



## Florida Department of Transportation

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GOVERNOR

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SECRETARY

January 22, 2010

Monica Gourdine  
Program Operations Engineer  
Federal Highway Administration  
545 John Knox Road, Suite 200  
Tallahassee, Florida 32303

Re: Office of Design, Specifications  
Section 603  
Proposed Specification: **6030000 General Requirements for the Installation and Evaluation of Traffic Control Signals and Devices.**

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were proposed by Trey Tillander of the State Traffic Engineering and Operations Office to expand Section 603 to include Intelligent Transportation Systems and to provide general cleanup and clarification.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to ST986RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4280.

Sincerely,

Signature on File

Rudy Powell, Jr., P.E.  
State Specifications Engineer

RP/ft

Attachment

cc: Gregory Jones, Chief Civil Litigation  
Florida Transportation Builders' Assoc.  
State Construction Engineer

**GENERAL REQUIREMENTS FOR THE INSTALLATION AND EVALUATION OF TRAFFIC CONTROL SIGNALS AND DEVICES.**

(REV ~~11-09-09~~*1-20-10*)

SECTION 603 (Pages 727 – 730) is deleted and the following substituted:

**SECTION 603  
GENERAL REQUIREMENTS FOR THE INSTALLATION  
AND EVALUATION OF TRAFFIC CONTROL SIGNALS *AND*  
*DEVICES* ~~EQUIPMENT AND MATERIALS~~**

**603-1 Description.**

The provisions contained in this Section include general requirements for all traffic control signals ~~equipment and materials~~ *devices* used in the construction of ~~signalized intersections.~~

**603-2 Equipment and Materials.**

**603-2.1 General:** Except as provided in 603-2.2, only use traffic control signals *and* ~~devices~~ meeting the requirements of the Minimum Specifications for Traffic Control Signals *and* Devices (MSTCSD), ~~the Specifications~~ *Contact Documents*, and listed on the Department's Approved Product List (APL).

Only use new equipment and materials, except as specified in the Contract Documents.

**603-2.2 Exceptions:** The Department may grant exceptions to the requirements of 603-2.1 by Temporary Permit *or Conditional Approval for Limited Use* to ~~take advantage of "state of the art" equipment advances~~ *evaluate new technology* or for other circumstances that are found to be in the public interest.

**603-2.3 Uniformity:** Only use compatible units of any one item of equipment, such as signal heads, detectors, controllers, cabinets, poles, signal system or interconnection equipment, ~~-etc., for use at an intersection.~~

**603-2.4 Hardware and Fittings:** Ensure that all bolts and nuts less than 5/8 inch in diameter are passivated stainless steel, Type 316 or Type 304 and meet the requirements of ASTM F 593 and ASTM F 594 for corrosion resistance, ~~unless otherwise specified in the Contract Documents. Provide documentation to the Engineer certifying that the materials meet all requirements specified.~~

Ensure that all bolts and nuts 5/8 inch and over in diameter are galvanized and meet the requirements of ASTM A 307.

Use high-strength steel anchor bolts and U-bolts, having a minimum yield strength of 55,000 psi and a minimum ultimate strength of 90,000 psi.

**603-2.5 Galvanizing:** Meet the requirements of Section 962 when galvanizing for fittings and appurtenances for all structural steel (including steel poles).

**603-3 Definitions.**

Traffic Control Signals *and* Devices: Any *signal or* device, ~~either~~ manually, electrically or mechanically operated, by which traffic is alternately directed to stop and permitted to proceed or controlled in any manner. *Traffic Control Signals and Devices*

*regulate, warn, or guide traffic on, over, or adjacent to a street, highway, pedestrian facility, or bikeway by authority of a public agency having jurisdiction. Traffic Control Signals and Devices* These include, but are not limited to, controller assemblies (controller cabinets and their contents); signal heads including their hanging or mounting devices; vehicle detection systems (loops, sealant, amplifier, lead-in wire, or cable); and pedestrian detection systems (push button, push button housing, lead-in wires, and signal); *Motorist Information Systems, Video Equipment, Network Devices, Dynamic Message Signs, Highway Advisory Radios, Road Weather Information Systems, CCTV Cameras, Vehicle Detection Systems, and other equipment used within a traffic control system.*

Minimum Specifications for Traffic Control Signals *and* Devices: The current edition of the MSTCSD, maintained by the State Traffic Engineering *and Operations* Office, which provides standards and specific technical requirements for electronic equipment and materials for the evaluation of traffic control signals *and* devices.

Approved Products List (APL): A listing of certified or approved traffic control signals *and* devices ~~or~~ *and* hardware, compiled and maintained by the State Traffic Engineering *and Operations* Office.

Temporary Permit: A permit issued by the State Traffic Engineering *and Operations* Office. *A Temporary Permit is issued to a public or private entity for the temporary installation of a device for the purpose of evaluating the device's operational effectiveness and safety.* ~~for a specified time period at a specific location for new products or technology introduced by manufacturers requiring approval by the Department. This permit allows for a trial use of such products and field evaluation before the Department issues a formal approval.~~ *Under a Temporary Permit, the device shall be provided at no cost to the Department for the duration of the evaluation.* The State Traffic Engineering *and Operations* Office maintains the list of temporarily permitted traffic control signals *and* devices.

*Conditional Approval for Limited Use: A limited approval issued by the State Traffic Engineering and Operations Office for a specified time period at a specific location(s) for products requiring approval by the Department and that are determined to be in the best interest of the public. All conditions of the approval must be met for the device to be allowed to remain installed and in use. This approval is issued to a public or private entity for the purpose of evaluating the device's operational effectiveness and safety. The State Traffic Engineering and Operations Office maintains the list of conditionally approved traffic control signals and devices.*

#### **603-4 Systems Approval Requirement.**

The Engineer will review and approve any system design plan of traffic control signals *and* devices, that is controlled and/or operated from a remote location by ~~electronic~~ computers or similar devices, and which affects the movement of traffic on any portion of the State Highway System, prior to installation. Within such system, only use traffic control signals *and* devices that meet all certification or approval requirements contained herein.

#### **603-5 Device Approval Process.**

The traffic control signals *and* devices approval process is described in detail in Section A601 of the MSTCSD.

### 603-6 Marking of Approved Equipment.

**603-6.1 Manufacturer's Identification:** Ensure that all traffic control signal devices, furnished and/or installed, are marked by the manufacturer with a permanently affixed ID plate or stamp, bearing the name or trademark of the manufacturer and the part number.

**603-6.2 Certification Number:** Ensure that the Florida Department of Transportation certification number is permanently affixed.

1. For electrical/electronic devices such as controllers and accessories and vehicle detectors, the manufacturer, vendor, supplier, or Contractor shall permanently affix the certification number on the top front center of the electrical/electronic device with a tamper proof, water resistant label.

2. For vehicular and pedestrian traffic signals, electro-mechanical signs, disconnect hangers and pedestrian detectors, the certification number shall be permanently affixed inside the housing near the terminal block by the manufacturer, vendor, supplier, or Contractor.

3. For controller cabinets, the certification number shall be permanently affixed on the inside of the main cabinet door by the manufacturer, vendor, supplier, or Contractor. *Ensure that traffic control signals and devices are marked in accordance with Section A601-6 of the MSTCSD.*

### 603-7 Submittal Data Requirements.

Prior to the installation of signal equipment and within 30 days after the preconstruction conference, submit a completed listing of all traffic *control signals*, devices, or hardware with *APL* certification number(s) to the Engineer for approval on a form *750-010-02, Submittal Data – Traffic Control Equipment*, provided by the Department (*Form 750-010-02*). On all non-structural equipment or materials that do not have a Florida Department of Transportation Certification Number, submit one copy of the manufacturer's descriptive literature and technical data fully describing the types of signal equipment that will be used to the Engineer.

Develop shop drawings for all structural support materials and other special designs, such as non-electrical, non-mechanical, or other fabricated items, which may not be specifically detailed in the plans. Have the Specialty Engineer approve all shop drawings. Do not submit shop drawings for those items that have been previously evaluated and approved. Meet the requirements of 5-1.4 for shop drawings. Send two copies of the shop drawings signed and sealed by the Specialty Engineer to the Engineer.

The Engineer will approve submittal data for devices having a Florida Department of Transportation *APL* Certification Number.

The Department is not liable for any equipment or material purchased, work done, or delay incurred prior to such approval.

Provide a complete operable signal installation as specified in the Contract regardless of any failure of the Department to discover or note any unsatisfactory material. Meet the requirements of Section 608.

### 603-8 Documentation for Electronic Equipment.

Prior to final acceptance, furnish the Engineer with two copies of the following documentary items obtained from the manufacturer for the electronic equipment listed below:

1. ~~Manual describing the theory of operation~~ *Operation Manual*
2. ~~Manual for troubleshooting~~ *Troubleshooting and Service Manual*
3. ~~Electronic schematics of circuit boards~~ *Assembly and Installation*

*Instructions*

4. Pictorial layout of components *and schematics for* of circuit boards
5. Parts list, including the location
6. Diagram of the field installation wiring (not applicable to the detectors)
7. *Warranty information*

Furnish documentary items for the following equipment:

1. Controllers
2. Vehicle detectors
3. ~~Coordinating units~~
4. Load switches
5. Flasher units
6. Preemption units
7. Conflict monitors
8. Special sequence relays
9. *Cameras*
10. *Dynamic Message Signs*
11. *Highway Advisory Radios*
12. *Road Weather Information Systems*
13. Any other equipment which has a logic, timing, or communications function
14. Other equipment documentation specified in the Contract

Documents

**603-9 Department-Furnished Equipment Installed By Contractor.**

Where the Contract includes installation of Department-furnished equipment, the Department will turn over such equipment to the Contractor when the construction progress allows or as designated in the Contract Documents. The Department will test and certify the equipment to be in proper condition and ready to use and will bear the costs of correcting any defects in the equipment prior to pick-up by the Contractor. The Engineer will coordinate the pick-up and installation of the equipment. Maintain the equipment in proper operational condition after pick-up at no cost to the Department, until either final acceptance or the equipment is returned to the Department.

**GENERAL REQUIREMENTS FOR THE INSTALLATION AND EVALUATION  
OF TRAFFIC CONTROL SIGNALS AND DEVICES.**

**(REV 1-20-10)**

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AND EVALUATION OF TRAFFIC CONTROL SIGNALS AND  
DEVICES**

**603-1 Description.**

The provisions contained in this Section include general requirements for all traffic control signals and devices.

**603-2 Equipment and Materials.**

**603-2.1 General:** Except as provided in 603-2.2, only use traffic control signals and devices meeting the requirements of the Minimum Specifications for Traffic Control Signals and Devices (MSTCSD), the Contact Documents, and listed on the Department's Approved Product List (APL).

Only use new equipment and materials, except as specified in the Contract Documents.

**603-2.2 Exceptions:** The Department may grant exceptions to the requirements of 603-2.1 by Temporary Permit or Conditional Approval for Limited Use to evaluate new technology or for other circumstances that are found to be in the public interest.

**603-2.3 Uniformity:** Only use compatible units of any one item of equipment, such as signal heads, detectors, controllers, cabinets, poles, signal system or interconnection equipment, etc.

**603-2.4 Hardware and Fittings:** Ensure that all bolts and nuts less than 5/8 inch in diameter are passivated stainless steel, Type 316 or Type 304 and meet the requirements of ASTM F 593 and ASTM F 594 for corrosion resistance.

Ensure that all bolts and nuts 5/8 inch and over in diameter are galvanized and meet the requirements of ASTM A 307.

Use high-strength steel anchor bolts and U-bolts, having a minimum yield strength of 55,000 psi and a minimum ultimate strength of 90,000 psi.

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**603-3 Definitions.**

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vehicle detection systems (loops, sealant, amplifier, lead-in wire, or cable); pedestrian detection systems (push button, push button housing, lead-in wires, and signal); Motorist Information Systems, Video Equipment, Network Devices, Dynamic Message Signs, Highway Advisory Radios, Road Weather Information Systems, Cameras, Vehicle Detection Systems, and other equipment used within a traffic control system.

**Minimum Specifications for Traffic Control Signals and Devices:** The current edition of the MSTCSD, maintained by the State Traffic Engineering and Operations Office, which provides standards and specific technical requirements for electronic equipment and materials for the evaluation of traffic control signals and devices.

**Approved Product List (APL):** A listing of certified or approved traffic control signals and devices and hardware, compiled and maintained by the State Traffic Engineering and Operations Office.

**Temporary Permit:** A permit issued by the State Traffic Engineering and Operations Office. A Temporary Permit is issued to a public or private entity for the temporary installation of a device for the purpose of evaluating the device's operational effectiveness and safety. Under a Temporary Permit, the device shall be provided at no cost to the Department for the duration of the evaluation. The State Traffic Engineering and Operations Office maintains the list of temporarily permitted traffic control signals and devices.

**Conditional Approval for Limited Use:** A limited approval issued by the State Traffic Engineering and Operations Office for a specified time period at a specific location(s) for products requiring approval by the Department and that are determined to be in the best interest of the public. All conditions of the approval must be met for the device to be allowed to remain installed and in use. This approval is issued to a public or private entity for the purpose of evaluating the device's operational effectiveness and safety. The State Traffic Engineering and Operations Office maintain the list of conditionally approved traffic control signals and devices.

#### **603-4 Systems Approval Requirement.**

The Engineer will review and approve any system design plan of traffic control signals and devices, that is controlled and/or operated from a remote location by computers or similar devices, and which affects the movement of traffic on any portion of the State Highway System, prior to installation. Within such system, only use traffic control signals and devices that meet all certification or approval requirements contained herein.

#### **603-5 Device Approval Process.**

The traffic control signals and devices approval process is described in detail in Section A601 of the MSTCSD.

#### **603-6 Marking of Approved Equipment.**

Ensure that traffic control signals and devices are marked in accordance with Section A601-6 of the MSTCSD.

#### **603-7 Submittal Data Requirements.**

Prior to the installation of equipment and within 30 days after the preconstruction conference, submit a completed listing of all traffic control signals, devices, or hardware

with APL certification number(s) to the Engineer for approval on form 750-010-02, Submittal Data – Traffic Control Equipment, provided by the Department. On all non-structural equipment or materials that do not have a Florida Department of Transportation Certification Number, submit one copy of the manufacturer's descriptive literature and technical data fully describing the types of equipment that will be used to the Engineer.

Develop shop drawings for all structural support materials and other special designs, such as non-electrical, non-mechanical, or other fabricated items, which may not be specifically detailed in the plans. Have the Specialty Engineer approve all shop drawings. Do not submit shop drawings for those items that have been previously evaluated and approved. Meet the requirements of 5-1.4 for shop drawings. Send two copies of the shop drawings signed and sealed by the Specialty Engineer to the Engineer.

The Engineer will approve submittal data for devices having a Florida Department of Transportation APL Certification Number.

The Department is not liable for any equipment or material purchased, work done, or delay incurred prior to such approval.

Provide a complete operable signal installation as specified in the Contract regardless of any failure of the Department to discover or note any unsatisfactory material. Meet the requirements of Section 608.

#### **603-8 Documentation for Electronic Equipment.**

Prior to final acceptance, furnish the Engineer with two copies of the following documentary items obtained from the manufacturer for the electronic equipment listed below:

1. Operation Manual
2. Troubleshooting and Service Manual
3. Assembly and Installation Instructions
4. Pictorial layout of components and schematics for circuit boards
5. Parts list, including the location
6. Diagram of the field installation wiring (not applicable to the detectors)
7. Warranty information

Furnish documentary items for the following equipment:

1. Controllers
2. Vehicle detectors
3. Load switches
4. Flasher units
5. Preemption units
6. Conflict monitors
7. Special sequence relays
8. Cameras
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10. Highway Advisory Radios
11. Road Weather Information Systems
12. Any other equipment which has a logic, timing, or communications

function

13. Other equipment specified in the Contract Documents

**603-9 Department-Furnished Equipment Installed By Contractor.**

Where the Contract includes installation of Department-furnished equipment, the Department will turn over such equipment to the Contractor when the construction progress allows or as designated in the Contract Documents. The Department will test and certify the equipment to be in proper condition and ready to use and will bear the costs of correcting any defects in the equipment prior to pick-up by the Contractor. The Engineer will coordinate the pick-up and installation of the equipment. Maintain the equipment in proper operational condition after pick-up at no cost to the Department, until either final acceptance or the equipment is returned to the Department.