



PLZ-18-24

City of Greensboro Planning Department Zoning Staff Report and Plan Amendment Evaluation

City Council Hearing Date: December 18, 2018

GENERAL INFORMATION

| | |
|----------------------------|--|
| APPLICANT | Judy Stalder for Keystone at Horse Pen Creek, LLC. |
| HEARING TYPE | Rezoning Request |
| REQUEST | R-3 (Residential Single-family – 3), CD-RM-12 (Conditional District – Residential Multi-family – 12), and CD-O (Conditional District - Office) to CD-RM-18 (Conditional District – Residential Multi-family – 18) |
| CONDITIONS | 1. The landscaped buffer adjacent to Sullivan’s Lake Association parcels REID: 0081972 (4222 CE Sullivan’s lake Drive) and 0081973 (4206 Open Sullivan’s Lake Drive) shall be of a Type C buffer width with a Type B buffer planting rate. |
| LOCATION | 2737 and 2745-2767 Horse Pen Creek Road |
| PARCEL ID NUMBER(S) | 7846047281, 7846045481, 7846044443, 7846042586, 7846040600, 7836949653, 7836947687, 7836946752, 7836947384, 7836942830 |
| PUBLIC NOTIFICATION | The notification area for this public hearing was 600 feet (Chapter 30-4-1.4 of the Land Development Ordinance requires notification of the owner of that parcel of land and the owners of all parcels of land adjoining and contiguous to that parcel of land as shown on the County tax listing). 211 notices were mailed to those property owners in the mailing area. |
| TRACT SIZE | 21.37 Acres |
| TOPOGRAPHY | Undulating |
| VEGETATION | Primarily Wooded |

SITE DATA

| | |
|------------------------|---|
| Existing Use | Single-family dwellings and vacant land |
| Adjacent Zoning | Adjacent Land Uses |
| N R-3 | Single-family dwellings |
| E R-3 | Single-family dwellings |

| | | |
|---|---|---|
| W | CD-RM-5 (Residential Multi-family) R-3 | Multi-family dwellings and Vacant land |
| S | CD-RM-5 (Residential Multi-family) | Multi-family dwellings |

Zoning History

| Case # | Date | Request Summary |
|--------|-------------------|--|
| N/A | N/A | A portion of the property is currently zoned R-3 (Residential Single-family - 3) and has been since the adoption of the Land Development ordinance in July 2010. Prior to the LDO, the subject property was zoned RS-12 (Residential Single-family - 12). |
| CD4096 | March 20, 2017 | <p>A portion of the property is currently zoned CD-RM-12 (Conditional District – Residential Multi-family – 12). In 2017, this property was rezoned from R-3 (Single-family Residential – 3) to CD-RM-12 (Conditional District – Residential Multi-family – 12) with the following conditions:</p> <ol style="list-style-type: none"> 1. Uses shall be limited to 200 multi-family dwellings for elderly citizens, 55 years and older. 2. Each building shall have elevator service. 3. No building on the property shall exceed three (3) stories in height. |
| 4085 | December 19, 2016 | <p>A portion of the property is currently zoned CD-O (Conditional District – Office). In 2016, this property was rezoned from R-3 (Single-family Residential – 3) and CD-C-N (Conditional District-Commercial Neighborhood) to CD-O (Conditional District – Office) with the following conditions:</p> <ol style="list-style-type: none"> 1. Uses are limited to all uses permitted in the O district except any use that requires a drive-thru facility. 2. Building height shall not exceed 25 feet. 3. Building exteriors shall be at least 60% brick, brick veneer or stone. 4. Building(s) square footage shall not exceed 29,500 square feet total. 5. A six foot privacy fence shall be installed along the southern boundary of the property. 6. The applicant will construct and maintain a type “B” planting yard along the southern boundary of the property. The fence required by Condition 5 above, whenever running congruent to a Tree Conservation Area, will be placed outside of the Tree Conservation Area into the subject property. The applicant may claim credits for saving existing trees in lieu of planting the Type “B” planting yard provided the existing trees are protected in accordance with the provisions of Article 10, Section 30-10-2.3. |

ZONING DISTRICT STANDARDS

District Summary *

| Zoning District Designation: | Existing (R-5) | Existing (CD-RM-12) | Existing (CD-O) | Requested (CD-RM-18) |
|------------------------------|--|---|--|---|
| Max. Density: | 5 dwelling units per acre | 12 dwelling units per acre | N/A | 18 dwelling units per acre |
| Typical Uses: | Typical uses in the R-5 district may include single-family uses. | Uses shall be limited to 200 multi-family dwellings for elderly citizens, 55 years and older. | Uses are limited to all uses permitted in the O district except any use that requires a drive-thru facility. | Typical uses in the RM-18 district may include multi-family uses. |

**These regulations may not reflect all requirements for all situations; see the City of Greensboro Land Development Ordinance for all applicable regulations for site requirements for this zoning district.*

SPECIAL INFORMATION

Overlay District Ordinance/Historic Preservation

n/a

Environmental/Soils

Water Supply Watershed Site drains to Greensboro WSIII, Watersupply Watershed, Horse Pen Creek

Floodplains Onsite & FEMA Floodway onsite. A Floodplain Development Permit is required for any disturbance within the FEMA 1% Special Flood Hazard Area. Building must either be elevated to 1 foot above the Base Flood Elevation or flood proofed. An Elevation Certificate is required for any new structures at the footing/foundation stage and final construction stage. See LDO Chp.30-12-2 Flood Damage Prevention for requirements in the FEMA Floodway and FEMA 1% Special Flood Hazard Area. Building must also be elevated or flood proofed to the FEMA 1% Future Special Flood Hazard elevation. If any structures are proposed within the FEMA Floodway, a 'No Rise' engineering calculation study will be required.

Streams Blue Line stream is located on 2767 Horse Pen Creek Rd. A 50ft Stream buffer measured from top of stream bank on each side is required. See LDO Chp.30-12-3.9 for stream buffer Allowances and Restrictions. Existing channel must be identified to its origin. If the channel is either perennial or intermittent to the origin, a 50ft stream buffer will apply since channel is feeding a Blue Line stream.

Other: Site is within the PTI 5 statue mile radius. No BMP/SCM that holds a normal pool elevation is allowed unless an engineer's justification is approved by Stormwater. Any new BUA must be treated by a State approved Water Quality BMP and any existing BUA that would drain to the device treated to the maximum extent practicable.

Utilities

Potable Water Available

Waste Water Available

Airport Overlay District & Noise Cone

n/a

Landscaping & Tree Conservation Requirements

Landscaping:

Street Yards:

Street planting yards must be installed abutting public street rights-of-way. The required street planting yard must have a minimum width of 10 feet (as measured from the outside edge of the right-of-way or the back of the sidewalk, whichever is further from the street centerline) and include at least 2 canopy trees and 17 shrubs per 100 linear feet of required street planting yard, not including allowed driveways.

Buffer Yards:

Adjacent to Single Family uses: 15-foot Type C yard with planting rate of 2 canopy trees, 3 understory trees, and 17 shrubs per 100 l.f.

Adjacent to Multi-family uses: Vehicular Use Area buffer yard (see below) between any parking lot or drive aisle and the adjacent property line, unless conditioned otherwise.

Parking Lots:

When a parking lot or other vehicular use area abuts a vacant site or a site with the same land use classification as the subject site, a planting yard with a minimum width of 5 feet must be provided between the parking lot/vehicular use area and the abutting (interior) property line. This required planting area must be landscaped with at least 2 understory trees and 18 evergreen shrubs per 100 linear feet.

Trees for required parking spaces: 1 canopy tree per 12 spaces, in islands or medians within the parking lot.

Tree Conservation:

For 21.37 acres, 10% of parcel size in critical root zone to be dedicated for Tree Conservation.

Transportation

Street Classification: Horse Pen Creek Road – Minor Thoroughfare.
Terrault Drive – Local Street.

Site Access: All access(s) must be designed and constructed to the City of Greensboro standards.

Traffic Counts: Horse Pen Creek Rd ADT = 16,000 (NCDOT, 2017).

Trip Generation: 24 Hour = 2,155, AM Peak Hour = 144, PM Peak Hour = 175.

Sidewalks: Sidewalks are a requirement of the Development Ordinance. 5' sidewalk with a 5' grass strip is required along both sides of thoroughfares. 5' sidewalk with a 3' grass strip is required along one side (at a minimum, collectors may require sidewalk on both sides) of all other street types. Sidewalk does not exist along the frontage of this property.

Transit in Vicinity: No.

Traffic Impact Study: Yes, required per TIS Ordinance. Please see the end of this staff report (TIS) for the Executive Summary of the TIS.

Street Connectivity: N/A.

Other: Subject site is within the limits of the Horse Pen Creek Road Widening Project that is currently under construction and scheduled to be completed Summer/Fall 2020.

IMPACT/POLICY ANALYSIS

Land Use Compatibility

The proposed **CD-RM-18 (Conditional District – Residential, Multi-family – 18 du/ac)** zoning, as conditioned, would allow land uses that are compatible with the general character of the area.

Connections 2025 Comprehensive Plan Policies

The Generalized Future Land Use Map designates this location as **Low Residential (3-5 d.u./acre)**, **Moderate Residential (5-12 d.u./acre)**, and **Mixed Use Commercial**. The requested **CD-RM-18 (Conditional District – Residential, Multi-family – 18 du/ac)** zoning district, as conditioned, is generally inconsistent with the **Low Residential (3-5 d.u./acre)** and **Moderate Residential (5-12 d.u./acre)** GFLUM designations, and the applicant has concurrently submitted a request (CP 18-08) to amend the GFLUM designation on the subject site to **High Residential (over-12 d.u./acre)** which, if approved, would resolve this inconsistency.

Connections 2025 Written Policies

Land Use Goal 4.1 – Growth Strategy: Promote sound investment in Greensboro's urban areas, including Center City, commercial and industrial areas, and neighborhoods.

Policy 4A: Remove present impediments to infill and investment in urban areas.

Policy 4B: Target capital investments to leverage private investment in urban areas.

Policy 4C: Promote new patterns and intensities of use to increase economic competitiveness and enhance quality of life in urban areas.

Policy 4D: Identify potential opportunities and selectively target, plan and promote development/reuse initiatives.

Community Character, Goal 5.2 – Man-Made Environment: Preserve and enhance the character and visual quality of Greensboro's built environment, including historic resources, private developments, and public landscapes.

Policy 5E: Improve the aesthetic quality of publicly owned and maintained landscapes.

Policy 5F: Implement and improve design standards governing the appearance of development from public roadways.

Housing and Neighborhoods, Goal 6: Meet the needs of present and future Greensboro citizens for a choice of decent, affordable housing in stable, livable neighborhoods that offer security, quality of life, and the necessary array of services and facilities.

Policy 6C: Promote the diversification of new housing stock to meet the needs of all citizens for suitable, affordable housing.

Economic Development, Goal 7: Promote a healthy, diversified economy with a strong tax base and opportunities for employment, entrepreneurship and for-profit and non-profit economic development for all segments of the community, including under-served areas such as East Greensboro.

Policy 7A: Target city investment and regulatory policies for economic development.

Policy 7C: Ensure that city land use policies and regulations allow for an adequate supply of land to accommodate economic development.

Transportation, Goal 8: Develop and maintain a safe, efficient, and environmentally sound transportation system that provides convenient choices for accessing destinations throughout Greensboro and the Triad, including a range of well-integrated transit, pedestrian, and bicycle linkages.

Policy 8A: Maintain a roadway network that safely and efficiently accommodates vehicular traffic while supporting other community objectives defined in the Comprehensive Plan.

Connections 2025 Map Policies

Low Residential (3-5 d.u./acre): This category includes the City's predominantly single-family neighborhoods as well as other compatible housing types that can be accommodated within this density range. Although there are some existing residential areas in the City developed on lots greater than 1/3 acre, future residential developments and "conventional" subdivisions should generally maintain a gross density of no less than three dwellings per acre, except where environmental constraints (e.g., the Watershed Critical Area) prevent such densities from being achieved. Compact developments that include clustered, small lots with substantial retained open space are encouraged.

Moderate Residential (5-12 d.u./acre): This category accommodates housing types ranging from small-lot, single-family detached and attached single-family dwellings such as townhomes to moderate density, low-rise apartment dwellings.

Mixed Use Commercial: This designation is intended to promote a mix of uses, of which various commercial uses remain predominant, but where residential, service, and other uses are complementary. Where applied to older highway corridors characterized by "strip" commercial uses, the intent is to encourage infill and redevelopment for a more diverse and attractive mix of uses over time. Examples include residential units over commercial uses or a wider array of economically viable uses to replace obsolete uses. Such areas also may represent opportunities for the introduction of substantial higher density and/or mixed-income housing, with negligible impacts on, or resistance from, nearby single-family neighborhoods. Ensuring that buildings are of the appropriate scale and intensity is critical, as is ensuring that sites are designed in a coordinated, as opposed to a lot-by-lot, manner. New "strip" commercial development is discouraged.

High Residential (over 12 d.u./acre): This category provides for high-density apartment dwellings, condominiums, life care, and similar housing types. Creating opportunities for this type of housing will become increasingly important to respond to demographic shifts and

demand for affordable housing, and it is ideally suited near major activity and employment centers and in areas suitable for future transit service. Within this district, office buildings may also be accommodated.

Comprehensive Plan Amendment History

| Case # | Date | Request Summary |
|----------|------------|--|
| CP 17-01 | 03/31/2017 | An amendment from Low Residential (3-5 d.u./acre) to Moderate Residential (3-5 d.u./acre) was approved to resolve the inconsistency with a requested rezoning from R-3 (Residential, Single Family – 3 du/ac) to CD-RM-12 (Conditional District – Residential, Multi-family – 12 du/ac) , for properties located at 2751, 2753, 2755, 2757, 2759, 2763, & 2767 Horse Pen Creek Road. |

Applicant Stated Reasons for Request

“This amendment is needed to identify and support higher density multifamily residential. The higher density allows practical development of the usable land while preserving environmentally sensitive areas. Additionally, the current designation of moderate density multifamily cannot support modern densities that reduce urban sprawl, increase our tax base and attract a younger, innovative population.

“The current zoning is a mix of single family, R-3; multifamily, CDRM-12; and office, CDO. The proposed zoning of CDRM-18 will consolidate the property under a consistent zoning and provide cohesive development of the property.”

Explain in detail the conditions that you think may warrant a Plan Amendment – Per Applicant and Application

“This property is located between a heavily traveled thoroughfare and existing multi-unit attached housing development. A multifamily development on this property provides a transition/buffer between Horse Pen Creek Road and the existing development to the south.

“Horse Pen Creek Road is currently undergoing improvements to be widened to 4 lanes with curb and gutter, bike lanes, sidewalks and a landscaped median. Improvements will be completed in mid-2020 providing a logical division between attached housing to the south and existing single family development to the north and east.

“In an era when planners strive for responsible use of existing resources, this location provides the ideal scenario for increased density. The situation evolved through a logical progression of development, guided by the Comprehensive Plan. Current efforts to modernize and update the plan must support increased density to preserve land resources, responsibly build the tax base and attract a younger population.”

COMPREHENSIVE PLAN POLICY ANALYSIS

Need for Proposed Change

The requested **CD-RM-18 (Conditional District – Residential, Multi-family – 18 du/ac)** zoning district, as conditioned, would allow uses that are incompatible with the subject site’s current designations in the GFLUM as **Low Residential (3-5 d.u./acre)** and **Moderate Residential (5-12 d.u./acre)**. If approved, the requested GFLUM amendment (**CP 18-08**) to **High Residential (over 12 d.u./acre)** would resolve this inconsistency.

Effect of the proposed Change on the Need for City Services and Facilities (e.g. roadway level of service).

n/a

Implications, if any, the Amendment may have for Other Parts of the Plan

n/a

Unforeseen Circumstances or the Emergence of New Information (e.g. significant economic opportunity in Tier 2 or 3)

n/a

PLANNING BOARD COMMENTS

The Planning Board reviewed the GLFUM amendment request **CP 18-08** associated with this rezoning request during its meeting on October 17, 2018. Planning Board members expressed concern about the absence of other high density residential development or zoning in this area. They also noted that the subject site is located near the congested Horse Pen Creek Road / New Garden Road / Bryan Boulevard intersection, but that the planned project to widen Horse Pen Creek Road has been designed to accommodate anticipated future traffic volumes. They also observed that a large portion of the site is undevelopable due to topographic and other constraints, and that a higher residential density may make development of the site more feasible. The Planning Board agreed that the request is generally consistent with the character and trend of development in the area.

CONFORMITY WITH OTHER PLANS

City Plans

Sustainability Action Plan

Element 1) Transportation and Land Use:

Policy 1) Encourage increased density, a mix of land uses and more integrated links between transportation and land use through changes to Greensboro's Comprehensive Plan, Development Ordinance and other related plans.

Element 2) Green Jobs and Buildings:

Policy 3) Develop a coordinated City program to provide technical support, energy audits and education and outreach to increase energy efficiency and conservation in commercial and residential buildings.

Policy 4) Use a combination of code changes, incentives, partnerships and education to promote green building in Greensboro.

Policy 6) Promote more efficient use of water through education, partnerships and pilot projects.

Element 3) Waste Reduction and Recycling:

Policy 7) Employ a combination of expanded recycling infrastructure, regulations and incentives to increase Greensboro's solid waste diversion and recycling rates.

Element 6) Education and Outreach:

Policy 11) Provide technical support, awards and recognition to individuals and organizations furthering Greensboro's energy and sustainability efforts.

Other Plans

N/A

STAFF ANALYSIS AND RECOMMENDATION

Community Outreach

Applicant is strongly encouraged to discuss this proposed rezoning and development with owners of surrounding properties, and with representatives of the adjacent Saddle Creek neighborhood, located to the north and east of the subject site, and representatives of the adjacent Quaker Run neighborhood, located to the northwest of the subject site.

Staff Analysis

The 21.37 acre subject site is currently used for single-family dwellings. North and east of the request are single-family uses (zoned R-3). South of the request are multi-family uses (zoned CD-RM-5). West of the request are multi-family uses (zoned CD-RM-5) and vacant land (zoned R-3).

The Comprehensive Plan's Future Land Use Map designates this area as Low Residential (3-5 d.u./acre), Moderate Residential (5-12 d.u./acre), and Mixed Use Commercial. The applicant has requested a GFLUM amendment to High Residential (over 12 d.u./acre). This designation provides for high-density apartment dwellings, condominiums, life care, and similar housing types, generally at a density of more than 12 dwelling units per acre.

The Planning Board reviewed the proposed GFLUM amendment (CP 18-08) at their October 17, 2018 meeting. The Planning Board commented on the density allowed under a High Residential designation, current traffic volumes on Horse Pen Creek Road, and the increased traffic capacity on Horse Pen Creek Road after the widening project is completed. The Planning Board generally agreed that the request is generally consistent with the character and trend of development in the area.

The RM-18 zoning district is generally intended to accommodate high density multi-family residential uses. The proposed CD-RM-18 rezoning request also imposes conditions that will limit negative impacts on the surrounding neighborhood and will be located along a roadway with significant traffic capacity once work currently underway is complete. The rezoning request is consistent with the Comprehensive Plan's Housing and Neighborhoods goal to meet the needs of present and future Greensboro citizens for a choice of decent, affordable housing in stable, livable neighborhoods that offer security, quality of life, and the necessary array of services and facilities.

The request is consistent with the intent and purpose of the zoning code, the Comprehensive Plan (Connections 2025), and is generally compatible with the existing development and trend in the surrounding area.

Staff Recommendation

Staff recommends **approval** of the requested **CD-RM-18** (Condition District – Residential Multi-family - 18) zoning district.

Keystone at Horse Pen Creek – Transportation Impact Analysis

Greensboro, NC

Prepared for Keystone Homes

September 14, 2018

Executive Summary

The proposed Keystone at Horse Pen Creek Development is located on the south / west side of Horse Pen Creek Road between Quaker Run Drive and Waynoka Drive in Greensboro, North Carolina. The proposed development will be an apartment complex of 396 dwelling units. Two (2) site accesses are proposed on Horse Pen Creek Road: one (1) opposite Talmaga Lane and one (1) approximately 1,300 ft west of its intersection with Terrault Drive.

DAVENPORT was retained to determine the potential traffic impacts of this development and to identify transportation improvements that may be required to accommodate the impacts of both background traffic and new development traffic. The following intersections were included in the study:

- Horse Pen Creek Road at Talmaga Lane/Site Access 1 (Full Access)
- Horse Pen Creek Road at Terrault Drive
- Horse Pen Creek Road at Site Access 2 (Directional Crossover)

The expected build-out year for this project is 2020. A study year of 2021 (build out plus one year) was used for analysis purposes. The study intersections were analyzed for AM (7-9 am) and PM (4-6 pm) peaks for the following conditions:

- 2018 Existing Conditions
- 2021 Future No Build Conditions
- 2021 Future Build Conditions

The Greensboro Department of Transportation (GDOT) was contacted to obtain background information and to ascertain the elements to be covered in this Transportation Impact Analysis (TIA). Information regarding the property was provided by the developer, Keystone Homes.

Discussion of Results

The results of the level of service analysis are discussed by intersection below.

Horse Pen Creek Road at Talmaga Lane/Site Access 1 (Full Access)

In existing conditions, the Horse Pen Creek Road at Talmaga Lane intersection operates as a three-legged unsignalized intersection. It currently operates at LOS E during both AM and PM peaks. In 2021 no-build conditions with the construction of the roadway improvements associated with Horse Pen Creek Road Widening Project, LOS A is anticipated during the AM and PM peaks. With the addition of site generated traffic, LOS A is maintained during both peak periods. Analysis indicates that the northbound left-turn lane constructed with Horse Pen Creek Road Widening Project will be sufficient to accommodate the northbound left turning traffic into the site during future build condition. The need for an auxiliary right turn lane for this intersection was evaluated based on the GDOT Driveway Manual. Based on projected volumes, this access did not warrant a right turn auxiliary turn lane. The site access should be designed in accordance with GDOT standards where applicable. No improvements are recommended.

Horse Pen Creek Road at Terrault Drive

This unsignalized intersection currently operates at LOS C during the AM peak and LOS D during the PM peak. In 2021 no-build conditions with the construction of the roadway improvements associated with Horse Pen Creek Road Widening Project, LOS B is anticipated in the AM and PM peaks. With the addition of proposed site traffic, LOS B is maintained during the AM and PM peaks. No improvements are recommended.

Horse Pen Creek Road at Site Access 2 (Directional Crossover)

In future no-build conditions, this unsignalized directional crossover intersection is anticipated to operate at LOS B during the AM peak and LOS A during the PM peak. In 2021 future build conditions, with the addition of the proposed site traffic, LOS B is anticipated during both the peaks. Analysis indicates that the westbound left-turn lane constructed with Horse Pen Creek Road Widening Project will be sufficient to accommodate the westbound left turning traffic into the site during future build condition. The need for an auxiliary right turn lane for this intersection was evaluated based on the GDOT Driveway Manual. Based on projected volumes, this access did not warrant a right turn auxiliary turn lane. The site access should be designed in accordance with GDOT standards where applicable. No improvements are recommended.

Level of Service Summary

Table A summarizes the level of service analysis at the study intersections:

| Table A - Level of Service Summary | | | |
|---|-------------------------|-------------------------|-------------------------|
| AM Peak | 2018 Existing | 2021 Future No Build | 2021 Future Build |
| Horse Pen Creek Road at Talmaga Lane / Site Access 1 | E (35.2) WB Approach | A (7) | A (8.5) |
| Horse Pen Creek Road at Terrault Drive | C (22.8) SB Approach | B (10.8) SB Approach | B (10.9) SB Approach |
| Horse Pen Creek Road at Site Access 2 (Directional Crossover) | | B (10.2) SB Approach | B (10.9) NB Approach |
| PM Peak | 2018 Existing | 2021 Future No Build | 2021 Future Build |
| Horse Pen Creek Road at Talmaga Lane / Site Access 1 | E (36.1) WB Approach | A (5.1) | A (8.3) |
| Horse Pen Creek Road at Terrault Drive | D (25.3) SB Approach | B (12.1) SB Approach | B (12.3) SB Approach |
| Horse Pen Creek Road at Site Access 2 (Directional Crossover) | | A (9.5) SB Approach | B (10.2) NB Approach |
| LOS (delay in seconds) | | | |
| Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay | | | |

Proposed Site Access Throat Distances

The internal throat distances for the site accesses were reviewed using the GDOT Driveway Manual, which states that the distance from the adjacent street right of way to the near side of any internal service drive or parking aisle should be 25 feet, or greater than the expected inbound queue at the location. To determine the inbound queues, internal intersections were modeled for each access and queue reports generated using SimTraffic 9. Based on the number of vehicles entering Site Access 1 during the AM and PM peaks (27 and 75 vehicles, respectively), the simulation indicates a minimum throat distance of 25 feet will be required. For Site Access 2, with 12 vehicles entering in the AM peak and 32 vehicles entering in the PM peak, the simulation indicates a minimum throat distance of 25 feet will be required. Table B lists the maximum queues for the AM and PM peaks. The queuing reports can be found in the Appendix. The access points should be designed and constructed in accordance with GDOT standards.

| Table B – Site Access Throat Queuing | | | |
|--------------------------------------|----------------------|---------|--|
| Intersection Movement | Maximum Queue (feet) | | Minimum Recommended Throat Distance (Feet) |
| | AM Peak | PM Peak | |
| | | | |

| | | | |
|---------------|---|----|----|
| Site Access 1 | 7 | 16 | 25 |
| Site Access 2 | 0 | 0 | 25 |

Summary and Conclusion

The proposed Keystone at Horse Pen Creek Development is located on the south / west side of Horse Pen Creek Road between Quaker Run Drive and Waynoka Drive in Greensboro, North Carolina. The proposed development will be an apartment complex of 396 dwelling units. Two (2) site accesses are proposed on Horse Pen Creek Road: one (1) opposite Talmaga Lane and one (1) approximately 1,300 ft west of its intersection with Terrault Drive. The study assumed this development will be completed in 2020.

Based on trip generation equations published in Trip Generation (Institute of Transportation Engineers, 10th Edition), this development has a trip generation potential of 2,155 daily trips with 144 trips in the AM peak and 175 trips in the PM peak.

DAVENPORT was retained to determine the potential traffic impacts of this development and to identify any transportation improvements that may be required to accommodate the impacts of both background traffic and new development traffic. Overall, the analysis indicates adequate capacity at the study intersections.

In conclusion, this analysis has been conducted based on GDOT guidelines and has determined the potential traffic impacts of this development. With the build-out of the proposed development, the analysis indicates there will be adequate capacity to accommodate future traffic. It is recommended that all site accesses be designed in accordance with GDOT standards where applicable.