



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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GOVERNOR

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May 25, 2015

ORANGE COUNTY

Kumar Nepalli
Traffic Engineering Program Manager
Town of Chapel Hill
405 Martin Luther King Jr. Blvd.
Chapel Hill, NC 27514

Subject: Proposed Obey Creek Mixed-Use Development and Southern Village
Park and Ride Re-Development Located on US 15-501 South

- Request for Signalized All-Movement Median Crossover on US 15-501 at the intersection of Sumac Road/Proposed Obey Creek Development Access
- Determination of Alternate Westbound Ramp Improvements at the NC 86 and NC 54 Interchange

Dear Mr. Nepalli,

In reference to your May 6, 2015 request, NCDOT District and Transportation Mobility and Safety Division staff have reviewed the Technical Memorandum prepared by HNTB as well as the preliminary site plans for the above mentioned proposed developments.

In consideration of your stated interest in multiple direct interconnections between the two communities, enhanced and more direct pedestrian and transit accommodation, improved accommodation of left turn, U-turn and site traffic demands at the signalized intersections, acceptable level of service on US 15-501 in the design year and in consideration of previously negotiated geometric, access, and traffic control configurations, the proposed signalized, all-movement median crossover is hereby authorized subject to the conditions listed below.

Required Road Improvements by the Applicant:

As a condition of the pending driveway permit, the applicant shall construct the listed improvements to accommodate the revised access.

US-15-501 and Market Street/Proposed Obey Creek Access Intersection

- Construction of dual exclusive southbound left turn lanes, each with 300' of full storage and appropriate tapers on US 15-501.
- Construction of a second exclusive eastbound left turn lane with 225' of full storage and appropriate tapers on existing Market Street
- Provision of a minimum 250' protected internal stem length prohibiting parking and left turn maneuvers on existing Market Street and appropriate internal intersection configurations to avoid adverse impact to US 15-501.
- Closure or relocation of the proposed frontage street connection to beyond the limits of the protected internal stem length on existing Market Street.
- Construction of an exclusive northbound right turn lane with 300' of full storage and appropriate deceleration taper on US 15-501.
- Construction of dual ingress lanes and three egress lanes consisting of an exclusive left turn lane, an exclusive through lane, and an exclusive right turn lane, each with 300' of full storage on the Obey Creek site access.
- Provision of a minimum 300' protected internal driveway stem length prohibiting all turning and parking maneuvers on the Obey Creek site access and appropriate internal intersection configuration to avoid adverse impact to US 15-501.
- Modification of existing traffic signal to accommodate the new intersection geometry with consideration of appropriate timing plans to maximize efficiency in both peak and off-peak periods with preferential signal timing and progression provided to US 15-501.

US 15-501 and Sumac Road/Obey Creek Access Intersection:

- Construct dual exclusive southbound left turn lanes, each with 375' of full storage and appropriate tapers on US 15-501
- Construct an exclusive northbound left turn lane with 400' of full storage and appropriate tapers on US 15-501.

- Construct and exclusive northbound right turn lane with 300' of full storage and appropriate deceleration taper on US 15-501
- Provide a single ingress lane and three egress lanes consisting of an exclusive left turn lane, an exclusive through lane, and an exclusive right turn lane, each with 250' of full storage on existing Sumac Road
- Provision of a minimum 250' protected internal driveway stem length prohibiting all turning and parking maneuvers on existing Sumac Road and appropriate internal intersection configuration to avoid adverse impact to US 15-501.
- Closure or relocation of the proposed frontage street connection beyond the limits of the internal protected stem on existing Sumac Road.
- Provide dual ingress lanes and three egress lanes consisting of an exclusive left turn lane, an exclusive through lane, and an exclusive right turn lane, each with 300' of full storage on the proposed Obey Creek Access
- Provision of a minimum of 300' of protected internal driveway stem length prohibiting all turning and parking maneuvers on the proposed Obey Creek Access
- Closure or relocation of the proposed frontage road connection beyond the limits of the internal protected stem.
- Construct new traffic signal to accommodate the new intersection geometry with consideration of appropriate timing plans to maximize efficiency in both peak and off-peak periods with preferential signal timing and progression provided to US 15-501.

Right of Way Dedication/Reservation by the Applicant:

The Department's consultant, Stantec, has recently completed a corridor traffic analysis report for US 15-501 from NC 54 to US 64. The purpose of the study was to evaluate the existing (2013) and future year (2040) operations in regards to the corridor's ability to accommodate anticipated future growth. The study evaluated both "superstreet" and improved traditional intersections. The study identified that, in the 2040 scenario, "superstreets" provided the best operation for both the main-line as well as side streets, but also indicated that main-line operation in the subject area could be expected to operate acceptably using traditional intersections with the addition of a third through lane on US 15-501 in both directions. In order to accommodate the identified improvements directly attributable to site traffic impacts and to provide for the anticipated future improvement necessary for acceptable operation in the long range planning period, the applicant shall:

- Dedicate any needed right of way to accommodate required road improvements listed above and also adjust site plan to reserve sufficient right of way along the project frontages to accommodate a future third through lane on both directions of US 15-501.

**Alternative Improvements NC 86 (Columbia Street)/NC 54 (Fordham Blvd.)
Interchange:**

Upon further evaluation by the development team members, construction of the westbound loop ramp as recommended in the HNTB traffic analysis has been determined to be beyond the ability of the applicant due to identified substantial potential impacts to adjacent properties and right of way needs beyond his control. As such the loop project is best pursued through the State Transportation Improvement Program (STIP) process. Based on information provided in the HNTB traffic analysis, the development team members have identified extension of turn lane storage on the existing westbound off ramp as a feasible and reasonable alternative to address identified traffic queuing and operation issues in the short term.

- As a condition of the pending driveway permit, the applicant shall extend the existing dual left turn lane storage along the full extent of the existing westbound off ramp to accommodate queue lengths identified in the 2022 build scenario of the traffic study.

Previous Requirements and Conditions:

All other requirements and conditions included in my previous correspondence dated September 26, 2014 and listed below for ease of reference remain unchanged and applicable.

Proposed US-15-501 and Site Access #1 Intersection:

NCDOT concurs with the study recommendations to eliminate this access due to proximity to the Dogwood Acres Drive signalized intersection.

Proposed US-15-501 and Site Access #2 Intersection:

NCDOT is agreeable to connection of the proposed restricted right-in/right-out access subject to:

- Construction of an exclusive northbound right turn lane with 150' of full storage and appropriate deceleration taper on US 15-501.
- Construction of a single ingress lane and a single right turn-only egress lane with a minimum of 100' of full storage on the site access.

- Provision of a minimum of 150' of protected internal driveway stem length prohibiting all turning and parking maneuvers on the site access.
- Closure or relocation of the proposed frontage road connection beyond the limits of the internal protected stem.

Proposed US 15-501 and Site Access #5 Intersection:

NCDOT is agreeable to the proposed connection subject to:

- Construction of an exclusive northbound right turn lane with 150' of full storage and appropriate deceleration taper on US 15-501.
- Construction of a single ingress lane and a single right turn-only egress lane with minimum of 100' full storage on the site access.
- Provision of a minimum 100' protected internal driveway stem length prohibiting all turning and parking maneuvers on the site access.

US 15-501 and Culbreth Road/Mt. Carmel Church Road Intersection:

In consideration of existing geometric and right of way constraints at this location, NCDOT concurs with the TIA recommendation to reconfigure the westbound Mount Carmel Church Road approach to provide dual exclusive right turn lanes and a combination through/left turn lane and optimize signal timing as a feasible approach to enhance existing operation and mitigate anticipated impacts of site traffic at this intersection.

- As a condition of the pending driveway permit, the applicant shall reconfigure the intersection geometry as recommended and modify and optimize existing signal as needed to accommodate the new configuration.

Internal Intersections and Circulation:

The study and conceptual site plan do not provide detailed information or analysis of internal traffic circulation and intersection operation. Additional site plan detail and evaluation is necessary to ensure appropriate internal circulation so as to avoid unacceptable operational and safety impacts on the adjacent road network.

Multi-modal Enhancements:

The Obey Creek study indicates that the site is expected to generate approximately 2565 daily transit trips and 259 daily bicycle/pedestrian trips. The concept plan indicates a

proposed pedestrian overpass spanning US-15-501. No additional detail for the bridge or other multi-modal infrastructure is provided.

NCDOT is agreeable to installation of appropriate multi-modal infrastructure deemed to be necessary for this development. Though the TIA does not provide specific recommendations, any stipulated multi-modal enhancements including but not limited to sidewalk, bike lanes, bus pull offs, lighting, landscaping etc. on State maintained routes are subject to NCDOT design and encroachment requirements. Installation of the proposed pedestrian overpass is subject to the requirements of North Carolina General Statute 136-18(37).

Cross-Access Connectivity:

Provision of cross access with the adjacent properties is encouraged to accommodate internal connectivity and improve distribution of existing and future traffic volumes on the adjacent public road network. There appear to be opportunities for future connections to the site backage road to properties to the north, south and east.

General Requirements:

It is necessary to obtain an approved driveway permit and/or encroachment agreement(s) prior to performing work on the NCDOT right of way. As a condition of the permit, the permittee shall be responsible for design and construction of the above stipulated improvements in accordance with NCDOT requirements. An approved permit will be issued upon receipt of approved roadway and signal construction plans, inspection fee, and any necessary performance and indemnity bonds.

The applicant shall dedicate any additional right of way necessary to accommodate the required road improvements or future improvements as stipulated.

Intersection radii and geometry shall be designed to accommodate turning movements of the largest anticipated vehicle.

All pavement markings shall be long life thermoplastic. Pavement markers shall be installed if they previously existed on the roadway.

The permittee shall be responsible for the installation and relocation of any additional highway signs that may be necessary due to these improvements and shall comply with the requirements of the MUTCD.

Feel free to contact me if you have any questions.

Sincerely,



C. N. Edwards Jr., PE
District Engineer

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