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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

June 20, 2012

To: Mr. Earl Lewellyn, P. E.
Kimley-Horn and Associates, Inc.
102 City Hall Plaza Suite 201
Durham, NC 27701

Subject: Proposed Palladian Apartments Traffic Impact Analysis and Supplemental Analysis

The proposed Palladian Apartments are located on the northeast quadrant of the NC 54 and Leigh Farms Road/ Quadrangle Drive intersection in Durham County, North Carolina. The proposed development will consist of 310 apartments with an anticipated build-out year of 2013 with an analysis year of 2014. The proposed development is projected to generate 2,013 unadjusted daily trips with 156 A.M. peak hour site trips and 188 P.M. peak hour site trips.

The TIA analyzed the following three (3) intersections:
- I-40 Eastbound Ramp and NC 54 –Signalized
- I-40 Westbound Ramp and NC 54 – Unsignalized
- NC 54 and Proposed Leigh Farm Road/Quadrangle Drive –Signalized

Approved Surrounding Developments
There are no approved developments in the vicinity of the study area.

TIP Roadway Improvement Projects Relevant to Proposed Development
There are no funded NCDOT TIP roadway improvement projects in the vicinity of the study area.

Trip Generation and Distribution
- 30% to/from the southwest via NC 54
- 30% to/from the northeast via NC 54
- 10% to/from the northwest via I-40
- 45% to/from the southeast via I-40

Capacity Analysis for Existing and Future Conditions
- Existing (2012) Conditions
- Projected (2014) No-Build Conditions (Existing traffic + Background Growth)
- Projected (2014) Build Improved Conditions (Existing traffic + Background Growth + Pending Developments)

Summary of Road Improvements
The Department has reviewed the preliminary site plan, Traffic Impact Analysis (TIA), and supplemental analysis for the Palladian Apartments Development prepared by Kimely Horn and Associates, Inc. (Sealed and dated March 31, 2012 and April 11, 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.

I-40 Eastbound Ramp and NC 54 Intersection
No future geometric improvements are necessary at this intersection at this time to mitigate site-generated traffic.

I-40 Westbound Ramp and NC 54 Intersection
Previous improvements required for the Palladian Development include the construction of dual westbound right –turn lanes on the off ramp with appropriate storage and taper. This improvement was completed as a part of the partial build out for the site but failed to achieve an adequate taper. As stated in the TIA, the rezoning of 310 apartments instead of 325,000 square feet of office space allowed under the current zoning comparatively reduces a percentage of peak hour traffic for the development. But traffic generated from the proposed apartments will still necessitate that the outer most westbound right turn lane be constructed with appropriate storage and adequate taper.

Westbound I-40 Off-Ramp

- Construct an adequate taper for the outer most right turn lane.

NC 54 and Proposed Leigh Farm Road/Quadrangle Drive Intersection
No future geometric improvements are necessary at this intersection at this time to mitigate site-generated traffic.

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."

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 Palladian Apartments)

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.