

GENERAL NOTES FOR TRAFFIC SIGNAL CONSTRUCTION:

Updated 08/21/2013

WORKMANSHIP:

1. All construction, equipment and installation procedures shall comply with current T.D.O.T. and City of Franklin standards and specifications, where applicable.
2. All materials and workmanship shall be in accordance with current T.D.O.T. and City of Franklin standards and specifications, where applicable.
3. All Traffic Signal, Sign, Pavement Markings and Temporary Traffic Control Apparatus installation, maintenance procedures, and equipment shall meet the current edition of the Manual on Uniform Traffic Control Devices (M.U.T.C.D.)
4. All traffic control during throughout the project shall be in strict accordance with the current edition of the M.U.T.C.D. and is subject to review and approval by the City of Franklin's Engineering Department.
5. The contractor shall, as determined by the City of Franklin either:
 - a. Construct the controller cabinet and foundation in accordance with TDOT Type IV controller cabinet; or
 - b. Construct the TDOT Type IV controller cabinet and foundation in accordance with City of Franklin TOC-04, a TDOT Type IV cabinet with Backup Power Supply and foundation.
6. Any non-operational signal heads, when visible to drivers, shall be completely covered.
7. The Traffic Signal, for newly signalized intersections, shall be placed in flash operation for a minimum of seven (7) days prior to the activation of the signal to normal operation.
8. Contractor shall notify the Tennessee One Call System, Inc. and all possibly effected individual utility owners, including the City of Franklin, a minimum of three (3) days prior to commencement of operations, and request them to properly field locate and mark respective utilities along the ground.
9. All utility locations, as shown on plan set, are approximate. It is the responsibility of the contractor to verify the location of all utilities prior to construction.

MATERIALS & INSTALLATION:

10. All conduit shall be Schedule 40 P.V.C. unless otherwise noted. Conduit shall be installed at a minimum depth of 24 " below finished grade and shall comply with the City of Franklin's Trenching Details and Conduit Placement per City of Franklin Standard Detail TOC-03.

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11. All signal heads shall be fabricated from aluminum. The signal face shall be black, while remainder of signal head shall be federal yellow in color. All signal heads shall be LED type in accordance with standards and specifications of the City of Franklin.
12. All vehicle signal heads shall have a multi-piece, vacuum-formed, black plastic, louvered backplate.
13. All pedestrian phasing shall be monitored as pedestrians and not as channels. Pedestrian signals with pushbuttons shall be wired separately. Pushbuttons shall be 2" ADA compliant with LED indicator and two tone audio beep per the City of Franklin specifications
14. The traffic signal controller furnished by the contractor shall be complete with all incidental and auxiliary equipment (conflict monitor, hardware and cabinet) necessary for installation and operation either as a remote location or as part of a system of intersections. All wiring and equipment necessary to activate the signal heads and operate the traffic signal as specified shall be provided and installed by the contractor.
15. Detector loops shall be installed in accordance with T.D.O.T. standard drawing T-SG-3 unless otherwise noted. Loops shall be sealed with approved loop sealant and installed without flexible tube or backer rod.
16. Stop Bar Detector loops shall measure 6' x 45' with two turns of wire unless otherwise noted. Loops shall be centered in proposed lanes. Advance Detector loops shall measure 6' x 6' with three turns of wire unless otherwise noted. Loops shall be centered in proposed lanes.
17. Loops and lead-in cable shall be continuous length; splices shall be permitted only in pull boxes or controller cabinets.
18. Loops shall be labeled in the cabinet in accordance with T.D.O.T. standard drawing T-SG-12. All wires shall be labeled in pull boxes on multi-lane approaches.
19. Loop detector amplifiers shall be four channel for card rack placement. Each loop shall have its own distinct circuit (channel).
20. The signal installation shall meet National Electrical Safety Code and local utility requirements for clearances and attachment heights. The contractor shall be responsible for coordinating with the local utilities for any adjustment or relocation work required.
21. Traffic signal support pole shall be T.D.O.T. standard round tapered galvanized steel poles in accordance with T.D.O.T. standard drawing T-SG-10. Support poles, mast arms and luminaire arms shall be black or Franklin Green in color as indicated in plan set.

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22. The proposed locations of signal support poles and controller may be slightly adjusted to accommodate field conditions. The contractor shall be responsible for determining and staking optimum locations for poles and controller. Contractor shall obtain approval by the City of Franklin Engineering Department prior to installation.
23. The contractor and/or the pole fabricator shall determine the size and design of all steel signal support poles and foundations. Shop drawings for the proposed poles shall be submitted to the City of Franklin Engineering Department for review and approval. The steel supports shall be finished by the manufacturer in a black gloss color and shall be touched up as needed by the contractor.
24. The signs shall be fabricated according to the City of Franklin standards for LED internally illuminated street name signs. The contractor shall remove fuse from sign pigtail and reinstall one fuse per sign in the service pedestal using a distribution block.
25. Contractor shall coordinate with the City of Franklin for removal of the existing traffic control facilities upon activation of the new signal system.
26. The contractor shall be responsible for providing electrical service to the site. The contractor shall obtain an Electrical Permit from the City of Franklin Building and Neighborhood Services Department prior to construction.
27. The contractor shall provide AC service installation to supply the following:
 - a. 100 amp main breaker with one (1) 50 amp breaker for the Traffic Signal Installation, three (3) 30 amp breakers, one each for the illuminated signs, safety lighting and a spare which may be used for project specific ITS infrastructure.
 - b. Each 30 amp breaker shall be labeled for its use. Locate photocell for illuminated street name signs and safety lighting at the service disconnect with a test/bypass switch.
 - c. Underground Service connection shall be installed per the City of Franklin's Electrical Service Drawing TOC-05 for Traffic Signal Installation. The Service Pedestal shall be a Milbank Model No. CP3B11110A22SL1 or approved equivalent.
28. The contractor shall label all new and existing cables in the cabinet, pole/pedestal bases and pull boxes using the convention of drawing T-SG-12. Each wire shall be identified by a circular plastic tag, 1 3/8" diameter with preprinted lettering dies of minimum 1/4 " height. Tags shall be permanently fastened to wire by means of nylon self clinching straps. Marking shall indicate "GRD" for all ground and grounded neutral conductors. Companion circuit conductors shall be marked "CKT" followed by the designated characters as shown on the plans.
29. The contractor shall seal all open conduit entrance holes, with or without cables, with conduit Duct Seal putty. Where cables enter the conduit, the sealant shall be applied

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after installing the cable. These locations shall consist of conduit ends in pull boxes, cabinet bases and weatherheads.

30. The traffic signal controller and cabinet shall be an 8-Phased Eagle EPAC 300 with both actuated and coordinated capability and shall be in accordance with the specifications of T.D.O.T. and the City of Franklin. The cabinet shall provide for a minimum of 16 signal circuits and load bay positions.
31. The contractor shall supply all appurtenances required to have a complete and operating interconnected system traffic signal if required. For the City of Franklin compatibility the equipment shall be an Eagle EPAC 3108-M52. A Fiber Connections Inc. "Gator Patch" part number G420UOO8FRB-XX-0 fiber optic distribution panel and drop cable shall be installed in the cabinet (XX is the cable length in meters). Item should be ordered to allow for an excess of 50 feet of cable inside connecting pull box where cable is to be spliced.
32. The contractor shall install a dual-receiver Opticom emergency vehicle priority control system in conjunction with the traffic signal installation. Priority control shall be provided on the designated approaches of the intersection as indicated on the plans. Intersection detection equipment will consist of a pole-mounted GPS receiver and radio transceiver along with an infrared detector all connected to a multimode phase selector located in the intersection control cabinet. Detector cable model 138 shall be provided by the contractor for wiring the infrared detectors to the multimode phase selector. Shielded 10-conductor data cable shall be provided by the contractor for wiring the GPS/radio unit to the multimode phase selector; the use of coax cable is not permitted. The multimode phase selector for both the GPS and infrared receiver units is to be wired into the same card rack as the vehicle detectors. An auxiliary interface panel design specifically for the phase selector being supplied shall be provided and wired in the cabinet.
33. At a minimum of seven (7) days prior to turn on, the contractor shall coordinate with the City of Franklin Traffic Operations Center (615) 550-6672 for the operational testing of all field and cabinet wiring. Upon successful completion of the operational testing the contractor will be provided with the appropriate timing plan to be programmed into the controller. These tests shall occur prior to the final overlay course on the project.
34. The contractor is required to attend a pre-construction meeting with the City of Franklin Engineering and Streets Departments prior to the commencement of the project. Call (615) 791-3218 for meeting schedule.
35. Inspections of all aspects of the traffic signal installation and of the Intelligent Transportation Systems (ITS) will be performed. The contractor shall notify the City daily of their intended activities.

PAVEMENT MARKINGS:

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36. All stop lines and pavement arrows shall be a preformed pliant polymer material or thermoplastic material. Stop lines shall be 24 inches wide.
37. New Pavement markings shall be of a preformed pliant polymer material or thermoplastic material and applied to areas not already marked. All conflicting pavement markings shall be removed using an acceptable method as specified by T.D.O.T. standard specification section 712 – Temporary Traffic Control. Existing pavement shall be reapplied as needed.