



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY  
GOVERNOR

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SECRETARY

January 9, 2014

Brian D. Dehler, PE, Roadway/Planning Department Manager  
WSP USA Corp.  
128 Talbert Road, Suite A  
Mooresville, NC 28117

**Re: Draft Traffic Impact Analysis Update Memorandum  
Carolina Ridge, Lincoln County, NC**

Dear Mr. Dehler:

The North Carolina Department of Transportation has completed its review of the Traffic Impact Analysis (TIA) dated November 5, 2013, prepared by WSP for the Carolina Ridge residential community in eastern Lincoln County being proposed by Shea Homes. NCDOT Division 12 staff performed this review in collaboration with the Congestion Management Section as well as the Municipal & School Transportation Assistance Section, and has the following comments:

General Comments:

- TIP Project R-2706 proposes to widen NC 73. This project is not currently scheduled. It is likely that a four-lane divided expressway will be the ultimate cross-section for NC 73. The developer should be advised that any access and intersection operation approved as part of this driveway permit application may be modified in the future once this TIP project is completed. The developer should also reserve additional right of way for this future widening.

Synchro Analysis Comments:

- A SIMTraffic Queuing and Blocking Report should be included in the Final TIA to quantify overall queuing through the network of signals. SimTraffic reports should also be included. These reports may be submitted in an appendix as a PDF, rather than printed copies.

Recommended Improvements for the Developer to Make:

NC 73 and Little Egypt Road

- The analysis used protected-only operation for EB NC 73, which follows the NCDOT Congestion Management Analysis Guidelines. However, if it

already exists, and no significant geometric changes are recommended that could affect the left turn, using protected-permitted phasing is acceptable. In NCDOT's review, this movement, as well as the WB movement, was changed to protected-permitted phasing.

- Change the configuration of this northbound intersection approach by constructing an exclusive left-turn lane with 100-ft of storage and appropriate taper. The approach would be three lanes; SB thru, NB left, and NB thru & right.
- Extend the westbound left-turn lane by approximately 110-ft to provide 200-ft of storage.
- Extend the westbound right-turn lane by approximately 50-ft to provide 150-ft of storage.
- Change the configuration of the southbound intersection approach by making the thru lane become the left turn lane and construct a thru and right lane with the taper for this lane beginning at the East Lincoln High School entrance.

#### NC 73 and School Bus Entrance / Site Entrance 1

- Construct two northbound exit lanes at the site entrance with 175-ft of storage and appropriate tapers.
- Restripe the left turn lane between the main school entrance and site entrance 1 so that the result is two, back-to-back left-turn lanes with equal tapers, deceleration lengths, and storage lengths.
- Install an actuated traffic signal at this intersection with appropriate signal heads, poles, loop detectors, junction boxes, etc. This traffic signal should coordinate with the adjacent signal at the NC 73 and Little Egypt Road intersection. NCDOT is in agreement to have this signal in operation once the new intersection has been constructed and the signal has been installed.
- Construct an eastbound right-turn lane with 100-ft of storage and appropriate taper.

#### Little Egypt Road and Site Entrance 2

- Construct an eastbound (southbound) right-turn lane on Little Egypt Road with 100-ft of storage and appropriate tapers.

#### NC73 and NC 16Bypass Northbound Ramps

- Widen the northbound approach ramp to provide a 300-ft left turn lane, a 300-ft right-turn lane, and a left-turn/thru/right-turn shared lane with appropriate tapers.
- Make signal modifications to accommodate the proposed northbound lane configuration.

Please be advised that proposed signals and signal improvements will require coordination and approval through the Division 12 Traffic Engineer, Byron Engle. Also, offsite improvements for widening, turn lanes, etc. will require separate encroachment agreements for each location, however, these and the associated construction plans should be submitted along with the driveway permit application in one package as one

entire project submittal. Preliminary plans should be submitted to [DWP\\_DIV12\\_DIST3@ncdot.gov](mailto:DWP_DIV12_DIST3@ncdot.gov) for review and comment prior to full application submittal. Once plans are finalized, a minimum of one hard copy plan set and associated agreement forms will need to be submitted for formal approval.

Please let me know if you have any questions.

Yours very truly,



M. L. Poe, PE  
District Engineer

MLP:mp

cc: M. L. Holder, PE, Division Engineer  
Byron Engle, PE, Division Traffic Engineer  
Jim Dunlop, PE, Congestion Management Western Regional Engineer  
Joel Cranford, PE, MSTA Engineer