North Carolina Department of Transportation
Division of Highways
Transportation Mobility & Safety Division

STANDARD PRACTICE
For
Compliance with Traffic Signal and Electrical/Programming Detail Plans

Practice Statement:

It is the standard practice of the Department that traffic signals along the State Highway System be installed in substantial compliance with the traffic signal and electrical/programming detail plans prepared under the direct charge of and signed and sealed by the responsible engineer. The term responsible engineer shall mean a North Carolina licensed Professional Engineer in the ITS and Signals Unit or a designated representative approved by the ITS and Signals Unit.

Approved traffic signal and electrical/programming detail plans maintained by the ITS and Signals Unit are the Department's official, legal record of the traffic signal operation and are often requested by law firms and others involved in litigation.

Municipalities approved by the Department to prepare traffic signal plans, with or without Department review, shall provide the ITS and Signals Unit final signed and sealed traffic signal and electrical/programming detail plans of all municipality prepared plans before beginning construction of the traffic signal along the State Highway System.

Conformance to the Traffic Signal Plan:

Installation of new traffic signals and modifications to existing traffic signals shall conform to the traffic signal and electrical/programming detail plans with regard to signal phasing, yellow change and all red clearance intervals, signal head locations, signal head type and display, presence of backplates, type of pole support, detection placement, preemption timing, stop bar and crosswalk locations, signal related signing, signs added to metal pole installations (such as guidance or street signing), and conflict monitor programming. Prior approval should be received from the ITS and Signals Unit before modifying any of these items from what is required by the plan.

Field changes that impact these items may be made without prior approval where there is deemed an immediate and eminent safety hazard to the traveling public and attempts to contact the ITS and Signals Unit have been unsuccessful. In the event field changes are made due to an immediate and eminent safety hazard, they shall be immediately reported to the ITS and Signals Unit.

Plan Compliance with Current Practices:

Federal and State design guidelines evolve and change as research provides recommended improvements to the practice of traffic engineering. Therefore prior to beginning traffic signal or roadway construction, the division traffic engineer should check the seal date of the traffic signal and electrical/programming detail plans. If the plans are more than two years old or if traffic patterns have changed, the division traffic engineer should request the ITS and Signals Unit review the plans for compliance with current practices.

Plan-of-Record:

Construction of a traffic signal may yield unknown site-specific conditions that were not identified during preliminary engineering. These conditions may require minor deviations from the approved traffic signal and electrical/wiring detail plans. Field changes that do not significantly affect the intent of the plans can be made without a revised traffic signal or electrical/wiring detail plan. Such "as-built" changes to plans should be submitted to the ITS and Signals Unit.

The following are samples of "as-built" changes that should be submitted for a plan-of-record:

- Change in cabinet location.
- Replace existing controller with 2070L controller.
- Reverse split side street phases 3 and 4.
- Implement lead-lag phasing at existing protected-only phasing locations.
- Implement dual ring operation at existing single ring operation locations (with no other changes to traffic signal phasing operation).
- Upgrade detection loops where loops remain at the same location (i.e.: replace one 6' X 20' used for detecting two lanes with two 6' X 6's or replace one 6' X 60' used for stop bar detection with one 6' X 40').
- Upgrade traffic signal heads from 8-inch to 12-inch.
- Move near-side mounted traffic signal head to far-side.
- Add near-side mounted traffic signal head.
- Replace protected-only "tee" style traffic signal head with protected-only 3-section arrow style.
- Replace existing span configuration where traffic signal head locations will remain in conformance to the MUTCD (i.e.: replace "z-type" span configuration with "box-type" configuration).
- Replace existing pedestrian signal heads with countdown pedestrian signal heads and/or "WALK"/"DON'T WALK" indications with symbolic Walking Person/Upraised Hand indications.
- Add turn lanes that do not impact signal head displays and traffic signal phasing.

The following are samples of "as-built" changes that do not require a plan-of-record or a revised plan:

- Upgrade incandescent displays to LEDs.
- These timing changes:
  - Minimum Green
  - Extension / Passage / Gap Maximum Green
  - Pedestrian Walk
  - Actuations B4 Add
  - Sec. Per Actuation
  - Time B4 Reduction
  - Time to Reduce
- Increase or decrease call delay.
- Installation or removal of optional lane control signing.
- Installation or removal of "No Turn on Red" signing.
- For wood pole installations, the installation or removal of signing not specified on the plan.
- Transition to red-red flashing mode (all-red)
  (change shall be reflected in subsequent Traffic Signal Plan or Plan-of-Record)

Note: The above sample lists are not all inclusive. If in doubt about an item, contact the Transportation Systems Management & Operations Unit.