



# Z-15-02-006

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

Zoning Commission Hearing Date: February 9, 2015

### GENERAL INFORMATION

<b>APPLICANT</b>	Kotis Holdings, LLC
<b>HEARING TYPE</b>	Original Zoning Request
<b>REQUEST</b>	<b>County CD-SC</b> (Conditional District-Shopping Center) to <b>CD-C-H</b> (Conditional District-Commercial-High)
<b>CONDITIONS</b>	<ol style="list-style-type: none"><li>1. All uses permitted in the C-H district <b>except</b> bus and rail terminals, pawnshops, and recycling collection points.</li><li>2. The exterior façade of all principal buildings, excluding that containing glass, shall be constructed of at least 50% stone, brick, wood and/or other natural materials.</li><li>3. All outparcel and development identification signage will incorporate a decorative base constructed of brick, stone, or other natural material.</li></ol>
<b>LOCATION</b>	<b>200 Willowlake Road</b>
<b>PARCEL ID NUMBER(S)</b>	<b>7895331083</b>
<b>PUBLIC NOTIFICATION</b>	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). <b>16</b> notices were mailed to those property owners in the mailing area.
<b>TRACT SIZE</b>	~24.32 Acres
<b>TOPOGRAPHY</b>	Primarily flat
<b>VEGETATION</b>	None

### SITE DATA

<b>Existing Use</b>	Undeveloped
<b>Adjacent Zoning</b>	<b>Adjacent Land Uses</b>
N County AG (Agricultural)	Undeveloped
E County AG (Agricultural)	Undeveloped
W County AG (Agricultural)	Undeveloped & single family dwellings

S County CU-HB (Conditional Use-Highway Business) Undeveloped

**Zoning History**

Case #	Date	Request Summary
N/A	N/A	The subject property is not currently located in the City’s planning jurisdiction.

**ZONING DISTRICT STANDARDS**

**District Summary \***

Zoning District Designation:	Existing (CD-SC)	Requested (CD-C-H)
Max. Density:	N/A	N/A
Typical Uses	Primarily intended to accommodate a wide range of high intensity retail and service departments meeting the shopping needs of the community and the region.	Primarily intended to accommodate a wide range of high intensity retail and service developments meeting the shopping and distributive needs of the community and the region, and some residential uses.

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

**SPECIAL INFORMATION**

**Overlay District Ordinance/Historic Preservation**

The subject site is partially located within the SCOD-1 (Scenic Corridor Overlay District 1) and partially located within the SCOD-2 (Scenic Corridor Overlay District 2) of the Greensboro Urban Loop. Consult the Scenic Corridor Overlay Districts Design Manual, for detailed applicable requirements and design guidelines.

**Environmental/Soils - Site drains to South Buffalo Creek**

Water Supply Watershed	Site drains to South Buffalo Creek, non-watersupply watershed
Floodplains	N/A
Streams	50ft stream buffer required measured from top of bank on each side of stream for both intermittent and perennial streams. See LDO Chp. 30-12-3.9 table 12-5 for stream buffer disturbance allowances and restrictions.
Other:	If >1acre is disturbed and Built Upon Area is increased, site must meet current Phase 2 requirements. Water Quality and water quantity must be addressed

**Utilities**

Potable Water	Available
Waste Water	Available

**Airport Noise Cone**

n/a

**Landscaping & Tree Preservation Requirements**

Adjacent to Willowlake Dr. and Burlington Rd. – 10’ wide street buffer yard with 2 canopy trees and 17 shrubs per 100 l.f.

Adjacent to single-family residential uses: 25’ wide Type B buffer yard with 3 canopy trees, 5 understory trees, and 17 shrubs per 100 l.f.

Adjacent to vacant land or other commercial uses: 5’ wide Vehicular Use Area buffer with 2 understory trees and 18 evergreen shrubs per 100 l.f., between all parking lots, drive aisles, etc., and the adjacent property line

For required parking lots: 1 canopy tree per 12 parking spaces, with every space within 100 l.f. of a tree.

Tree Conservation is required: 10% of parcel size

**Transportation**

Street Classification: Burlington Road – Major Thoroughfare.  
Willowlake Road – Collector Street.

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

Traffic Counts: Burlington Road ADT = 25,000 (NCDOT, 2011).  
Willowlake Road ADT = 1,500 (NCDOT, 2011).

Trip Generation: 24 Hour = 20,740, AM Peak Hour = 588, PM Peak Hour = 1577.

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

Street Connectivity: N/A.

Other: This site is adjacent to the future I-840 Urban Loop that is currently under construction and scheduled for completion in 2017.

**IMPACT ANALYSIS**

**Land Use Compatibility**

The proposed **CD-C-H (Conditional District-Commercial-High)** original zoning 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 **Industrial / Corporate Park, Mixed Use Commercial, and Mixed Use Corporate Park**. The requested **CD-C-H (Conditional District-Commercial-High)** original zoning district is generally consistent with the **Industrial / Corporate Park, Mixed Use Commercial, and Mixed Use Corporate Park** GFLUM designations. The Growth Strategy Map designates the subject site as being within **Growth Tier 1, Current Growth Area (2013 – 2019)**. The Growth Strategy Map designates the subject site as being partially within the **East Market Street Reinvestment Corridor**.

**Connections 2025 Written Policies**

**Land Use, Goal 4.3 – Growth at the Fringe:** Provide a development framework for the fringe that guides sound, sustainable patterns of land use, limits sprawl, protects rural character, evidences sound stewardship of the environment, and provides for efficient provision of public services and facilities as the City expands. Development will increase density and mix land uses at a pedestrian scale with sidewalks, bikeways, and where possible, public transit.

**Policy 4F:** Initiate a fringe area growth management framework, including: a Fringe Area Land Use Plan; a “tiered” approach that designates growth areas for staged development; specific criteria for water and sewer extensions and annexations; of the fringe as Greensboro's extraterritorial jurisdiction; and a proactive plan to provide infrastructure.

**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.

**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.

**Community Facilities, Services, and Infrastructure, Goal 9:** Provide community facilities, services, and infrastructure in a cost-effective manner to meet citizens' needs, contribute to quality of life, and support desired land use patterns.

**Policy 9A:** Proactively target infrastructure (water/sewer) extensions to support desired land use patterns [see also Land Use Policy 4F].

**Policy 9B:** Proactively plan for the provision of sufficient capacity to meet the City's future infrastructure needs.

**Connections 2025 Map Policies**

**Industrial/Corporate Park:** This designation applies to areas where present or anticipated uses include both light and heavy industrial uses, such as manufacturing, assembly, and fabrication; wholesaling and distribution; and corporate office and technology parks, which may be introduced to replace older heavy industrial uses. Although new residential development is discouraged in areas designated for this land use category, pre-existing residential uses may be present in or adjacent to these areas. As established industrial areas redevelop, such residential, institutional, or similar uses should be protected from adverse impacts (heavy truck traffic, significant outside storage, factors such as noise, dust, and glare, etc.) through performance-based standards, buffers, and proper separation from noxious uses.

**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.

**Mixed Use Corporate Park –** This designation is intended for large tracts of undeveloped land near the City’s fringe that are appropriate for well planned, larger scale business/employment parks with supporting uses such as retail, hotels, and residential. Primary uses such as office, flex office, technology research and development, light manufacturing, distribution, and assembly should be placed in a campus-like or “corporate park” setting with generous, linked open space to maximize value and to promote visual quality and compatibility with the surrounding area. Pedestrian-friendly features such as buildings placed near the street, sidewalks, and trails leading to nearby uses such as retail and housing should be encouraged.

**Growth Tier 1, Current Growth Area (2013 – 2019) –** Where infrastructure systems are in place, can be economically provided and/or will be proactively extended and where continued annexation and consolidation of the City’s development pattern shall be encouraged over the next six years.

**Reinvestment Corridor:** Reinvestment Areas and Corridors represent priority opportunities for combined public and private sector reinvestment and the application of policies described in Section 4.5.1 (Reinvestment/Infill). More specifically, Reinvestment Corridors are older commercial corridors that would benefit from significant public and private investment to enhance their economic viability and strengthen adjacent neighborhoods.

**CONFORMITY WITH OTHER PLANS****City Plans*****Consolidated Plan 2010-2014: Plan for a Resilient Community*****Principle 1 – Provide More Transportation Options:**

**Goal A:** Promote transportation and development patterns and types that contribute to decreased household transportation costs.

**Goal B:** Improve access to destinations, especially via alternate modes (public transit, walking, and bicycling); including the critical first and last miles of journeys.

**Goal C:** Improve the safety of transportation systems and facilities, especially for vulnerable transportation users (children, seniors, handicapped adults, pedestrians, bicyclists).

**Principle 3 – Enhance Economic Competitiveness:**

**Goal E:** Focus on energy efficiency as an economic generator for small business development.

**Principle 6 – Value Communities and Neighborhoods:**

**Goal A:** Promote coordinated transportation and land use decisions for broader livability throughout Greensboro.

**Goal E:** Work at the neighborhood level to reconnect neighborhoods to jobs and services, promote "Desirable Infill Development" and redevelop major corridors to strengthen adjacent neighborhoods.

**Principle 7 – Recognize the Environment as a Critical Element of Community**

**Sustainability:**

**Goal A:** Promote more efficient land development patterns.

***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 annexation, rezoning, and development with owners of surrounding properties.

The subject site is located within the area(s) eligible for the following economic development incentive or assistance program(s):

- New Markets Tax Credits (federal).

### **Staff Analysis**

This 24.32-acre subject site is currently undeveloped. North and east of the request the zoning is County AG (undeveloped). West of the subject property is zoned County AG (undeveloped and single family dwellings). South of the request the zoning transitions to County-CU-HB (undeveloped).

The Generalized Future Land Use Map designates this site as Mixed Use Commercial and Industrial Corporate Park. The Mixed Use Commercial 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. The Industrial Corporate Park designation applies to areas where present or anticipated uses include both light and heavy industrial uses, such as manufacturing, assembly, and fabrication; wholesaling and distribution; and corporate office and technology parks, which may be introduced to replace old heavy industrial uses.

Though the broader pattern of development in the area around the requested site is more rural in character, there are several factors that lend support non-residential uses at this location. First, the high volume of traffic utilizing Burlington Road (a connector for Burlington and Greensboro) and the proximity of this location to the I-840 loop. Second, the lack of retail and services in close proximity to the McLeansville community. Lastly, the proximity of the site to land to the south already designated for highway business uses and undeveloped properties to the north, west and east that will not be significantly impacted by the potential list of uses under consideration for the site.

The proposed request supports the Comprehensive Plan's Growth at the Fringe goal to provide a development framework for the fringe that guides sound, sustainable patterns of land use, limits sprawl, protects rural character, evidences sound stewardship of the environment, and provides for efficient provision of public services and facilities as the City expands and the Economic development goal to promote a healthy and diversified economy.

This 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 **City-CD-C-H** (Conditional District-Commercial-High) zoning district.

## Additional Information

### Willowlake Road Development, Greensboro, NC – Transportation Impact Analysis

Prepared for Kotis Properties, Inc.

Revised: January 23, 2015

Original: August 26, 2014

#### *Introduction*

The proposed Willowlake Road Development is located at the northeast quadrant of the intersection of US 70 (Burlington Road) and Willowlake Road in eastern Greensboro, North Carolina. This site is adjacent to the Greensboro Urban Loop (I-840), which will ultimately be extended to the north of US 70 and will complete a 44-mile loop around the city. As currently planned, this development will ultimately consist of a total of 179,000 square feet of shopping center, a convenience market/gas station with 14 fueling positions, a drive-in bank, and 12,000 square feet of general office building. The sketch plan proposes one (1) right in right out access on US 70 and two (2) full accesses on Willowlake Road. Figure 1 shows the sketch plan in the report.

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:

- US 70 (Burlington Road) & I-840 Northbound Ramps
- US 70 (Burlington Road) & I-840 Southbound Ramps
- US 70 (Burlington Road) & Site Access 1 (right-in right-out)
- Willowlake Road & US 70 (Burlington Road)
- Willowlake Road & Site Access 2
- Willowlake Road & Site Access 3

The above-mentioned intersections were analyzed for the following scenarios:

- 2014 Existing Conditions
- 2020 Future No Build Conditions
- 2020 Future Build Conditions
- 2020 Future Build Conditions with Improvements

The planned build-out year for this development is 2019. A study year of 2020 (build-out plus one year) was used for analysis purposes based on Greensboro Department of Transportation (GDOT) typical standards. The AM (7-9 am) and PM (4-6 pm) peaks were studied.

This Transportation Impact Analysis (TIA) was carried out based on Greensboro Department of Transportation (GDOT) typical standards. Information regarding the property was provided by the developer, Kotis Properties, Inc.

#### *Discussion of Results*

The results of the study are discussed by intersection below:

##### ***US 70 (Burlington Road) at I-840 Northbound Ramp***

This unsignalized intersection currently operates at LOS F during AM and PM peaks. In 2020 future no build conditions and with committed improvements in place as a result of TIP Project U-2525B, LOS C is expected in AM and PM peaks. With the addition of proposed site traffic, LOS C is expected in AM and PM peaks. No additional improvements are recommended at this intersection.



**US 70 (Burlington Road) at I-840 Southbound Ramp**

This unsignalized intersection currently operates at LOS B during the AM peak and LOS C during the PM peak. In 2020 future no build conditions and with committed improvements in place as a result of TIP Project U-2525B, LOS B is expected in AM and PM peaks. With the addition of proposed site traffic, LOS B is expected in AM and LOS C in PM peaks. No additional improvements are recommended at this intersection.

**US 70 (Burlington Road) at Site Access 1**

In 2020 future build out conditions, LOS A is expected in the AM peak and LOS B in the PM peak. The need for an auxiliary right turn lane was determined based on the figure titled “Warrant for Left and Right Turn Lanes” on page 80 of the NCDOT “Policy on Street and Driveway Access to North Carolina Highways” and based on page 24 of the GDOT Driveway Manual. Based on the projected traffic volumes, 200 feet of right turn storage is warranted at this access. In order to facilitate right in / right out access, it is recommended to provide a westbound right turn lane on US 70 (Burlington Road) with 200 feet of storage and appropriate taper, and extend the existing median island on US 70 to Willowlake Road. It is also recommended to locate this access 300 feet east of Willowlake Road to enhance weaving and provide adequate spacing from I-840 interchange.

A lane weaving analysis was performed using HCS+ software to review the conditions of traffic traveling westbound on US 70 and weaving across two (2) lanes in order to make a right turn into this site access. With the above recommendations in place, this analysis indicates LOS B during AM and PM peaks. Additionally, westbound US 70 traffic will have the opportunity to turn right onto Willowlake Road in order to reach the site.

**US 70 (Burlington Road) at Willowlake Road**

This unsignalized intersection currently operates at LOS F during the AM peak and LOS E during the PM peak. This LOS F condition is due to a lack of sufficient gaps for left-turning vehicles from the stop-controlled approach, which is the result of heavy traffic volumes on US 70. In 2020 future no build conditions and with committed improvements in place as a signalized intersection, LOS B is expected in AM and LOS A in PM peaks. With the addition of proposed site traffic, LOS E is expected in AM and LOS F in PM peaks, and queuing issues are expected on the southbound approach of Willowlake Road. In order to mitigate these LOS F and queuing issues, we recommend the following improvements:

- Modify the signal and coordinate with adjacent traffic signals
- Provide two (2) southbound left turn lanes on Willowlake Road with 250 feet of storage and appropriate taper
- Provide a westbound right turn lane on US 70 with 100 feet of storage and appropriate taper
- Restripe the westbound right turn lane to a through lane on US 70
- Provide a westbound merge lane on US 70 west of Willowlake Road with appropriate length of full lane and appropriate taper length

With these improvements in place, LOS C is expected in the AM and PM peaks, and queues are expected to be contained by provided storage bays. The Synchro analysis indicates an eastbound left turn 95<sup>th</sup> percentile queue of 165 feet and 306 feet during AM and PM peaks, respectively. This can be accommodated by the existing two way left turn lane on US 70.

NCDOT has indicated due to sight distance issues on eastbound US 70 the single left turn lane will need to use a positive offset design. Should this not be possible, NCDOT will require an alternate to install dual left turn lanes.

**Willowlake Road at Site Access 2**

In 2020 future build out conditions, LOS B is expected in the AM peak and LOS F during the PM peak. The need for auxiliary turn lanes was determined based on the figure titled “Warrant for Left and Right Turn Lanes” on page 80 of the NCDOT “Policy on Street and Driveway Access to North Carolina Highways” and based on page 24 of the GDOT Driveway Manual. Based on the projected traffic volumes, 250 feet of right turn storage and 100 feet of left turn storage are warranted at this access. In order to facilitate entry and exit movements at this site access, we recommend the following improvements:

- Provide northbound right turn lane on Willowlake Road with 250 feet of storage and appropriate taper

- Provide southbound left turn lane on Willowlake Road with 100 feet of storage and appropriate taper
- Provide separate left and right turn lanes on westbound approach exiting from Site Access 2

With these improvements in place, the level of service is expected to improve to LOS B in the AM peak and LOS E in the PM peak.

***Willowlake Road at Site Access 3***

In 2020 future build out conditions, LOS B is expected in the AM and PM peaks. Based on the projected traffic volumes, 100 feet of right turn storage is warranted at this access (NCDOT minimum). We recommend providing a northbound right turn lane on Willowlake Road with 100 feet of storage and appropriate taper.

The recommended improvements are illustrated in Figure 9 in the report.

Level of Service Summary

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

Table A - Level of Service Summary				
AM Peak	2014 Existing	2020 Future No Build	2020 Future Build	2020 Future Build with Improvements
US 70 (Burlington Road) at I-840 Northbound Ramp	F (376.8) SB Approach	C (26.4) Signalized	C (28.5)	
US 70 (Burlington Road) at I-840 Southbound Ramp	B (12.9) WB Left	B (17.6) Signalized	B (19.2)	
US 70 (Burlington Road) at Site Access 1			A (9.7) SB Right	A (9.3)
US 70 (Burlington Road) at Willowlake Road	F (139.0) SB Approach	B (13.7) Signalized	E (61.5)	C (20.7)
Willowlake Road at Site Access 2			B (12.1) WB Approach	B (11.3) WB Approach
Willowlake Road at Site Access 3			B (10.1) WB Approach	A (9.8) WB Approach
PM Peak	2014 Existing	2020 Future No Build	2020 Future Build	2020 Future Build with Improvements
US 70 (Burlington Road) at I-840 Northbound Ramp	F (50.1) SB Approach	C (23.2) Signalized	C (25.9)	
US 70 (Burlington Road) at I-840 Southbound Ramp	C (18.4) WB Left	B (16.8) Signalized	C (28.0)	
US 70 (Burlington Road) at Site Access 1			B (14.1) SB Right	B (11.9) SB Right
US 70 (Burlington Road) at Willowlake Road	E (42.1) NB Approach	A (9.8) Signalized	F (154.3)	C (33.5)
Willowlake Road at Site Access 2			F (118.4) WB Approach	E (43.9) WB Approach
Willowlake Road at Site Access 3			B (13.7) WB Approach	B (12.2) WB Approach
LOS (delay in seconds)				
Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay				

Throat Distance Review

The throat distance for each of the site accesses was reviewed based on a traffic simulation internal to the site, using SimTraffic 7 software. This analysis is based on the AM and PM peak trips entering and exiting the site. Table B presents the 95<sup>th</sup> percentile queues for traffic entering each site access, and the recommended storage distance between the adjacent street and the nearest internal driveway or aisle along the access. Note that all accesses should be designed according to GDOT Driveway Manual and NCDOT standards.

Table B – Site Access Throat Queuing				
Site Access	Adjacent Street	SimTraffic 95th Percentile Queue (feet) Inbound Direction		Minimum Recommended Throat Distance (Feet)
		AM Peak	PM Peak	
Site Access 1	US 70	3	3	100
Site Access 2	Willowlake Road	9	54	100
Site Access 3	Willowlake Road	8	19	100



*Summary and Conclusion*

The proposed Willowlake Road Development is located at the northeast quadrant of the intersection of US 70 (Burlington Road) and Willowlake Road in eastern Greensboro, North Carolina. This site is adjacent to the Greensboro Urban Loop (I-840), which will ultimately be extended to the north of US 70 and will complete a 44-mile loop around

the city. As currently planned, this development will ultimately consist of a total of 179,000 square feet of shopping center, a convenience market/gas station with 14 fueling positions, a drive-in bank, and 12,000 square feet of general office building. The sketch plan proposes one (1) right in right out access on US 70 and two (2) full accesses on Willowlake Road. Based on trip generation rates and equations published in Trip Generation (Institute of Transportation Engineers, 9th Edition), this development has a trip generation potential of 588 trips in the AM peak and 1,577 trips in the PM peak. With the effects of pass-by trip reduction, the trip generation potential is 422 net trips in the AM peak and 1,131 net trips in the PM peak.

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.

Based on the analysis, we have recommended modifying the committed signal at the intersection of US 70 and Willowlake Road and providing two (2) southbound left turn lanes, a southbound through/right lane on Willowlake Road, a westbound right turn lane and a westbound through merge lane on US 70 west of Willowlake Road. Based on turn lane warrant criteria, we have recommended an auxiliary right turn lane at the three (3) accesses to facilitate right turns into the site. At Site Access 2 on Willowlake Road, we have also recommended a southbound left turn lane into the site, and separate left and right turn lanes exiting from the site to enhance this egress movement.

The throat distance for each of the site accesses was reviewed based on a traffic simulation internal to the site, using SimTraffic 7 software. Based on the results, an internal throat distance of 100 feet is recommended at each access between the adjacent street and the nearest internal driveway or aisle.

The committed improvement of NCDOT TIP Project U-2525B will modify the I-840/US 70 interchange and signalize the ramp intersections, and is expected to be in place by the analysis year of 2020. This committed improvement is expected to be adequate at the I-840 Northbound and Southbound ramp intersections.

In conclusion, this study has reviewed the impacts of both background traffic and this development traffic, and has determined that with the recommended improvements in place, there will be adequate capacity to accommodate future traffic. Note that all site accesses should be designed to comply with GDOT Driveway Manual and NCDOT design standards.