

# ATTACHMENT:

Item 5a & 5b Shiloh Woods:

TIA COMMENTS MEMO

## **1. Overview of Traffic Impact Analysis (TIA) Report**

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Ramey Kemp submitted a traffic impact analysis report for single family housing development that will access West Shiloh Unity Road just west of US 521. J. Andrew Eagle is the Engineer on Record (EOR) for producing the detailed traffic study. Four intersections were analyzed for impacts – US 521 at West Shiloh Unity Road/Shiloh Unity Road, US 521 at University Drive/Old Charlotte Road, University Drive at Hubbard Drive, and University Drive at W. Shiloh Unity Road. Also, two access point locations were reviewed on West Shiloh Unity Road for the development that are located offset north and south of Havenwood Drive. The overall report contained existing, no-build, and build traffic volumes for all study locations and good breakdown of volumes and distribution among all study locations. The analysis period for build out +1 year was not included but for the build out year only. Primary concerns are the driveway offsets on West Shiloh Road with Havenwood Drive, the strip of land for southern access being wide enough to accommodate a full access drive, and mitigation needs. Report needs some adjustments to get a true understanding of issues at the study locations.

## **2. Items of Interest in the TIA Report**

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The TIA document was redlined with marks highlighting interest items below (pages noted below reflect pdf pages and not report pages):

- Page 2 – Lancaster County is in South Carolina and not North Carolina
- Page 3 – Build out year is 2029 and the analysis for No-Build and Build was for 2029 and not 2030 for Build +1 year. Volumes needed to grow for an additional year per Lancaster UDO.
- Page 4 – For trip generation used peak hour adjacent street traffic and not peak hour traffic which tends to be a little more trips.
- Page 5 – Recommending left turn lane by Lancaster Landing but report says no additional improvements were reviewed – would not recommend additional lanes on same approach at an All-Way stop control due to right of way movement issues.
- Page 6 – Statement says that improvements are needed but not associated with Shiloh Woods even though volumes are attributed to this location at US 521 at University Drive/Old Charlotte Road.
- Page 6 – Recommends R-Cut (Restricted Crossing U-Turn intersection) for US 521 at University Drive/Old Charlotte Road – but did not perform an analysis for a signal and/or additional turn lanes. Issues with R-Cut would be driveway restrictions upstream and downstream on US 521 and placement of U-turns in driveway areas would need to be verified.
- Page 7 – Recommended Lane configuration shows separate right turn lanes on University Drive EB and WB at Hubbard Drive and these lanes are not present. Also shows additional turn lanes for the NB and SB approach of Hubbard Drive at University Drive and would not recommend due to All-Way stop control.
- Page 11 – Did not perform analysis for Build year + 1 year for 2030.
- Page 15 – Southern access shows radii encroachment onto adjoining properties and not a 5' offset as required by SCDOT.

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- Page 15 – The report does not mention, or site plan show dimensions of the proposed access points from a reference point.
- Page 19 – Analysis for 2029 build out year and not 2030 for Build + 1 year.
- Page 20 – 3.3 statement says no roadway improvements are expected but the report shows improvements by Lancaster Landing adding turn lanes on Hubbard Drive.
- Page 24 – used adjacent peak hour traffic and not peak hour traffic which gives more trips during the peak hour
- Page 34 – State that queuing is from University EB at US 521 is affecting University EB at Hubbard. Did not see verification or drawing reference showing the distance between the two intersections and queuing.
- Page 35 – WB approach drops to LOS D where Shiloh traffic added.
- Page 36 – US 521 at University/Old Charlotte states that additional lanes was considered but was it tested to determine improvements? Signal also could be considered at a skewed intersection if warranted.
- Page 37 – Recommended R-Cut mitigation for US 521 at University/Old Charlotte but would like to see additional mitigation tested due to impacts by this development.
- Page 66 – SCDOT Synchro defaults – use calculated PHF from counts in Synchro and not .9.
- Page 75 – Appears that the SCDOT signal plan was not used in the modeling of the signal at US 521 at Shiloh Unity Road. Should use base plan for all scenarios for comparisons and optimized for mitigation. Left turn phase green is too low and would not represent actual timings in the field.
- Page 98 – University at Hubbard shows that additional turn lanes were modeled in Synchro for EB/WB University where there should be just one lane approaches.
- Page 116 – Should use SCDOT turn lane graphs located in the Road Design Manual P 9.5-8 for lefts.
- Page 117 - Should use SCDOT turn lane graphs located in the Road Design Manual P 9.5-2 for rights.

### 3. Checklist Comments

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Attached is a TIA checklist that reviews all submitted information for proper TIA submittal. The analysis period did reflect UDO 6.8.2 D for analysis year after development which would be 2030 (Build plus 1 year). The TIA did not review driveway sight distance (usually covered under site plan permitting). Did not verify signalization at US 521 at University/Old Charlotte. Modeled 2 approach lane on University at Hubbard where there is one lane.

#### **4. Recommendations**

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- 1. Verify sight distance for all access points.**
- 2. Update Trip generation and Growth for increased trip distribution.**
- 3. Update modeling for All-Way stop control at University Drive and Hubbard Drive to understand the need for additional mitigation where queue lengths are excessive. Shiloh Woods is adding traffic increasing the queue lengths and delays. Model needs to show one lane approaches on University Drive. Statement on queues from the EB approach on University Drive at US 521 affecting the Hubbard intersection - if no effect from these queues, then what happens to the intersection in a model? Would not add additional turn lanes on Hubbard Drive at an All-Way stop control so model Build scenario without these turn lanes.**
- 4. Use a base signal plan to model US 521 at W. Shiloh Unity and Shiloh Unity Road for all scenarios for reference point to determine impacts. Then mitigate timings as an option. Good to use SCDOT signal plan as a base.**
- 5. Need to see the effect of a signal and additional lanes at US 521 at University Drive/Old Charlotte Road instead of the recommended R-Cut.**
- 6. Verify spacing locations of the two access point locations offset from Havenwood Drive and verify turn lane needs for both using SCDOT graphs found in the Road Design Manual.**