

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPRIETARY PRODUCT CERTIFICATION

630-020-07
SPECIFICATION
08/14

To: Mario Bizzio, P.E.
Design Engineer

Date: 01/12/2018

Financial Project ID: 442545-1-93-01 & 442549-1-93-01 New Const. RRR
Federal Aid Number: N/A
Project Name: Procurement of Traffic Signal Equipment and ATMS Software for Orange County
State Road Number: N/A Co. / Sec. / Sub.: Orange County
Begin Project MP: N/A End Project MP: N/A
Full Federal Oversight: No Yes Note: If Yes, submit to FHWA Director.

A justification and all supporting documents must be attached to this document.
Mark the appropriate certification:

"I, Hazem El-Assar, P.E., Chief Engineer, of the Orange County
Print Name of Initiator Position Title Name of Agency

do hereby certify that in accordance with the requirements of 23 CFR 635.411(a)(2),
Mark appropriately (choose only one option):

- that this patented or proprietary item is essential for synchronization with existing highway facilities.
 that no equally suitable alternative exists for this patented or proprietary item."

 Date 3/1/18
Signature Date

For Department Use Only

"I, JAMES S. STROZ, JR., DTOE
Print Name Position Title

of the Florida Department of Transportation, do hereby approve this certification request made in accordance with the
requirements of 23 CFR 635.411(a)(2),
Mark appropriately (choose only one option):

- that this patented or proprietary item is essential for synchronization with existing highway facilities.
 that no equally suitable alternative exists for this patented or proprietary item."

Identify any conditions and limitations:

 Date 4/10/18
Signature Date



PUBLIC WORKS DEPARTMENT ▪ TRAFFIC ENGINEERING DIVISION

CHRISTINE N. LOFYE, P.E., Manager

4200 South John Young Parkway ▪ Orlando, Florida 32839-9205

407-836-7890 ▪ Fax 407-836-7869

www.orangecountyfl.net

April 17, 2018

Mario Bizzio, P.E. – District 5 Design Engineer

Florida Department of Transportation

719 South Woodland Boulevard

Deland, FL 32720

Subject: Justification for Use of Proprietary Products for Traffic Signal Equipment and ATMS Software by Orange County – FPID: 442545-1-93-01 & 442549-1-93-01

Dear Mr. Bizzio:

Orange County Traffic Engineering Division requests the approval of the attached Proprietary Product Certification Form No. 630-020-07, completed in accordance with Proprietary Products Review and Certification Procedure 630-020-005-a, adopted August 20, 2014, for the following proprietary products:

- Intelight, NEMA X3 TS2 Type 2 ATC Controller with Maxtime local software
- Intelight MaxView® Advanced Traffic Management System (ATMS) software

Project Need

Orange County along with Central Florida region is upgrading its signal technology to be compatible with Utah Department of Transportation Automated Traffic Signal Performance Metric and Connected Vehicle Technology. To achieve this new operational standard, controllers will be replaced with Advance Traffic Controller, or ATC, technology. Orange County operates and maintains a large number of traffic signals spanning a large geographical area with limited resources. Consequently, simplicity, reliability, and efficiency of traffic signal maintenance and operation are paramount objectives for the County to ensure safe and effective functionality of the County's roadway network. The traffic signal equipment and ATMS Software for this project needs to ensure safety and reliability while minimizing the amount of man hours needed for maintenance, in order to maximize the use of the Counties resources.

Evidence of Unique Need

Orange County operates and maintains over 600 traffic signals spanning a large geographical area. The number of traffic signal maintenance technicians needed to maintain 600 traffic signals, based on USDOT FHWA Signal Timing Manual recommended staffing guidelines, is

20 technicians. The County has a staff of 14 signal technicians, who maintain the traffic signal system.

Historically, Orange County has used Siemens traffic signal controllers and ATMS software (TACTICS). The County has experienced challenges with the efficiency of Siemens traffic signal controllers and TACTICS ATMS software, which have culminated in the decision for the County to evaluate other traffic signal controller and ATMS software system alternatives to meet their needs. The primary need the County evaluated traffic signal controllers and ATMS software systems on the APL for was a need to find efficiencies to be able to adequately maintain the system. Based on the outcome of this product evaluation by County traffic signal technicians and TMC operators, Orange County has decided to select Intelight NEMA X3 controller and MaxView® ATMS software for future application.

Accordingly, proprietary product certification approval is being sought for the X3 controller and MaxView® ATMS software, on the grounds that no equally suitable alternative exists.

Further justification for the use of these proprietary products has been provided in subsequent sections.

Supporting Evidence for Proprietary Products Meeting the Unique Need

- a. Remote Firmware Upgrades without putting the signal in FLASH: The existing Siemens M60 controllers take between 40 minutes to 2 hours per intersection for firmware upgrades. These firmware upgrades must be done at the signalized intersection and require the signal to be put in FLASH mode during the process. Depending on the size of the intersection the County may also have law enforcement present to control traffic during the upgrade. The Intelight NEMA X3 controller with Maxtime local software includes a unique ability to upgrade the controller software without putting the signal into FLASH. Such upgrades can be performed remotely over the network and take 2 minutes per intersection. The controller does not go into FLASH and does not cease operating the intersection. This functionally has been used by Georgia DOT to upgrade over 1,000 intersections with a failure rate of less than 1%. Even in those cases in which the controller software did not successfully upgrade, the intersection never went into FLASH. An analysis of potential savings, based on this can be seen below.

Estimated cost of firmware upgrades:

Number of Intersections	600
Approximate number needing law enforcement present	200
Typical number of firmware upgrades annually	2

Controller Type	Average upgrade time (min)	Total Update Time (Annual)
Siemens M60	80	2133
Intelight NEMA X3	2	40

- b. Web-based Central system: The existing TACTICS ATMS software is a local client based software. Updates to the client software must be performed individually on each workstation with the software by a Data Network Specialist. Orange County has 2 Data Network Specialist that must maintain a large traffic signal system and a robust ITS network. MAXVIEW provides a web-based central system that is operated using a *web-based user interface* (webUI). This webUI provides full functionality for the system operators, including configuration, monitoring, and control. Additionally, the MAXVIEW system is deployed on a server and requires no software to be installed on the client machines, resulting in reduced complexity and reduced maintenance costs to the agency. An analysis of potential savings, based on this can be seen below.

Estimated cost of software client updates:

Number of Work Stations	30
Typical number of client software updates annually	5

ATMS Software	Average Update Time (min)	Total Update Time (Annual)
TACTICS	40	100 Hours
MAXVIEW	0	0 Hours

- c. Additional Unique Features: MAXTIME provides a number of advanced capabilities including a Status Replay that allows users to replay the last two (2) hours of signal operations in order to troubleshoot signal performance issues. This replay capability is available through the MAXTIME web interface and utilizes the high-resolution data collected by the controller to display the past operations to the user.

Summary:

Orange County is short on signal technician positions. A system that supports remote firmware upgrades, without sending the signal into flash, and having a web based central software will provide the equivalent a reduction of one (1) full time equivalent position in need. A significant savings that will allow the county to effectively deliver services to the public.

Factual and technical supporting evidence that no alternatives are available

- a. There are eight (8) NEMA TS2 Type 2 controller units from five (5) manufacturers listed on the FDOT Approved Products List (APL). The manufacturers with products in this category are Intelight, Econolite, Siemens, Trafficware, and McCain. All five vendors provide ATC-based controllers with local controller software. Intelight's MAXTIME local controller software offers Status Replay; upgrade without FLASH capabilities; and individual user accounts and access control on the controller for enhanced operations logs and cyber security. Controller software packages from Econolite, Siemens, Trafficware and McCain do not offer these capabilities.
- b. Each of the five local controller manufacturers offer proprietary central system software that interfaces with their controllers. Intelight's MAXVIEW central system offers a fully functional thin client that requires no installation of software on the client workstations. Central system software from the other manufacturers does require the installation of a least a portion of the software on each workstation that wishes to access the central system server. In addition, MAXVIEW provides off-the-shelf support for multiple manufacturer's controller software. Central system packages from the other 4 vendors do not offer 3rd party controller support that is currently field deployable.

Conclusion

In summary, the Orange County is requesting approval for the use of the proprietary products listed in this document.

Sincerely,

Hazem El-Assar

Hazem El-Assar, P.E.
Chief Engineer

Attachments

INTELIGHT

NEVER STAND STILL

Re: Innovative Features and Functionality specific to Intelight Products

Date: 3/27/2018

To whom it may concern,

The list of features and functionality below are unique and innovative features that, to the best of our knowledge, are exclusive to the Intelight Traffic Signal System and Local Controller solutions. If you have any questions or concerns regarding this matter, please feel free to contact me at tom.stiles@intelight-its.com or on my cell phone at 801.440.1174. Thank you.

MAXTIME Local Controller Software

- Full NTCIP MIBs including manufacturer specific items and block object definitions shall be provided for no additional charge and within the standard license agreement. The MIBS may be used at the agencies discretion.
- Individual user accounts which provide edit/view-only access rights to each menu within the controller. User accounts are synced to all controllers via included central system user account software.
- Remote controller software upgrades during all-red (less than 15 seconds) WITHOUT the need to put intersection into flash
- Ability to keep 2 versions of the controller software resident on the controller
- Color touchscreen with Android operating system
- Software and hardware fully integrated with industry standard API (ATC 5401 Standard)
- "Coord Now" functionality provides instant Coordinated operation without transition between patterns, or when exiting preemption
- Queue responsive for addressing dynamic traffic loading at an approach
- 40 phases
- 32 overlaps
- 16 rings
- 20 sequences
- 72 vehicle and 72 pedestrian detectors
- Custom overlaps

MAXVIEW atms Central System

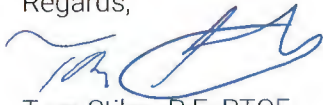
- User interface allows for dynamic device group selection using mouse to "lasso" devices on main map
- Regular, holiday, and special event time of day events are scheduled in one Outlook/Google style calendar with support for recurring events
- Client to Central System communications can be secured via HTTPS connections
- True thin-client interface – no need to install software on workstations
- Thin-client provides full functionality, not just monitoring capabilities

INTELLIGHT

NEVER STAND STILL

- Once server is upgraded, clients are automatically upgraded
- Templates used for intersection configuration
- Outlook-like scheduler (TOD commands and Alarm notifications)
- "Live Front-Panel Editor"
- Updates to controller firmware do NOT require updates to the central system (use METADATA to define what controller can provide)
- Analysis tools and reports based upon the high-resolution data collected from the controller

Regards,



Tom Stiles, P.E. PTOE
Vice President of Sales
Intelight, Inc.

King, Katie

From: Anthony.Albert@ocfl.net
Sent: Monday, April 16, 2018 12:32 PM
To: Andrew.Relf@ocfl.net; Hazem.El-Assar@ocfl.net
Cc: Roger.Smith@ocfl.net
Subject: RE: Trafficware Naztec

Hazem,

Based on conversation in our meeting with Naztec, they cannot comply with options 1, 3, and 5.

1. The controller firmware is able to be remotely upgraded without the need to put the intersection into flash.
2. The controller firmware update is able to be scheduled to run at a pre-determined time.
3. The controller is able store two or more versions of firmware.
4. The controller is reachable via web browser.
5. Central system software is web based and can provide a thin client interface that does not require client / workstation software.

Best regards,

Tony

Anthony Albert
Data Network Specialist
Orange County Traffic Engineering
4200 S. John Young Pkwy., Bdg. 2
Orlando, FL 32839

Email: anthony.albert@ocfl.net
Office: (407) 836-7953
Cell: (407) 427-5338
Fax: (407) 836-7825

From: Relf, Andrew S
Sent: Monday, April 16, 2018 12:04 PM
To: El-Assar, Hazem
Cc: Smith, Roger; Albert, Anthony P
Subject: FW: Trafficware Naztec

Hazem,

Please see below. I sent these list of questions to Kris McCoy on 3/27/18 and he never responded back.

Thanks,
Andy

From: Relf, Andrew S
Sent: Tuesday, March 27, 2018 12:45 PM
To: El-Assar, Hazem <Hazem.El-Assar@ocfl.net>
Cc: Smith, Roger <Roger.Smith@ocfl.net>
Subject: FW: Trafficware Naztec

FYI

From: Relf, Andrew S
Sent: Tuesday, March 27, 2018 12:44 PM
To: 'Kris McCoy' <KrisMcCoy@trafficware.com>
Cc: Albert, Anthony P <Anthony.Albert@ocfl.net>
Subject: Trafficware Naztec

Kris,

Can Naztec perform the items listed below:

1. The controller firmware is able to be remotely upgraded without the need to put the intersection into flash.
2. The controller firmware update is able to be scheduled to run at a pre-determined time.
3. The controller is able store two or more versions of firmware.
4. The controller is reachable via web browser.
5. Central system software is web based and can provide a thin client interface that does not require client / workstation software.

Thanks,

Andrew Relf
Data Network Specialist
Orange County Traffic Engineering
4200 S. John Young Pkwy., Bdg. 2
Orlando, FL 32839

Email: Andrew.Relf@ocfl.net
Office: (407) 836-7765
Cell: (321) 354-7397
Fax: (407) 836-7825

King, Katie

From: Anthony.Albert@ocfl.net
Sent: Monday, April 16, 2018 12:29 PM
To: Hazem.El-Assar@ocfl.net; Andrew.Relf@ocfl.net
Cc: Roger.Smith@ocfl.net
Subject: RE: Econolite questions

Hazem,

Matt Joseph confirmed to me over the phone that Econolite requires as a “best practice” or “policy” that the controller must be rebooted on site in order to perform firmware updates. I peppered him with a series of questions concerning features of their controllers and software the day after Andy sent the email to him and prior to our meeting.

Best regards,

Tony

Anthony Albert
Data Network Specialist
Orange County Traffic Engineering
4200 S. John Young Pkwy., Bdg. 2
Orlando, FL 32839

Email: anthony.albert@ocfl.net
Office: (407) 836-7953
Cell: (407) 427-5338
Fax: (407) 836-7825

From: El-Assar, Hazem
Sent: Monday, April 16, 2018 12:20 PM
To: Relf, Andrew S
Cc: Smith, Roger; Albert, Anthony P
Subject: RE: Econolite questions

Please send me their verbal response.

Thanks.

Hazem El-Assar, P.E.
Chief Engineer
Orange County Traffic Engineering
407-836-7866

From: Relf, Andrew S
Sent: Monday, April 16, 2018 12:07 PM

To: El-Assar, Hazem <Hazem.El-Assar@ocfl.net>
Cc: Smith, Roger <Roger.Smith@ocfl.net>; Albert, Anthony P <Anthony.Albert@ocfl.net>
Subject: FW: Econolite questions

Hazem,

Please see below. I asked Matt Joseph these questions on 3/27/18 and he never responded back.

Thanks,
Andy

From: Relf, Andrew S
Sent: Tuesday, March 27, 2018 12:44 PM
To: El-Assar, Hazem <Hazem.El-Assar@ocfl.net>
Cc: Smith, Roger <Roger.Smith@ocfl.net>
Subject: FW: Econolite questions

FYI...

From: Relf, Andrew S
Sent: Tuesday, March 27, 2018 12:43 PM
To: 'Matthew Joseph' <MJoseph@econolite.com>
Cc: Albert, Anthony P <Anthony.Albert@ocfl.net>
Subject: Econolite questions

Matt,

Can Econolite perform the items listed below:

1. The controller firmware is able to be remotely upgraded without the need to put the intersection into flash.
2. The controller firmware update is able to be scheduled to run at a pre-determined time.
3. The controller is able store two or more versions of firmware.
4. The controller is reachable via web browser.
5. Central system software is web based and can provide a thin client interface that does not require client / workstation software.

Thanks,

Andrew Relf
Data Network Specialist
Orange County Traffic Engineering
4200 S. John Young Pkwy., Bdg. 2
Orlando, FL 32839

Email: Andrew.Relf@ocfl.net
Office: (407) 836-7765
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Fax: (407) 836-7825

King, Katie

From: EDeason@tcstraffic.com
Sent: Tuesday, April 03, 2018 1:54 PM
To: Hazem.El-Assar@ocfl.net
Cc: Anthony.Albert@ocfl.net; Andrew.Relf@ocfl.net; Roger.Smith@ocfl.net
Subject: Re: McCain controller demo

Hazem,

The Central System software is under development, scheduled to release as a web based mid summer.

We would like an opportunity to come and demo the controllers and software. Orlando us currently testing a McCain ATC Controller in one of their NEMA cabinets. There over a hundred McCain controllers running on a system in the panhandle for the past 2 years as well.

TCS will have McCain in the area on April 18th and 19th to demo the system. Please let us know what date and time works best for the County.

Eric J. Deason
Vice President of Sales
Transportation Control Systems, Inc.
1030 South 86th Street | Tampa | Florida | 33619
813.630.2800 [office] | 813.737.0527 [fax] | 407.448.1171 [mobile]
edeason@tcstraffic.com
www.tcstraffic.com



On Apr 2, 2018, at 8:48 AM, Eric J. Deason <edeason@tcstraffic.com> wrote:

Hazem,

I know the answer to 1-4 is yes, I believe the answer for 5 is yes but, I need to confirm.

We are actually looking to next week some time to meet. Please let me know what day works best.

Eric J. Deason
Vice President of Sales
Transportation Control Systems, Inc.
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813.630.2800 [office] | 813.737.0527 [fax] | 407.448.1171 [mobile]
edeason@tcstraffic.com
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On Apr 2, 2018, at 8:24 AM, "Hazem.El-Assar@ocfl.net" <Hazem.El-Assar@ocfl.net> wrote:

Eric,

Before we can have demo, please answer the following questions:

1. Can the controller firmware be remotely upgraded without the need to put the signal into flash?
2. Can the controller firmware update be scheduled to run at a pre-determined time?
3. Can the controller store two or more versions of firmware?
4. Can the controller be reachable via web browser?
5. Is the central system software web based and can provide a thin client interface that does not require client / workstation software.

Thanks.

*Hazem El-Assar, P.E.
Chief Engineer
Orange County Traffic Engineering
407-836-7866*

From: Eric J. Deason [<mailto:EDeason@tcstraffic.com>]
Sent: Monday, April 2, 2018 8:17 AM
To: El-Assar, Hazem <Hazem.El-Assar@ocfl.net>
Subject: McCain controller demo

Hazem,

I have reached out to Roger last week to see if he is the County is available for a McCain controller and system demo. I have not heard back, I know he is busy. So a reaching out I see if you and Roger have time tomorrow for TCS to come by and demo the system?

Eric J. Deason
Vice President of Sales
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PLEASE NOTE: Florida has a very broad public records law (F. S. 119). All e-mails to and from County Officials are kept as a public record. Your e-mail communications, including your e-mail address may be disclosed to the public and media at any time.