

In January 2003, twenty-three participants were invited to serve on a NCSITE Task Force for Late Night Flash Operations of Signals in North Carolina. The goal of this task force was to develop recommendations to NCDOT concerning the Late Night Flash Operations of Signals.

The NCDOT State Traffic Engineer had requested an investigation of the safety effects of Late Night Flash based on preliminary results of an NCDOT Safety Evaluation study of fatalities while signals were operating in Late Night Flash mode. This prompted NCDOT to take a closer look at its policy, since there was a strong desire to continue using Late Night Flash as a practical option.

At the time of the Task Force formation, NCDOT Policy, from *Section 4D-12 of the NC Supplement to the MUTCD*, stated that traffic signals should operate in flashing operation during off-peak hours unless it was determined that the flashing operation of traffic signals could jeopardize the safety of travel through the intersection.

It was the purpose of Late Night Flash Task Force to develop recommendations for a Standard NCDOT practice that considered efficient operations, maintenance constraints, legal implications, safety, driver acceptance, driver compliance and driver comprehension.

A Kick-Off meeting was held in Winston-Salem on April 22, 2003. Evolving from that meeting were four Working Groups: MUTCD Supplement Wording, Criteria/Factors to Consider, Alternatives and Other States' Practices.

The **MUTCD Supplement Wording** Workgroup addressed three main issues: Safety, Operations and Liability. This Workgroup debated and developed a wording that enveloped three key points:

- A default situation is still considered a decision by the Engineer.
- A Monitoring Program would be extremely beneficial.
- General guidelines are preferable over specific guidelines.

The **Criteria/Factors to Consider** Workgroup developed the following criterion to help the engineer determine if Late Night Flash could safely be supported at a location: Sight Distance, Volume Ratio, Operation of adjacent signals, Crash History of adjacent signals, Type of Signal, Adjacent Land Uses, Pedestrians, Original Intent of Signal, and Day/Time Signal will Flash.

The **Alternatives** Workgroup studied other options to Late Night Flash including, Red-Red Flash, Supplemental Signing, Rest in Red and Wig-Wag flashing.

The Workgroup studying **Other States' Practices** contacted 20 other states. California, Texas and Florida have no written policy of usage of Late Night Flash, only unwritten practices. The other agencies contacted had very little concerning a written policy for Late Night Flash. Some cities did not use Late Night Flash at all.

As a result of the Task Force's efforts and collaboration, a Recommended MUTCD Wording was presented to NCDOT and NCSITE at the NCSITE Fall Annual Meeting held in Raleigh, NC in November 2003 and adopted by NCDOT.

## **RECOMMENDED NCSMUTCD WORDING**

### Support

As a means of preventing unnecessary delays at signalized intersections, signals may be put into flashing operation during off-peak hours. Off-peak hours generally consist of the overnight hours between 1:00 AM and 5:00 am, but may be defined differently for individual intersections. However, there is evidence that increased crash activity may occur with off-peak flashing operations.

### Guidance

Traffic signals may operate in either steady or flashing operation mode during off peak hours based on the operational needs of the traffic signal. In selecting the mode of operation, care should be exercised to not jeopardize safety of travel through the intersection.

If flashing operation during off peak hours is programmed, the agency responsible for operation of the traffic signal should provide for a periodic review program to ensure that the flashing operation is not detrimental to safe travel through the intersection. At a minimum, the program should consist of a review of crash analysis data.

## **OTHER RECOMMENDATIONS**

In addition to the recommended wording for the North Carolina Supplement of the MUTCD, a standard practice was adopted by the NCDOT. This practice permits the continued use of the flashing operations of traffic signals during late night periods generally between midnight and 5:00 AM. However, the practice requires the signals in flashing operations to be monitored quarterly by the Traffic Safety Systems Management Unit. The practice also offers to monitor signal locations off the state highway system on municipal streets; however, the ultimate responsibility to monitor and maintain the safety of these intersections rests with the agency with jurisdictional authority. A copy of the North Carolina Practice is located at the following location <http://www.doh.dot.state.nc.us/preconstruct/traffic/tepl/Topics/T-59/T-59.html>.

This cooperative effort between NCDOT, Municipal DOTs and private engineering firms, through the NCSITE Traffic Engineering Council, has help to provide a reasonable and accountable approach to a controversial issue.