**North Carolina Department of Transportation**

**Division of Highways**

**Transportation Mobility and Safety Division**

**DRAFT STANDARD PRACTICE**

**for**

**Traffic Signal and Hybrid Beacon Recommendations for Transportation Improvement Projects**

**A. TOPIC OWNER**

Traffic Safety Unit (Unit Head: Brian K. Mayhew, PE)

**B. PURPOSE**

Describes the standard practice and responsibility for recommending new traffic signals and hybrid beacons, and for revising existing traffic signals as part of all Transportation Improvement Program (TIP) projects.

**C. OVERVIEW**

The decision to install a traffic signal or hybrid beacon must be made with careful consideration of expected traffic operations as well as the expected needs of pedestrians and bicyclists. NCDOT follows the standards in Part Four of the Federal Highway Administration’s *Manual on Uniform Traffic Control Devices*. Traffic Signal and hybrid beacon recommendations for TIP projects are made utilizing traffic forecast data and with consideration to expected roadway, traffic, and other conditions. For intersections with fewer than four legs that involve merging or crossing two lanes of traffic (may be referred to as reduced conflict intersection, r-cut, superstreet, synchronized street), NCDOT’s *Guidelines for Signalization of Intersections with Two or Three Approaches* should be used.

It has been the standard practice of NCDOT for signal recommendations (new and revised) to be the responsibility of the Regional Traffic Engineering Staff of the Transportation Mobility and Safety Division. This practice has been in place for in excess of 20 years.

**D. CRITERIA**

Recommendations to install new traffic signals, hybrid beacons and/or to revise existing traffic signals as part of the scope of any NCDOT project are the responsibility of the appropriate Regional Traffic Engineer. Traditional intersections are evaluated using 8-hour warrants only (Warrant 1A, Warrant 1B) in the *Manual on Uniform Traffic Control Devices*. Traffic Forecast data are used to interpolate expected traffic volumes at each intersection evaluated. Volume data are interpolated to 5 years past the construction let date for the project and compared to the appropriate minimum volumes in the tables for Warrant 1A and Warrant 1B.

For reduced conflict intersections (may be referred to as r-cut, superstreet, synchronized street), the process, guidance and associated charts contained in the *Guidelines for Signalization of Intersections with Two or Three Approaches* should be used. These guidelines are based on gap acceptance and can be used to determine if a signal is needed for left turns, U-turns, and right turns opposing two lanes of opposing through traffic. This guidance uses **design hour** volume data only. As with full movement intersections, the traffic forecast should be used to interpolate peak hour movements 5 years past the construction let date of the project.

The decision to install a pedestrian hybrid beacon should be based on guidance found in section 4F of the *Manual on Uniform Traffic Control Devices*. Criteria for the installation of emergency vehicle hybrid beacons are found in chapter 4G of the *Manual on Uniform Traffic Control Devices.*

**E. GUIDELINES**

Detailed guidelines for the recommendation of traffic signals and hybrid beacons for TIP projects are provided in a separate document entitled *Guidelines for Traffic Signal and Hybrid Beacon Recommendations for Transportation Improvement Projects*.

**G. REQUIREMENTS**

A signal recommendation memorandum should be provided by the appropriate Regional Traffic Engineer for all NCDOT Transportation Improvement Program projects where new traffic signals and hybrid beacons are being considered and/or existing signals are being modified. The required contents and recipients of the memorandum are detailed in the *Guidelines for Traffic Signal and Hybrid Beacon Recommendations for Transportation Improvement Projects.*