STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

December 5, 2005

MEMORANDUM TO: Division Engineers

FROM: W. S. Varnedoe, P.E.
Chief Engineer – Operations

SUBJECT: Intersection Inspection Checklists

A few months ago, I advised you of several process improvements that were generated from the 2005 Contractor/DOT Conference. One of the proposals focused on improving Contractor/DOT communication to facilitate project closeout with a recommendation to develop a list of common punch list items historically encountered on projects. In an effort to continue the communication of DOT expectations and educate project personnel about critical inspection needs, the ITS and Signals Unit has developed an Intersection Inspection Checklist. This checklist should be presented to the Contractor and Signal Subcontractor at the Preconstruction Meeting. The Contractor should incorporate the Intersection Inspection Checklist into their quality control program and be expected to correct deficiencies prior to final inspection.

It remains critical that we communicate expectations and concerns with the contractor throughout the life of our projects. Please review this information with your staff and ask them to begin using this new checklist on all projects immediately.

WSV:saj

Attachment

cc: Len A. Sanderson, P.E., State Highway Administrator
W. F. Rosser, P.E., Director of Field Operations
Lacy Love, P.E., Director of Asset Management
S. D. DeWitt, P.E., Director of Construction
Deborah Barbour, P.E., Director of Preconstruction
E. C. Powell, Jr., P.E., State Construction Engineer
Cecil Jones, P.E., State Materials Engineer
Kevin Lacy, P.E., CPM, State Traffic Engineer
Resident Engineers
District Engineers
Division Traffic Engineers
Roadway Construction Engineers
Berry Jenkins, P.E.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CHIEF ENGINEER'S OFFICE
1537 MAIL SERVICE CENTER
RALEIGH NC 27699-1537

TELEPHONE: 919-733-7621
FAX: 919-733-4141

WEBSITE: WWW.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

INTERSECTION INSPECTION CHECK-LIST
NC PROJECT: _____

INTERSECTION LOCATION _____

SIGNAL INVENTORY NO. _____

PART I (to be completed by Resident Engineer's Office)

Inspected By: _____ **Date Inspected:** _____

1. Cabinet			
a. Exterior appearance, level/plumb?	APPROVED ☐		REJECTED ☐
b. Cabinet bottom, base adapter, & extension sealed & weather-tight?	APPROVED ☐	NOT APPLICABLE ☐	REJECTED ☐
c. Attached securely to foundation?	APPROVED ☐	NOT APPLICABLE ☐	REJECTED ☐
d. Foundation has required spare conduit stubouts?	APPROVED ☐	NOT APPLICABLE ☐	REJECTED ☐
e. Foundation pad properly sized?	APPROVED ☐	NOT APPLICABLE ☐	REJECTED ☐
f. Both doors fully open with no obstructions?	APPROVED ☐		REJECTED ☐
g. Attached securely to pole?	APPROVED ☐	NOT APPLICABLE ☐	REJECTED ☐
h. Inventory Number on Cabinet?	APPROVED ☐		REJECTED ☐
2. Markings - Centerline / Edgeline Correct size and located properly?	APPROVED ☐		REJECTED ☐
3. Markings - Lane-use Correct size and located properly?	APPROVED ☐		REJECTED ☐
4. Markings - Stop Bars Correct size and located properly?	APPROVED ☐		REJECTED ☐
5. Markings - Crosswalk and Wheel Chair Ramps Correct size and located properly?	APPROVED ☐	NOT APPLICABLE ☐	REJECTED ☐
6. Vehicular and Pedestrian Signal Heads			
a. Correct signal face configuration?	APPROVED ☐	NOT APPLICABLE ☐	REJECTED ☐
b. Proper height?	APPROVED ☐	NOT APPLICABLE ☐	REJECTED ☐
c. Aligned properly with approach?	APPROVED ☐	NOT APPLICABLE ☐	REJECTED ☐

d. Gooseneck and balance adjuster tightened?	APPROVED	NOT APPLICABLE	REJECTED
e. Utility lines, etc. do not block view?	APPROVED	NOT APPLICABLE	REJECTED

7. Signs - Static and Blank-out Correct message, size, location?	APPROVED	NOT APPLICABLE	REJECTED

8. Inductive Detection Loops a. Installed properly?	APPROVED	NOT APPLICABLE	REJECTED
b. Tail section wires twisted?	APPROVED	NOT APPLICABLE	REJECTED
c. Located per plans?	APPROVED	NOT APPLICABLE	REJECTED
d. Loop numbers and polarity marked on cable ties in junction boxes?	APPROVED	NOT APPLICABLE	REJECTED
e. Resistance and megger readings forwarded to Division Traffic Engineer?	YES	NOT APPLICABLE	NO

9. Junction Boxes - Traffic Signal and Fiber Optic a. Properly sized per plans?	APPROVED		REJECTED
b. Top flush with finish grade?	APPROVED		REJECTED
c. Stone base added before placing junction box?	APPROVED		REJECTED
d. Conduits sealed?	APPROVED		REJECTED
e. Proper message on cover?	APPROVED		REJECTED
f. Cover secured and in good condition?	APPROVED		REJECTED

10. Electrical Service a. Grounding electrode wire exothermically welded to ground rods?	APPROVED	NOT APPLICABLE	REJECTED
b. Ground rod resistance recorded and forwarded to Division Traffic Engineer? NOTE: A resistance reading of 0.7 ohms indicates an error in the measurement.	YES	NOT APPLICABLE	NO

11. Pole-Line Hardware a. Proper type (angle, sidewalk, horizontal) of guy used?	APPROVED	NOT APPLICABLE	REJECTED
b. Proper separation between holes in wood pole?	APPROVED	NOT APPLICABLE	REJECTED
c. No strandlinks used in final stage?	APPROVED	NOT APPLICABLE	REJECTED
d. Messenger cable and guys bonded properly?	APPROVED	NOT APPLICABLE	REJECTED

	APPROVED	NOT APPLICABLE	REJECTED
12. Wood Poles			
a. Pole tagged or branded?	☐	☐	☐
b. Pole is installed to be plumb?	☐	☐	☐
c. Ground wire stapled to wood pole?	☐	☐	☐
d. Pole grounding electrode installed?	☐	☐	☐
13. Metal Poles			
a. Anchor bolt nuts torqued and rechecked after 48 hours?	☐	☐	☐
b. Pole is installed to be plumb?	☐	☐	☐
c. Identification tag attached?	☐	☐	☐
d. Pole grounding electrode installed?	☐	☐	☐
14. Fiber Optic Cable			
a. Cable ID markers installed at poles?	☐	☐	☐
b. Delineator markers installed?	☐	☐	☐
c. Snowshoes installed properly?	☐	☐	☐
d. Spare cable provided per plans?	☐	☐	☐
e. Splice enclosures secured, sealed, and weathertight?	☐	☐	☐
15. Conduits and Risers			
a. Riser assembles strapped properly?	☐	☐	☐
b. For fiber optic and coaxial cable, heat-shrink tubing seals top of riser?	☐	☐	☐
c. For other electrical cables, weatherhead seals top of riser?	☐	☐	☐
d. Mechanical seals installed for fiber optic cable at conduit ends?	☐	☐	☐
e. Moldable duct sealer used to seal other cables at conduit ends?	☐	☐	☐

	YES	NO
16. Has Part 2 of this checklist been completed?	☐	☐

INTERSECTION INSPECTION CHECK-LIST
NC PROJECT: _____

INTERSECTION LOCATION _____

SIGNAL INVENTORY NO. _____

PART II (to be completed by Division Traffic Engineering Office)

Inspected By: _____ **Date Inspected:** _____

17. Cabinet

	APPROVED	REJECTED
a. Is door seal weather-tight?	☐	☐
b. Is filter clean and replaceable?	☐	☐
c. Is conduit installed properly?	☐	☐
d. Cabinet wired neatly?	☐	☐
e. Wires labeled?	☐	☐
f. Documents in envelope in drawer?	☐	☐
g. Fan & thermostat operate properly?	☐	☐
h. Lights operational?	☐	☐
i. Loadswitches operational?	☐	☐
j. Flashers installed & operational?	☐	☐
k. Flash transfer relays installed?	☐	☐
l. Test switches call specified phase?	☐	☐
m. Police switches operate properly?	☐	☐
n. Ground isolated from neutral bus?	☐	☐
o. Metallic conduit bonded?	☐	☐

18. Electrical Service

	APPROVED	NOT APPLICABLE	REJECTED
a. Main bonding jumper installed?	☐		☐
b. Other bonding installed properly?	☐		☐
c. Breaker size correct?	☐	☐	☐
d. Ground rod resistance OK? (0.7 ohm reading is unacceptable)	☐		☐

19. Inductive Loop Vehicle Detection

	APPROVED	NOT APPLICABLE	REJECTED
a. Resistance & megger readings OK?	☐	☐	☐
b. Detectors installed per plans?	☐	☐	☐
c. Detectors operating properly?	☐	☐	☐

20. Other Vehicle Detection

	APPROVED	NOT APPLICABLE	REJECTED
a. Detection zones per plans?	☐	☐	☐
b. Zones free from occlusion?	☐	☐	☐
c. Detection operating properly?	☐	☐	☐

21. Pedestrian Detection and Signals

	APPROVED	NOT APPLICABLE	REJECTED
a. Pushbuttons working properly?	☐	☐	☐
b. Signal heights correct?	☐	☐	☐
c. Audible signal working properly?	☐	☐	☐
d. Count-down timing correct?	☐	☐	☐

22. Controller Programming and Intersection Operation

	APPROVED	NOT APPLICABLE	REJECTED
a. General and phasing data verified?	☐		☐
b. Coordination data verified?	☐	☐	☐
c. Preemption data verified?	☐	☐	☐

d. Indicate OASIS software version _____

	APPROVED		REJECTED
e. Phasing & timing per plans?	☐		☐

	APPROVED	NOT APPLICABLE	REJECTED
f. Startup sequence per plans?			
g. Railroad Inspection completed?			
23. Conflict Monitor Programming			
a. Card programmed per plans?			
b. Switches & jumpers set per plans?			
24. Fiber Optic Splice Enclosure Installed Labeled and Secured?			
25. Fiber Optic Interface/ Splice Trays			
a. Splices acceptable and secured?			
b. Pigtails and jumpers labeled?			
26. Fiber Modems			
a. Mounted & operational?			
b. Cables labeled and secured?			
27. System Telemetry All devices communicate properly?			
28. Laptop Communicates with RS-232 Port on Controller and Conflict Monitor			
29. Removed and spare equipment has been returned to the Division?			

Comments to be Addressed by Contractor

ITEM NO.	Discrepancies Noted

Comments to be Addressed by NCDOT/CITY

ITEM NO.	Discrepancies Noted