



log

June 19, 2001

Ms. Terry M. Hopkins, PE  
Mr. Ellis S. Ross, PE  
North Carolina Department of Transportation  
PO Box 25201  
Raleigh, NC 27611

Dear Ms. Hopkins and Mr. Ross:

Subject: Traffic Signals – Review and Approval Process for Private Developers

Attached are new guidelines and the final report for the traffic signal review and approval process for private developments. The guidelines provide Department of Transportation and private engineering firm personnel with a tool to submit traffic signal plans and specifications for developer projects to the Department for review and approval. All comments from the committee meeting minutes and final report have been addressed and incorporated into the guidelines as appropriate. These guidelines are meant to supplement the existing process.

If further information is needed, please call me at (919) 733-3915.

Sincerely,

Troy A. Peoples, PE  
Traffic Management and Signal Systems Engineer

Attachments

TAP/REM:rjz

cc: L. A. Sanderson, PE  
R. L. Hill, PE  
J. D. Goins, PE  
H. A. Tasaico, PE

J. M. Lynch, PE  
R. E. Mullinax, PE  
R. J. Ziemba, PE

March 15, 2001

Summary and Recommendations of NCSITE Traffic Signal  
for Developers Process Review Committee

Final Report  
by Robert J. Ziembra, PE

This is a summary of the NCSITE Traffic Signal for Developers Process Review Committee. This committee was formed at the request of Troy Peoples, NCDOT Traffic Management & Signal Systems Engineer.

**Background:**

For many years, all signal installations on the state highway system were designed by the North Carolina Department of Transportation's (NCDOT) Signals and Geometrics Section. This included signals created by new roadway projects, safety issues, and new development created by private developers. As North Carolina began to grow, Signals and Geometrics could no longer meet the demand for new signal designs. Accordingly, private engineering firms (PEFs) were hired by the private developers to do the signal designs for their developments. An agreement would be signed between the developer and NCDOT for Signals and Geometrics to review the signal plan. This approval was required for any signal that was to be installed or upgraded on the state highway system.

As the amount of signals prepared by PEFs began to increase, several problems developed. First, while there was a review procedure in place, many developers, PEFs, and even DOT personnel, were unaware of the procedures. Second, as the state grew, there was a tremendous increase in the number of signals being installed by developers. These factors frequently created situations where signals were improperly installed. Many divisions were frequently bypassed during the review process. Situations arose where there was no signed agreement between the developer and DOT, divisions were unaware of new signals being installed, and in some cases, a proper plan review was never performed by DOT.

The original procedures never specified time deadlines. This also created problems in the process, in that developers were unaware of the time that some steps take. They would submit a request on a Monday morning and then expect to have the entire process completed and signal installed by Friday afternoon for a Saturday morning grand opening. Tense moments for the developer usually ensued when plans were not ready as expected or when needed.

The increased volume quickly became overwhelming. District Engineers, the initial contact in the process, were often overwhelmed with requests. This volume carried over to the plan review phase. The frequent delays lead to tense situations for both developers and DOT personnel as openings grew closer and plans were not approved. It was not uncommon for developers to install signals based on preliminary plans.

During the 2000 calendar year, 118 signal plans were submitted to DOT for review by PEFs on behalf of developers. An additional 29 signals were submitted to DOT for review by PEFs for signal projects sponsored by local municipalities.

### **Initial Solution:**

In 1999, DOT began to recognize the increased volume of developer signals and accompanying problems that occurred. A committee was formed to review the signal plan review process and find ways to improve the process. The result of this 18 month committee was a document entitled *Traffic Signals: Review and Approval Process for Private Developments*. This document detailed a revised traffic signal review process by defining the various steps and estimated time associated with the process. The document would be distributed to everyone who is involved with these types of signal installations to educate them on the process.

The document was the topic of a joint NCDOT/CEC workshop on September 13, 2000. The committee presented the document to over 80 representatives of developers, PEFs, municipalities, and NCDOT. Each step of the process was presented in detail, from the developer's initial contact with the district engineer through the time that the division authorizes installation of the traffic signal and all associated construction. Critical steps of the process were emphasized in an effort to highlight troublesome steps that could create delay.

The document offered significant improvement to the entire process. The document defined the entire process in five phases, comprised of 18 steps, totaling 20 weeks to complete. Some parts of the process were designed to run concurrently, thus minimizing the total time to complete the process. Many praised the document, citing that it clearly defined the process and should greatly help improve future projects. Others, however, while recognizing the improvements, stated that some steps in the document were still unclear and that the entire process was still too long.

### **The Committee:**

To address the concerns that the process was still unclear or too long, a second committee, established by NCSITE Traffic Engineering Council, was formed to review the new document and recommend further improvements. This new committee would include some members of the original committee as well as some individuals who were not on the original committee. Any and all suggestions were welcome for consideration; "do nothing" was also an acceptable recommendation. This committee was officially known as the NCSITE Traffic Signal for Developers Process Review Committee.

The members of the committee were:

Rob Ziemba, Chair	Signals & Geometrics
Tom Agnew, Co-chair	Signals & Geometrics
Steve Johnson	Division 5 – ADTE
Roger Hawkins	Division 3 – DTE
Don Darity	Ramey Kemp and Associates
Daren Marceau	Kimley-Horn and Associates
Daniel Holt	Congestion Management/Access Review
Don Bennett	City of Wilmington Traffic Engineer

Todd Brooks  
Tyson Graves  
Laurie Smith  
Mike Kennon

PBS&J  
ARCADIS  
Agreements Section  
City of Raleigh

The committee first met on December 11, 2000. Rob, as chairman, began the meeting by explaining the goal and purpose of the committee. He supported this with a brief background of the process and also the known problems with the review process. He then distributed a copy of the document for review and comment by the committee.

The second and final meeting of the committee was held February 5, 2001. The committee was offered the chance to review the comments of the previous meeting and offer any final recommendations for improvement. The committee approved all of the recommendations, shown below, which are stated in this report.

The minutes from both committee meetings are attached to this report.

### **Recommendations:**

The committee had many valuable recommendations to clarify or further improve the process. Some of these recommendations pertained directly to the document; others pertained to the review process in general. The final recommendations of the committee are shown below:

- It should be clarified that developers may need to apply for 3 DOT permits. While each of these permits is for separate or independent issues, the permits can be interdependent on each other.

Clarify that traffic signals are not included in the driveway permit and not part of the driveway permit process.

A copy of the Traffic Signal Impact Analysis should be sent to the appropriate metropolitan planning organization (MPO).

- In phase II, it should be clarified that everything should be sent to the district engineer's level first. The district engineer will be the single point of contact for the Department and will contact the division office, municipality, and metropolitan planning organization (MPO) as needed.
- In Phase II, Step , the term "corridor" should be used in place of "through bandwidths."

The analysis review time could be shortened if the developer used software that was consistent with that used by NCDOT. Currently, discrepancies arise when DOT inputs information supplied by the developer into its software and yields different results than that obtained by the developer.

- It was pointed out that the software issue may be a problem unique to Access Review, however, since they review driveway permit requests, it does have an indirect effect on the traffic signal process.

A separate committee has been formed to review and refine the Driveway Permit and Access Review process. The recommendations of this committee could also indirectly improve the traffic signal review process.

The district engineer should send the traffic impact analysis review results to the developer (clarification as single point of contact for Phase II).

- The time required to prepare a traffic agreement may be shortened to 1 week if the division prepares the agreement. However, since all divisions do not prepare their own agreements, the 3 week allowance needs to be retained to allow for the Agreements Section to prepare the agreement if needed.

In Phase IV, the division should send the municipality a copy of the traffic signal plans for their review and comments.

In Phase V, emphasize that the developer must have authorization from the division before any traffic signal related work may begin.

The need to submit an as-built signal plan should be considered for inclusion in this document. This could become a second step to Phase V or a separate Phase VI of the document. As-built plans should be considered if field conditions dictate that the signal be installed differently than shown on the original plans. This suggestion will be included in the committee's final recommendations but not included into a revised document at this time.

The committee also had a signal recommendation that was indirectly related to the review process:

- For legal reasons, an as-built plan should be referred to as a "record drawing" or "plan of record." No plan can document with 100% accuracy exactly how a signal was built. This inquiry came from several Professional Engineers on the committee based on previous suggestions from their legal advisors.

Many of these recommendations were incorporated into a proposed revised document. This revised document is attached. The notable changes to the document are shown in underlined italic text. Also attached are the minutes from the committee meetings.

A flowchart summarizing the review process accompanies this document.