

July 17, 2017

N-S Project No. 13871.010

Mr. Carl Baughman, P.E.  
Traffic/Transportation Engineer  
City of Franklin  
109 3rd Avenue South  
Franklin, TN 37065-0305

**Subject: Review of Traffic Impact Analysis  
Bushnell Farm – Lewisburg Pike**

Dear Carl:

Please accept this correspondence as documentation of our review of the referenced study per your request. The information presented provides our thoughts and feedback on the referenced project's traffic impact study.

The project proposes to construct a new residential development on the east side of Lewisburg Pk, south of Stream Valley Blvd in the Goose Creek area. Specifically, the site is located on currently undeveloped property adjacent to the Stream Valley subdivision. According to project planners, the project proposal includes a collection of detached single-family dwellings and condominiums.

We have conducted a review of the traffic study's methodology, analysis and conclusions. We present this information as noteworthy points of emphasis and to promote further discussion of the proposal. The objective of our review serves to confirm that the study reflects industry practices, to provide independent review of its analysis, and to offer additional relevant thoughts and suggestions. We provide our comments as technical input to assist city departments, planning commissioners and BOMA officials in their review of the proposal.

Comments from Review of Traffic Impact Analysis

In general, the development plan includes the following characteristics:

- New residential land uses consisting of 6 condominium units (in “big house” arrangement) and 14 detached single-family homes
- Access to the site provided by extension of Linden Isle Dr westward from current terminus at Narrow Ford Ln to form a new three-leg intersection with Lewisburg Pk. The proposed intersection at Lewisburg Pk would occur approximately 2,000ft south of Stream Valley Blvd. This roadway connection would provide the Stream Valley neighborhood a second access point to Lewisburg Pk.
- The project assumes a two-year horizon plan with build-out expected by 2019.

The independent review considered the following items from the applicant's traffic study:

- Existing traffic volume data
- Historic traffic growth rate and background traffic forecast
- Trip generation methodology and calculations
- Traffic distribution and assignment methodology and assumptions
- Traffic capacity analysis and evaluation results under proposed conditions
- Assessment of the report's conclusions and recommended improvement measures

Our review found that the traffic study generally included expected methodologies and analysis techniques, including traffic generation, distribution and assignment. The study's technical procedures followed accepted industry practices.

The following items highlight specific observations from our review. We present this information as noteworthy points of emphasis and to promote further discussion of the proposal:

#### Initial TIA Scoping and Review of Preliminary Data

Our review compared the proposal's development plan as depicted in the latest available site plan to the project characteristics presented at the applicant's scoping meeting. This serves to confirm that the information included in the TIA is consistent with the data presented during preliminary project discussions.

The TIA study area included the proposed intersection of Linden Isle Dr at Lewisburg Pk and the existing intersection of Linden Isle Dr at Narrow Ford Ln.

#### Existing Conditions Review

- Our review included assessment of the study's existing traffic volume documentation (Figure 4). We compared the traffic volume diagram with the raw count data presented in the appendix to confirm consistency in data reporting.
- Because existing count data is not available for the Lewisburg Pk at Linden Isle Dr intersection, we noted the TIA methodology for documenting existing intersection turning movement data. We found an incidental computational error in the study's raw traffic count worksheet. However, the summation of the total existing peak hour traffic volumes as shown in Figure 4 is correct. Based on this, we find no reason for the TIA to be modified.
- The TIA did not conduct capacity "level-of-service" (LOS) analysis for existing conditions, presumably because the study area intersections lack measurable conflicting movements.

#### Background Conditions Review

- The traffic study conducted a review of future year conditions (2019) without the proposed development. Analysis results of this scenario allows for a technical comparison of traffic conditions with and without the project in the forecast horizon year, effectively providing a technical baseline.
- Results of the study's background growth rate analysis reported that traffic has generally declined over recent years based on TDOT traffic volume records. However, to maintain a conservative evaluation, the TIA increased existing volumes by 10% to reflect expected growth. We concur with the study's approach. We believe the study's calculated annual growth rate should have omitted the year 2001 TDOT count from its analysis, as this was the final year prior to the opening of SR-840. If omitted, we feel the annual growth rate would be more representative of actual conditions.
- In addition, the TIA background analysis accounted for vehicle trips originating from the Stream Valley neighborhood. The new Linden Isle Dr connection would alter existing traffic movements accessing Lewisburg Pk. We assess that it is appropriate and important to include the impact of this new link on vehicular circulation under background conditions.



- The TIA methodology included provisions to estimate the magnitude and split distribution of existing vehicles that would use the Linden Isle Dr extension, as opposed to Stream Valley Blvd, to access Lewisburg Pk.
- We reviewed the TIA documentation of the background traffic volumes and found consistency between study assumptions and its analysis results.
- The TIA did not conduct capacity analysis under background conditions because the study area intersections lack measurable conflicting movements under the background scenario.

#### Review of Trip Generation, Distribution and Assignment

- Our assessment included review and verification of the study's assumptions and methodology for trip generation forecasts and assignment to the study area's road network. Our evaluation noted that the TIA trip generation calculations followed industry methodology.
- The results of the trip generation analysis were consistent with the information submitted during the project scoping process.
- We reviewed the TIA calculations for trip assignment comparing its trip generation and trip distribution assumptions. We found the study's trip assignment to be adequately tabulated.

#### Proposed Conditions Review

- Our review of the total projected traffic volume model, including trips generated by the proposed development, found that the predicted traffic volumes were consistently tabulated as shown in Figure 8.
- We conducted an in-depth review of the TIS capacity analysis for proposed conditions. We compared the study's back-up data with that shown in the analysis sheets to confirm that the TIS used consistent and accurate data input. We also desired to confirm analysis results shown in the TIS summary tables (e.g. Table 5) match results provided in the appendix. We confirmed that the TIA followed expected methodology per the Highway Capacity Manual.
- The TIA proposed conditions analysis reported that both study intersections are forecast to operate within acceptable thresholds. Our review noted that the analysis results are based on full build-out of the 20 dwelling units at Bushnell Farms and 50% build-out of Stream Valley.

#### Summary of Review Comments and Final Considerations

We generally agree with the recommendations of the TIA. We believe the proposed roadway geometrics at the future intersection of Lewisburg Pk and Linden Isle Dr will help facilitate safety and traffic operations. The following summarizes recommendations made by the TIA:

- Provide separate left-turn and right-turn lanes on the westbound approach of Linden Isle Dr at Lewisburg Pk. Each turn lane should provide a minimum 100 feet of full-width vehicle storage.



- Construct an exclusive southbound left-turn lane on Lewisburg Pk at its intersection with Linden Isle Dr
- Provide an exclusive northbound right-turn lane on Lewisburg Pk at Linden Isle Dr
- Review intersection sight distance requirements as mentioned in the TIA during the site design process.

In addition to the recommendations presented by the TIA, we provide the following thoughts for further consideration and use by the applicant and city officials:

- Regarding the proposed southbound left-turn lane on Lewisburg Pk at Linden Isle Dr, we recommend officials consider providing a slightly longer storage length than the 100 feet mentioned in the TIA. We suggest a turn lane with 150 feet of storage capacity would support future expansion of the Stream Valley neighborhood and allow for variability of future conditions.
- In addition to the 100 feet of storage length for the northbound right-turn lane on Lewisburg Pk at Linden Isle Dr, we recommend project designers place emphasis on maximizing the turn lane's transition taper length, to the extent possible, to promote traffic operations and consistent operating speeds on Lewisburg Pk.
- We recommend city officials confirm the applicant's intent to dedicate appropriate exiting property as public ROW along the project's frontage of Lewisburg Pk in anticipation of potential future widening as shown in the current site plan.
- The applicant should coordinate with TDOT Region 3 officials regarding necessary permits and proposed intersection improvements.
- The traffic study should be updated in accordance with city procedures in advance of future expansion of Stream Valley or other relevant future developments as determined by city officials.
- We recommend the engineering department consider the appropriate and desired posted speed limit for the proposed extension of Linden Isle Dr given the general alignment and surrounding land use context of the roadway segment.

Thank you for allowing us to assist the city in its consideration of the project proposal. Please let us know if you need any additional information or have any questions.

Sincerely,  
NEEL-SCHAFFER, INC.



Gregory Judy, P.E., PTOE  
Engineer Manager – Vice President

