



**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

**HOWARD H. ELEY**  
COMMISSIONER

**BILL LEE**  
GOVERNOR


TO: Ben Price, Assistant Chief Engineer of Operations  
FROM: Lee Smith, Interim Director of Traffic Operations  
SUBJECT: **Proprietary Item Request and Justification**  
**City of Lebanon**

The City of Lebanon 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:** Econolite Controllers including the Cobalt C-Series.
- 2) **Malfunction Management Units (MMU):** Reno MMUs including the 1600GE Series.
- 3) **Traffic Signal Communications:** Cisco Ethernet Switches including the IE2000 Series.
- 4) **Traffic Signal Detection:** Wavetronix Radar Detection.

The above items are essential for synchronization with existing facilities. The City of Lebanon 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 Lebanon, 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, Lee Smith, Interim 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.

  
Lee Smith (Jul 13, 2022 14:49 CDT)

Interim Director of Traffic Operations



Assistant Chief Engineer of Operations

**Jul 14, 2022**

Date



**Rick Bell, Mayor**

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200 North Castle Heights Avenue  
Lebanon, Tennessee 37087

June 22, 2022

Stephen K. Bryan, P.E., PTOE  
Tennessee Department of Transportation  
Traffic Operations Division  
James K. Polk Bldg., 12<sup>th</sup> Floor  
505 Deaderick St., Nashville, TN 37243

**Request for Proprietary Traffic Signal Products Certification:  
Traffic Signal Controllers, Malfunction Management Units, Ethernet Switch, and Detection**

Mr. Bryan:

The Engineering and Public Works Departments of the City of Lebanon would like to request renewal of proprietary product certifications for the Econolite Cobalt-C Traffic Signal Controller, Reno 1600GE Malfunction Management Units (MMUs) and Wavetronix radar traffic signal detection over the next three years. The requested Wavetronix radar detection equipment includes both SmartSensor Matrix for stop bar detection and SmartSensor Advance for advanced approach detection. Additionally, the City of Lebanon would like to request a new proprietary item for the Cisco IE 2000 ethernet switch. Many of Lebanon's traffic signals are located within the state route system and use of the proprietary items would allow the City to maintain and operate the coordinated traffic signal systems in a more efficient and effective manner.

The City of Lebanon is in the process of upgrading our traffic signal control equipment City-wide to standardize signal equipment for 63 intersections and has plans to install a central software system with our CMAQ ITS Phase 1 project currently in construction. Currently, the City has 23 traffic signal controllers changed out to Econolite traffic signal controllers with Reno MMUs, and 5 additional signalization projects currently underway that will require this type of controller to insure that we will have full functionality for the planned central software system. This full functionality is needed to prepare for our on-going CMAQ grant project in conjunction with the TDOT Local Program department which will install new fiber communications, an additional 20 new signal controllers, and the central software system (Centracs). This will allow our staff to diagnose problems over the central software prior to leaving our offices 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. Also, as part of the City-wide change over to the new traffic signal control equipment our staff has been exclusively trained on the programming, maintenance, and troubleshooting of the Econolite Cobalt-C traffic signal controllers.

As the Lebanon population and traffic volumes continue to grow, the City must find minimally evasive solutions to optimizing the existing traffic signal system. Because of the reoccurring maintenance cost of replacing loops with a high failure rate and the loss of efficiency in a coordinated traffic signal system when a loop has failed, the City has standardized plans to install Wavetronix radar detection on new

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signals and convert the existing signals as the current loop detection fails and budget allows. Failed detection results in longer delays, increased stop time, and increased fuel consumption and emissions for all users. Lebanon has tested a number of available detection devices, including various video and radar detection units. The City has seen excellent performance with the Wavetronix system with little to no maintenance required and a high level of support from the local Wavetronix representatives for troubleshooting. Wavetronix is a non-intrusive detection device which is a cost savings over time as this system will not have to be replaced when a roadway is milled and resurfaced as compared to loop installations. Wavetronix detection increases the reliability of vehicle, bicycle, and pedestrian detection and directly relates to the overall operation of signalized intersections. Currently, the City has 8 intersections with Wavetronix detection, and 5 additional signal projects underway that will require this type of detection. The on-going CMAQ grant project will also install Wavetronix detection at several strategic intersections. Wavetronix equipment 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. This request is founded on the necessity to provide highly reliable and efficient detection for the synchronization of Lebanon's traffic signal system.

The City of Lebanon Information Technology department primarily uses Cisco switches for the City's network. As the City's Intelligent Transportation System is developed, the Cisco IE2000 ethernet switches are being installed. Currently, the City has 3 Cisco IE2000 ethernet switches installed at intersections and an additional 20 ethernet switches planned with the CMAQ ITS Phase 1 under construction. Our IT and traffic signal staff have been exclusively trained on the programming, maintenance, and troubleshooting of the Cisco IE2000 switches and would request proprietary approval for consistency within the City network.

Specifications for City of Lebanon Traffic Signals have been prepared as well and all traffic signal projects within the City will be required to adhere to those specifications, which include the requested proprietary items. By keeping with these proprietary products the City of Lebanon can better maintain Lebanon's Traffic Management System and reduce system down time.

Thank you for consideration of this request.

Respectfully,



Kristen D. Rice, PE  
The City of Lebanon, Tennessee  
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