STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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SECRETARY

MEMO TO: Division Engineers
TMSD Unit Heads

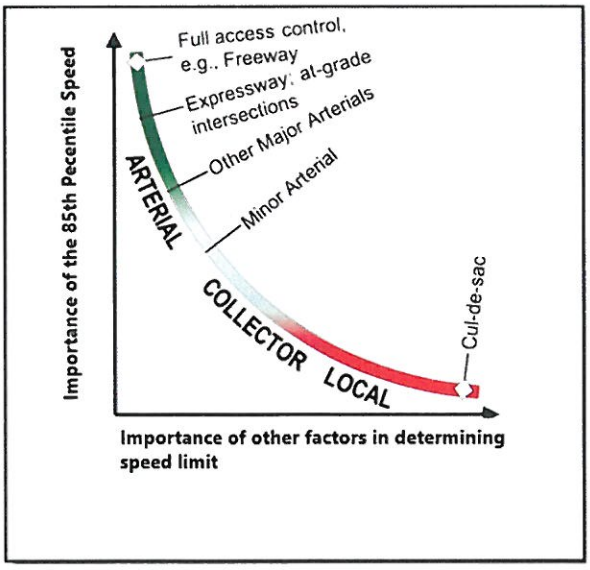
FROM: J. Kevin Lacy, PE
State Traffic Engineer

DATE: September 24, 2021

SUBJECT: Guidelines and Documentation of Engineering Studies for Establishing Speed Limits

Effective immediately, it is the policy of the North Carolina Department of Transportation (NCDOT) to follow the guidelines and utilize the associated documentation forms developed for the Department by the Institute for Transportation Research and Education (ITRE) and the Highway Safety Research Center (HSRC) when establishing speed limits in North Carolina. The research study and associated data collection, form templates and user guides can be found under topic S40 on the TEPPL site found here: TEPPL S40 - Establishing Speed Limits. These tools should be implemented and used.

The 85th percentile free-flow speed should never be the singular over-riding factor when setting speed limits. Previous long-standing practices that placed an emphasis on the 85th percentile free-flow speed were based on research originally conducted on rural highways in the 1950's. The importance of the 85th percentile speed as one of many factors to be evaluated is directly related to the functional classification of the roadway and is illustrated in this chart:



Modified figure from J Gattis 2013

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As the chart indicates, factors such as traffic and roadway characteristics, adjacent land development, bike and pedestrian activity, crash history and others take on greater significance for setting safe speed limits as functional class decreases.

It is also important to select an appropriate starting point for evaluating a speed limit based on the type of roadway under review. The expected safe and reasonable speed limit can be adjusted up or down as determined by the speed study. The table below indicates the starting points by roadway type that should be used in North Carolina:

Roadway Type	**Expected Starting Speed Limit**
Interstates and Other Full Control of Access Roadways	70 MPH
Multi-Lane Rural Roadways	55 MPH
Two-Lane Rural Roadways	45 MPH
Suburban and Urban Roadways	35 MPH
Neighborhood Roadways and Downtown Streets	25 MPH

The purpose of this policy is to provide updated guidance on conducting and documenting speed studies in various roadway settings. The policy will also promote statewide consistency in the establishment of speed limits. This is not intended to restrict the discretion of the investigating engineer or to replace sound engineering judgement.

Please share this information with any of your staff that may be involved in conducting speed studies. The new guidelines were presented to TMSD and Division Traffic Staff on July 20, 2021, as part of the TMSD Training Series. Questions may be directed to State Traffic Safety Engineer Brian Mayhew.

JKL/dbp:sh

cc: Ronnie Keeter, PE, Chief Engineer
Brian Mayhew, PE, State Traffic Safety Engineer