

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

April 18, 2012

To: Rynal G. Stephenson, P.E.
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, N.C 27609

Subject: Proposed Meadows at Southpoint Development Traffic Impact Analysis

The proposed Meadows at Southpoint development is located on the southeast quadrant of the NC 54 and SR 1106 (Barbee Road) intersection in Durham County, North Carolina. The proposed development will consist of 385 apartments, 150,000 square feet of mini-storage warehouse, and the redevelopment and expansion of an existing gas station adding 6 additional fueling positions. The anticipated build-out year for the development is 2014 with an analysis year of 2015. The proposed development is projected to generate 4,838 unadjusted daily trips with 292 A.M. peak hour site trips and 380 P.M. peak hour site trips.

The TIA analyzed the following six (6) intersections:

- SR 1106 (Massey Chapel Road) / (Barbee Road) and SR 1104 (Herndon Road) – Unsignalized
- SR 1106 (Barbee Road) and Grandale Road – Unsignalized
- SR 1106 (Barbee Road) and Proposed Site Drive #1 – Unsignalized
- NC 54 and SR 1106 (Barbee Road)– Signalized
- NC 54 and Proposed Site Drive #2 – Unsignalized
- NC 54 and Proposed Site Drive #3 – Unsignalized

Approved Surrounding Developments

1. NC 751 Colvard Farms Mixed-Use Development (assumed)

The development is located on the west side of NC 751 (Hope Valley Road) near the NC 751 (Hope Valley Road) and SR 1118 (Fayetteville Road) intersection, north of the Chatham County line. The proposed development will consist of 700 apartments, 556 townhomes, 44 single-family homes, 320,000 square feet of office space, 55,000 square feet of supermarket, 90,000 square feet of general retail, 135,000 square feet of specialty retail, 48,000 square feet of health/fitness club, and a 600 student public school. The proposed development is projected to generate 25,001 daily trips with 1,874 A.M. peak hour site trips and 2,412 P.M. peak hour site trips. The development is scheduled for completion in year 2015.

2. The Hills at Southpoint

As stated in the TIA, this development is located in the vicinity of SR 1103 (Scott King Road) and SR 1118 (Fayetteville Road) to the south of the proposed site. It is assumed that 200 single family residential units will be constructed at the Hills at Southpoint. Since no TIA is available for this

development, trips were generated and assigned to the study intersections. Seventy Five (75%) of the outstanding development traffic was considered in this study.

TIP Roadway Improvement Projects Relevant to Proposed Development

- **NCDOT TIP #I-3306B** – widen I-40 from I-85 in Orange County to NC 147 (Buck Dean Freeway) in Durham County.
- **NCDOT TIP # U-5324** – widen NC 54 to a multi-lane facility with transit accommodations, bike lanes, and sidewalks.

Trip Generation and Distribution

- 10% to/from the north via I-40 towards Raleigh
- 20% to/from the west via I-40 towards Chapel Hill
- 45% to/from the east via SR 1118 (Fayetteville Road)
- 10% to/from the northwest via SR 1118 (Fayetteville Road)
- 5% to/from the south via SR 1192 (Massey Chapel –South Road)
- 5% to/from the southeast via SR 1106 (Barbee Road)
- 5% to/from the southeast via SR 1105 (Herndon Road)

Capacity Analysis for Existing and Future Conditions

- Existing (2011) Conditions
- Projected (2015) No-Build Conditions (Existing traffic + Background Growth + Approved Developments)
- Projected (2015) Build Improved Conditions (Existing traffic + Background Growth + Approved Developments + Site Traffic With Improvements)

Summary of Road Improvements

The Department has reviewed the preliminary site plan and Traffic Impact Analysis (TIA) for the Meadows at Southpoint Development prepared by Ramey Kemp & Associates, Inc. (Sealed and dated February 10, 2012). In order to accommodate the site-generated traffic safely and efficiently, while also attempting to protect the functional integrity and operational capacity of the adjacent roadway facilities, we recommend the following improvements and/or restrictions related to this development. Any additional changes to the site plan must be submitted in writing to the District Office.

SR 1106 (Massey Chapel Road) / (Barbee Road) and SR 1104 (Herndon Road) Intersection

Due to the anticipated impacts that the additional site-generated traffic may have on this intersection, we recommend, with approval from the Regional Traffic Engineer and the Division Traffic Engineer, that a roundabout be constructed at this intersection. NCDOT has committed to construct the roundabout at this location. The following recommendations are based on the roundabout being in place.

No future geometric improvements are necessary at this intersection at this time to mitigate site-generated traffic.

SR 1106 (Barbee Road) and Grandale Road Intersection

No future geometric improvements are necessary at this intersection at this time to mitigate site-generated traffic.

SR 1106 (Barbee Road) and Proposed Site Drive #1 Intersection

Southbound SR 1106 (Barbee Road)

- Construct an exclusive left turn lane creating a two way left turn lane from Site Driveway #1 to the intersection of NC 54 and SR1106 (Barbee Road).

Northbound SR 1106 (Barbee Road)

- Construct an exclusive right-turn lane with a minimum of 100 feet storage and appropriate taper.

Westbound Site Drive #1

- Construct a three (3) lane cross-section consisting of one (1) ingress and two (2) egress lanes. The egress lane should provide an exclusive right-turn and an exclusive left turn lane with a minimum of 100 feet on internal protected storage before parking and crossing maneuvers should be allowed.

NC 54 Corridor

Construct a two way left turn lane from the westbound left turn lane at the intersection of NC 54 and SR 1106 (Barbee Road) to connect to a two way left turn lane east of the development near Revere Road.

NC 54 and SR 1106 (Barbee Road) Intersection

Due to the anticipated impacts from additional traffic volumes, signal modification may be required to accommodate for the Build (2015) condition.

Westbound NC 54

- Extend the existing exclusive left-turn lane to achieve maximum storage.

Northbound SR 1106 (Barbee Road)

- Extend the existing exclusive left-turn lane to achieve a two way left turn lane from Site Driveway #1 to the intersection of NC 54 and SR1106 (Barbee Road).

NC 54 and Proposed Site Drive #2 Intersection

Westbound NC 54

- Install a directional crossover (leftover) with an exclusive left-turn lane with a minimum of 100 feet of full storage and appropriate transitional taper on westbound NC 54.

Eastbound NC 54

- Construct an exclusive right-turn lane with a minimum of 100 feet storage and appropriate taper.

Northbound Site Drive #2

- Construct a two (2) lane cross-section consisting of one (1) ingress and one (1) egress lanes. The egress lane should provide an exclusive right-turn lane with a minimum of 100 feet on internal protected storage before parking and crossing maneuvers should be allowed.

NC 54 and Proposed Site Drive #3 Intersection

Eastbound NC 54

- Construct an exclusive right-turn lane to a minimum of 100 feet storage and appropriate taper.

Westbound NC 54

- Construct an exclusive left-turn lane to connect to a two way left turn lane east of the development near Revere Road.

Northbound Site Drive #3

- Construct a three (3) lane cross-section consisting of one (1) ingress and two (2) egress lanes. The egress lanes should provide an exclusive right and left turn lane with a minimum of 100 feet on internal protected storage before parking and crossing maneuvers should be allowed.

General

Cross-access to adjacent properties is strongly encouraged to reduce repetitive trips and provide future alternative routes of ingress/egress.

Due to, but not limited to, the comments and recommendations from this review of the proposed developments, changes in the internal circulation may be necessary to ensure that driver confusion is minimized to the maximum extent possible.

Any signal revisions, modifications, or additions necessitated by the development should be coordinated with the Regional Traffic Engineer, the Division Traffic Engineer, the Signals and Geometrics Section and the City of Durham.

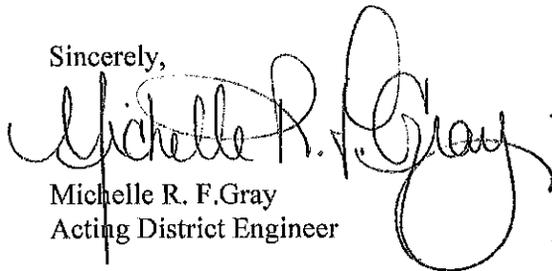
Any pavement marking revisions/modifications necessitated by the development should be the responsibility of the developer and coordinated with the Division Traffic Engineer.

Any roadway modifications or improvements necessitated by the development should be the responsibility of the developer unless otherwise noted.

Reference should also be made to the information included in the "General Recommendations Attachment."

NCDOT driveway permits will be required for driveway access on SR 1106 (Barbee Road) and NC 54. Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact me at (919) 220-4750.

Sincerely,



Michelle R. F. Gray
Acting District Engineer

Attachment

✓ cc: Mr. H. Wesley Parham, P.E.

General Recommendations Attachment
(For Meadows at Southpoint Development)

Adequate horizontal and vertical sight distances should be reserved at all proposed entrances. Foliage that interferes with sight distance should be cut back to protect lines of sight. The District Engineer should determine if all drainage facilities are adequate. Curb cuts and curb ramps should be constructed in conformance with the "*Guidelines for Curb Cuts and Ramps for Disabled Persons*," if applicable.

The developer may be required to obtain an approved encroachment agreement covering proposed work within the state right-of-way. If this is the case, the encroachment should be cross-referenced to this review.

All street and driveway entrances onto state system roadways should be controlled with appropriate traffic control devices, including but not limited to, stop, yield, directional, regulatory, and advisory signs and pavement markings. All traffic control devices shall conform to the requirements set forth in the Manual on Uniform Traffic Control Devices. Final pavement marking and signing plans should be submitted to the Division Traffic Engineer for approval prior to the installation of any signs and/or pavement markings.

Unless otherwise noted, a recommended width of 40 feet (curb face to curb face) should be used at each drive. It is also recommended that 40 feet (minimum) radii should be used at each drive to accommodate any service type vehicles or truck traffic that may visit the site.

If the developer anticipates adding or petitioning for addition to the state system, all roads/streets should be designed and constructed in conformance with the current North Carolina Department of Transportation design and construction guidelines.

All "outparcels" or "excluded areas" should be served internally with no additional access onto abutting roadways. The developer should convey this condition in any lease or sell agreements.

As required by the "*Policy on Street and Driveway Access to North Carolina Highways*," dated July 2003, the applicant is responsible for identifying all right-of-way and/or control-of-access limits and for including this information on all submittals. Failure to accurately disclose R/W and C/A limits could result in the denial or closure of access points.

Adequate right-of-way for widening and sight distance triangles should be reserved. Any additional development, either within this site or adjacent to this site, that intends on using the developments access will require an updated driveway permit and re-evaluation of geometric and traffic control needs

Any additional development, either within this site or adjacent to this site, that intends on using this development's access will require an updated driveway permit and re-evaluation of geometric and traffic control needs.

All widening should include appropriate transitional and deceleration tapers. Recommended turn lane and transitional treatments are shown on pages 78 and 79 of the "*Policy on Street and Driveway Access to North Carolina Highways*," dated July 2003.

Where possible, opposite side driveways should be aligned to prevent the operational and safety problems caused by offset driveways.