill and the specifications noted above are posted on the City's webpage (www.springhilltn.org). This request for this specific equipment is also to continue ongoing efforts to standardize equipment across the signal system serving the City of Spring Hill to ensure the ability to provide comprehensive and efficient maintenance of the signal system. The City currently operates 22 traffic signals located throughout its system and we anticipate adding an additional twelve (12) signals within the next few years. At the present time, we have two (2) signals that incorporate all components and are working to upgrade and standardize all equipment.

These specific items will also help the City maintain the inventory of interchangable parts that the City's employees have already been trained to properly maintain. They will also aid in the continuous efficiency of normal operations, scheduled and non-scheduled maintenance, and enhance safety for the City of Spring Hill and the surrounding region.

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P.O. Box 789
Spring Hill, TN 37174

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www.springhilltn.org

The following contains a brief description of each item and the number of intersections where each are installed.

Controllers

The City of Spring Hill is requesting that the Eight Phase Omni ATC EX NEMA Controllers with ABC harness manufactured by McCain be used in all signalization projects within the City over the next three years where Federal and/or State funding are used. The City is in the process of standardizing controllers across its 22 existing signalized intersections and will be preparing plans to initiate further upgrading of its communication infrastructure system to a fiber optic system to further enhance synchronization and standardization of the overall signal system serving the City. The City currently has two (2) signals with Omni ATC EX2 NEMA controllers with McCain ABC harnesses.

MMU

The EDI SSM 16LE(ip) Enhanced NEMA MMU are necessary in order for the units to communicate and provide essential synchronization with all traffic signals throughout he City and to provide monitoring capabilities for the City. The device is ethernet ready for turn-key communications with the existing system. The City currently has seven (7) EDI SSM 16LE(ip) Enhanced NEMA MMU's in operation city-wide.

Preemption

The City currently operates and maintains emergency vehicle preemption equipment. The City is upgrading the equipment as development occurs in the City and with new City funded projects. After significant testing, the City has determined the Sonem Model #2000 emergency preemption equipment meets the immediate and long-term needs of the City. The City is also in the process of synchronizing and increasing standardization across the entire system of signals for preemption with Advanced Traffic Management System and eventual migration to GPS based preemption routing using existing equipment installed in all City emergency vehicles. The City currently has twelve (12) signals with Sonem preemption equipment.

Traffic Signal Detection Equipment

There are two (2) traffic signals of the City's 22 that utilitze Wavetronics radar detection equipment. All other existing signals are loop-based detection. The City requests future signals to include Wavetronix as we work towards converting all existing signals to Wavetronix for standardization and to allow for synchronization of the City's signalized arterial corridors.

Load Switches

Currently all 22 of the City's traffic signals have Power Distribution & Control, Inc. load switches. Each load switch is representative of a specific timing phase. Our signal cabinets have a range of 4-8 load switches per cabinet, depending on the traffic volume and traffic pattern at each signal.

Thank you in advance for your favorable consideration of our request. Please contact my office directly should you have questions concerning our request.

Sincerely,

Victor Lay
City Administrator

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