



MEMORANDUM

To: Denise Sowder, County of Roanoke
Steven B. Mullins, P.E., VDOT

From: Omar Kanaan, P.E.

Date: July 10, 2024

Subject: Beahm Property
Sanderson Drive/Shadwell Drive (Rt. 605/Rt 601)
Response to Comments

We have received comments provided by VDOT and Salem County for the subject project. We offer the following responses:

1. Please ensure that SimTraffic settings are consistent with TOSAM Table 17: SimTraffic 10 Standard Input Parameters.
Response: The settings were updated to address this comment.
2. The SB Shadwell Stop Bar at the intersection of Sanderson Drive is mislocated in the traffic models. Please correct.
Response: The available storage was included in the queue tables and accounts for the available storage distance without impacting the railroad tracks.
3. Build models show separate left and right turn lanes on SB Sanderson Drive. There is currently not a VDOT funded project to construct this turn lane. Please show demonstrate that this mitigation is warranted. If warranted, please clarify at what building phase the developer intends to construct this mitigation.
Response: The report was revised to include scenarios with and without the southbound left-turn lane for both 2028 and 2030.
4. The proposed entrances on the models do not meet VDOT access management minimum spacing requirements. Please revise.
Response: The models have been updated to adhere to the VDOT access management minimum spacing requirement.
5. The proposed entrances on the models are not consistent with the spacing and locations show on the conceptual site plan in Appendix A. Please correct.
Response: The proposed entrances have been updated to be consistent with the spacing and locations shown on the conceptual site plan.

6. Table 4 (Control Delay and LOS Summary): Models show an 80% increase in delay (50 sec to 90 sec) for the SB left on Shadwell Drive. This is a significant increase and may not be acceptable. Please suggest a mitigation for this delay. Note that these results already assume the construction of separate R/L turn lanes.

Response: Note that the delay is primarily attributable to the southbound left-turn movement which the project assigns fewer than 10 trips to during the PM peak hour. The applicant agrees to participate in a cooperative effort with Roanoke County and other parties to seek a solution to construct a southbound left-turn lane off of Sanderson Drive. The applicant would agree to deed an adequate right of way for a turn-lane over their existing property.

7. Table 5 (Queueing Analysis): The table shows a 75% increase in queueing (175' to 250') for the NB Hollins Road Approach. Table 4 also shows a significant (55%) increase in delay. Please propose mitigation. Note that SimTraffic results will be required to evaluate potential queueing per TOSAM MOE guidance.

Response: The increase in queue is equivalent to three vehicle lengths and is accommodated without blocking adjacent intersections. Given that the applicant does not own property in the vicinity of the intersection, mitigation measures are limited. The applicant agrees to participate in a cooperative effort with Roanoke County and other parties to seek a solution to construct a southbound left-turn lane off of Sanderson Drive. The applicant would agree to deed an adequate right of way for a turn-lane over their existing property.

8. For the additional planned development of 40 homes (Stonegate Phase III), please state the directional distribution of entering and exiting trips along Shadwell Drive. This will help understand how the additional development traffic is distributed.

Response: The Stonegate Phase III trips follow the same distribution as the proposed project trips.

9. Figure 6: For the AM peak hour, the total number of exiting trips do not add up to the sum of exiting trips as provided in Table 3. Please double check all the entering and exiting trips to make sure they add up to what is provided in Table 3.

Response: The entering and exiting trips have been updated for all conditions.

10. Please state whether an origin-destination survey has been done for the two T-intersections along Shadwell Drive. There are vehicles that turn right from Hollins Road then proceed with a left turn at Sanderson Drive and so on. This will accurately depict the traffic patterns in the area.

Response: Trip assignments and directional distribution are based on the existing traffic volumes and not on O-D data. Note that O-D data will not result in changes to the analysis as Shadwell Drive provides a single lane in each direction and vehicles cannot preposition themselves to make turns.

11. Please run SimTraffic as there is close spacing (~108 feet) between two T-intersections along Shadwell Drive, due to the existing railroad tracks in the area. There is concern that vehicles might be blocked from making turning movements due to queues created by vehicles waiting to make a left turn downstream. With the developments fully built out, the T-intersections will

need some improvements to offset the additional traffic. Please follow the TOSAM specifications while running Sim Traffic (1 peaking period and 3 anti-peaking periods and so on).

Response: The analysis was revised to include SimTraffic results. Note that the results indicate that queues extend onto the railroad track under existing and no-build conditions.

12. For movements with 1 heavy vehicle but shown as less than 0.5% in the raw count data, please place 1% heavy vehicles in the models to be conservative.

Response: The eastbound through movement at intersection 1 (Shadwell Drive and Hollins Road) has been updated in the PM peak hour for all scenarios.

13. For the PM peak hour, please use a uniform peak hour as the difference in the 15-minute counts can be uneven for closely spaced intersections. Please use the highest of the combined volumes as the peak hour for each intersection.

Response: A systemwide P.M. peak hour was identified as 5:00 – 6:00 P.M. Note that these calculations also altered the %HV at these intersections.

14. For the 2028 AM No-Build conditions, the right turn from Shadwell Drive onto Sanderson Drive has 61 vehicles in the models while Figure 3 has 55 vehicles. Please revise the models and check subsequent models for this error (left turn from Sanderson Drive to Shadwell Drive has 67 vehicles in the models while Figure 3 shows 60 for the 2028 PM No-Build conditions).

Response: Volumes were revised to address this comment.

15. For the 2028 AM No-Build conditions, the northbound approach of Hollins Road has 21.7 seconds of delay in the report while the HCM outputs show 19 seconds of delay. Please revise and account for future conditions.

Response: Tables were revised to address this comment.

16. For the left turn lane on Sanderson Drive in all future conditions, the taper length shall be set to zero per the TOSAM. Please revise.

Response: 2030 Build models have been updated to include 0 ft taper length in all scenarios.

17. In Appendix A, the conceptual plan calls for 100 single family homes and 50 townhouses in Phase 1 and then adding 75 townhouses for a total of 125 townhouses and 100 single family homes in full build out. However, Table 3 is different: 75 townhouses and 85 single family homes in Phase 1 and then adding 50 townhouses and 15 single family homes for a full build out plan. Please state which conceptual plan is correct.

Response: Table 3 was updated to reflect the correct Phase 1 build conditions which consist of 50 single-family homes and 100 townhouses. Appendix A and the trip generation has been updated to reflect this as well.