

Proposed Shenandoah Drive Connection

Traffic Analysis

Existing Conditions – Refer to Map A

- Shenandoah Drive consists of two unconnected residential streets in the Shenandoah/Beaver Creek community. It is a 2-lane 2-way roadway in both locations that varies in width from 24 (Sec 2) – 30 (Sec 1) feet of asphalt pavement with rolled asphalt curb.
- No traffic counts have been taken along any sections of Shenandoah Drive, but the existing estimated Average Daily Volume (ADT) is 300 (Sec 2) – 500 (Sec 1) vehicles per day (vpd).
- The adjoining land use along both sections of Shenandoah Drive is residential with approximately 330 single family dwellings directly accessing the two sections of Shenandoah Drive.
- The entrance to the Shenandoah/Beaver Creek community is located at the intersection of Shenandoah Drive and Bingham Drive (NC 162). A traffic count taken on Bingham Drive by NCDOT in 2016 revealed an Annual Average Daily Volume (AADT) of 19,000 vpd. This intersection is a full access stop sign controlled intersection with Shenandoah Drive being the stop approach.
- Shenandoah Drive intersects with Carter Baron Place/Snively Court, Shiloh Drive, Kara Court, and Paisley Avenue. All intersections are full access stop sign controlled intersections. Carter Baron Place/Snively Court and Shiloh Drive are stop approaches. Shenandoah Drive is the stop approach at the intersections with Paisley Avenue. Kara Court/Shenandoah Drive is considered a curve/free flow movement and does not have a stop sign for either approach.
- Redwood Drive connects to Hope Mills Road (NC 59) at a signalized intersection south of Raeford Road and provides access to large residential areas the in Lafayette Village and Ashton Forest communities. The 2016 AADT on Redwood Drive was 710 vpd and 25,000 vpd on Hope Mills Road in the vicinity of the Hope Mills Road / Redwood Drive intersection.
- Redwood Drive is a 2-lane 2-way roadway with a 24 foot of asphalt with a rolled asphalt curb. It widens at the intersection with Hope Mills Road to provide a separate left turn lane and through-right turn lane for northbound traffic and southbound traffic.
- From east to west from the Hope Mills Road intersection, Redwood Drive intersects Juniper Drive, Poplar Drive, Bayleaf Drive, and Birch Road. All intersections are full access stop sign controlled intersections except for Birch Road which is a curve/free flow movement and does not have a stop sign for either approach.

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Anticipated Conditions – Refer to Traffic Volume Diagram

- Although there are several other street connections along Raeford Road and Hope Mills Road that may see additional traffic impacts, they are not considered in this analysis. Only the main intersections of Shenandoah Drive at Bingham Drive, Bingham Drive at Raeford Road, Raeford Road at Hope Mills Road, and Hope Mills Road at Redwood Drive were studied.
- The Shenandoah Drive / Redwood Drive connection is expected to generate approximately 7,500 additional vehicles per day (vpd) between Bingham Drive and Hope Mills Road. This is a two way volume and is expected to be 50% in each direction. This additional traffic is expected to be distributed as shown in the attached diagram.
- The traffic movements could expect the following impacts:
 - Raeford Road would experience a 13.5% **decrease** in traffic between Bingham Drive and Hope Mills Road.
 - Bingham Drive would experience a 19.7% **increase** in traffic between Raeford Road and Shenandoah Drive.
 - Hope Mills Road would experience a 24% **increase** in traffic between Raeford Road and Redwood Drive.
- The following traffic movements would experience significant delays, especially during peak hours:
 - Raeford Road / Bingham Drive Intersection
 - Northbound right turn
 - Bingham Drive / Shenandoah Drive Intersection
 - Southbound left turn
 - Westbound right and left turn
 - Northbound right turn
 - Anticipated to meet the warrants for the installation of a traffic signal
 - Raeford Road / Hope Mills Road Intersection
 - Westbound left turn
 - Northbound right turn
 - Hope Mills Road / Redwood Drive
 - Southbound right turn
 - Eastbound left turn

Conclusion

Although there is expected to be a decrease in traffic on Raeford Road between the Bingham Drive and Hope Mills Road, there would be significant impact to the traffic movements as noted above, including the probable need for a traffic signal at the Bingham Drive / Shenandoah Drive intersection.