Transportation Analysis

Clifton Road Mixed Use
DRI #1320
DeKalb County, Georgia

Prepared for:
Cousins Properties / Emory University

March 2007
019335003

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EXECUTIVE SUMMARY

This report presents the analysis of the anticipated traffic impacts associated with the Clifton Road Mixed Use project, a proposed approximate 50-acre mixed use/preservation development (of which approximately 23 acres will remain undeveloped/protected forest) located along Clifton Road to the west of Houston Mill Road in DeKalb County, Georgia. This report is being prepared as part of a submittal requesting a rezoning from DeKalb County. Because the proposed project will contain over 400,000 square feet of mixed-use development, it is considered a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review. This document is being submitted under GRTA's non-expedited review process.

The proposed development is expected to consist of approximately 466 apartment dwelling units, 406 residential condominium/townhouse units, a 200-hotel room expansion (125 hotel rooms are currently programmed with a possible 75 rooms to be added beyond the final build-out in 2011), and 121,103 square feet of retail/program/amenity area. The redevelopment plan calls for some of the existing structures (100 apartments, 102 hotel rooms, and a 20,000 square foot conference center) to be demolished and replaced with the new development. The development is scheduled to be completed in three phases; however, for the purposes of this transportation analysis, the final build-out scenario (year 2011) was analyzed. The potential hotel room additions (up to 200 rooms) were included in the final build-out analysis as well.

The site is currently zoned O&I (Office - Institutional) and is proposed to be rezoned to PC-3 (Pedestrian Community - 3). This mixed-use development will be one of the first of its kind in DeKalb County under the new zoning ordinance, assuming approval. Emory's stated primary motivations for pursuing this development are: (a) to enable employees to live closer to work; (b) to reduce traffic and the negative effects of congestion for the entire area; (c) to provide employees (and area residents) with amenities so that they do not need to use their vehicles during the workday; and (d) to reduce commuting time for employees, thus decreasing overall traffic in and out of DeKalb County and Atlanta.

Emory is proposing to provide incentives to residents of this development to turn in their annual parking permits so that they need not to drive to work, thus reducing traffic flow in the area during peak and non-peak times. Emory plans to designate approximately 20% of the units as housing specifically for those at lower salary levels to enable them to live closer to their place of employment, also reducing traffic and commuting congestion. These and other incentives are expected to have the effect of reducing congestion in the Clifton Community.

The new trip reductions account for approximately 43% of the gross trips generated by the mixed-use development. The reductions utilized include the following: internal capture reductions (between the on-site residential, hotel, and retail uses); alternative mode reductions for those now walking, biking, and taking transit; and pass-by reductions from vehicles already along Clifton Road frequenting the retail component of the development. An additional reduction of background traffic was also applied accounting for the commuting trips to and from the corridor that are no longer expected to occur when employees give up their parking permits at work. Because this is an innovative mixed-use concept, and because few other developments of this nature exist in Atlanta as a precedent, it is likely that even fewer trips will be produced as a result of this project than are assumed in this analysis.

The results of the detailed intersection analysis for the 2011 No-Build Conditions and 2011 Build Conditions identify suggested improvements that will be necessary in order to maintain the Level of Service standard within the study network. As identified in the Existing and No-Build analyses, the study network is currently over capacity and in need of numerous roadway improvements in order to meet the standard acceptable Levels of Service. Improvements required solely as a result of the proposed development are limited primarily to intersections in the immediate vicinity of the project, reflecting the impact by the developer to reduce vehicle trips associated with the development. Some of the intersections identified as deficient in the Build scenario are expected to be close to failing in the No-Build scenario; consequently, minimal volumes generated by the mixed-use development would cause these intersections to operate below the Level of Service standard. All No-Build and Build improvements are listed below.

2011 No-Build recommended improvements (includes background traffic growth but does not include the Clifton Road Mixed Use DRI project traffic):

Briarcliff Road @ Lavista Road; Briarcliff Road @ Shepherds Lane; Briarcliff Road @ Clifton Road (Intersection #1, #2, and #3)

- Widen Briarcliff Road to two lanes in each direction from Lavista Road to Clifton Road
  - Taper back to one through lane in each direction to the north of Lavista Road
  - Convert existing northbound and southbound right-turn lanes to shared through/right-turn lanes to reduce the total widening
- Widen Lavista Road to two through lanes in each direction and taper back to one lane in each direction on either side of Briarcliff Road
- Add a second westbound right-turn lane (creating dual right-turn lanes) along Clifton Road at Briarcliff Road
- Convert the inside southbound through lane along Briarcliff Road at Clifton Road to an exclusive southbound left-turn lane (creating dual left-turn lanes with protected-only phasing)
- Construct a median from immediately north of Clifton Road past Shepherds Lane to prohibit all northbound left turns onto Shepherds Lane (as well as eastbound left turns from Shepherds Lane onto Briarcliff Road)
- Construct an additional northbound left-turn lane (creating dual left-turn lanes) along Briarcliff Road at Lavista Road to accommodate the additional traffic prohibited at Shepherds Lane

(DeKalb County is currently studying the Briarcliff Road corridor in pursuit of a long-range plan. The modifications listed above are consistent with recommendations currently being considered by the county.)

Briarcliff Road @ N. Decatur Road (Intersection #4)

- Widen to two lanes in each direction along Briarcliff Road
  - Either taper back to one lane in each direction on either side of N. Decatur Road or extend widening to the north and south to meet existing four-lane sections at Clifton Road to the north and near Chalmette Drive to the south

Houston Mill Road @ Mason Mill Road (Intersection #6)

- Add a southbound left-turn lane along Houston Mill Road

N. Decatur Road @ Clifton Road (Intersection #9)

- Construct a westbound right-turn lane along N. Decatur Road

2011 Build site driveway recommendations/configuration (includes background traffic growth as well as the Clifton Road Mixed Use DRI project traffic):

Houston Mill Road @ Mason Mill Road (Intersection #6)

- Add a northbound right-turn lane along Houston Mill Road

Clifton Road @ Houston Mill Road (Intersection #7)

- Add a second northbound left-turn lane from Clifton Road to Houston Mill Road (toward the CDC)

Clifton Road @ Site Driveway 1 / CDC Main Entrance (Intersection #11)

- Construct an eastbound left-turn lane on Clifton Road (access for Site Driveway 1)
- Construct an eastbound right-turn lane on Clifton Road (access for CDC)

1.0 PROJECT DESCRIPTION

1.1 Introduction

This report presents the analysis of the anticipated traffic impacts associated with the proposed Clifton Road Mixed Use project, a proposed approximate 53-acre mixed use/preservation development located along Clifton Road west of Houston Mill Road in DeKalb County. This report is being prepared as part of a submittal requesting a rezoning from DeKalb County. Because the project will contain over 400,000 square feet of development, it is considered a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review. This document is being submitted under GRTA's non-expedited review process.

The proposed development is expected to consist of approximately 466 apartment dwelling units, 406 residential condominium/townhouse units, a 200-hotel room expansion (125 hotel rooms are currently programmed with a possible 75 rooms to be added beyond the final build-out in 2011), and 121,103 square feet of retail/program/amenity area. The development is scheduled to be completed in three phases. However, for the purposes of this transportation analysis, the final build-out scenario (Year 2011) was analyzed. The site is currently zoned O&I (Office - Institutional) and is proposed to be rezoned to PC-3 (Pedestrian Community - 3). The redevelopment plan calls for some of the existing structures (100 apartments, 102 hotel rooms, and a 20,000 square-foot conference center) to be demolished and replaced with the new development. A summary of the proposed land-uses and densities is provided below in **Table 1.**

Table 1
Clifton Road Mixed Use DRI
Proposed Land Uses

Apartment	466 dwelling units
Condominium/Townhouse	406 dwelling units
Hotel	200 rooms
Retail	121,103 square feet

Figure 1 and **Figure 2** provide a site location map and an aerial photograph of the site.

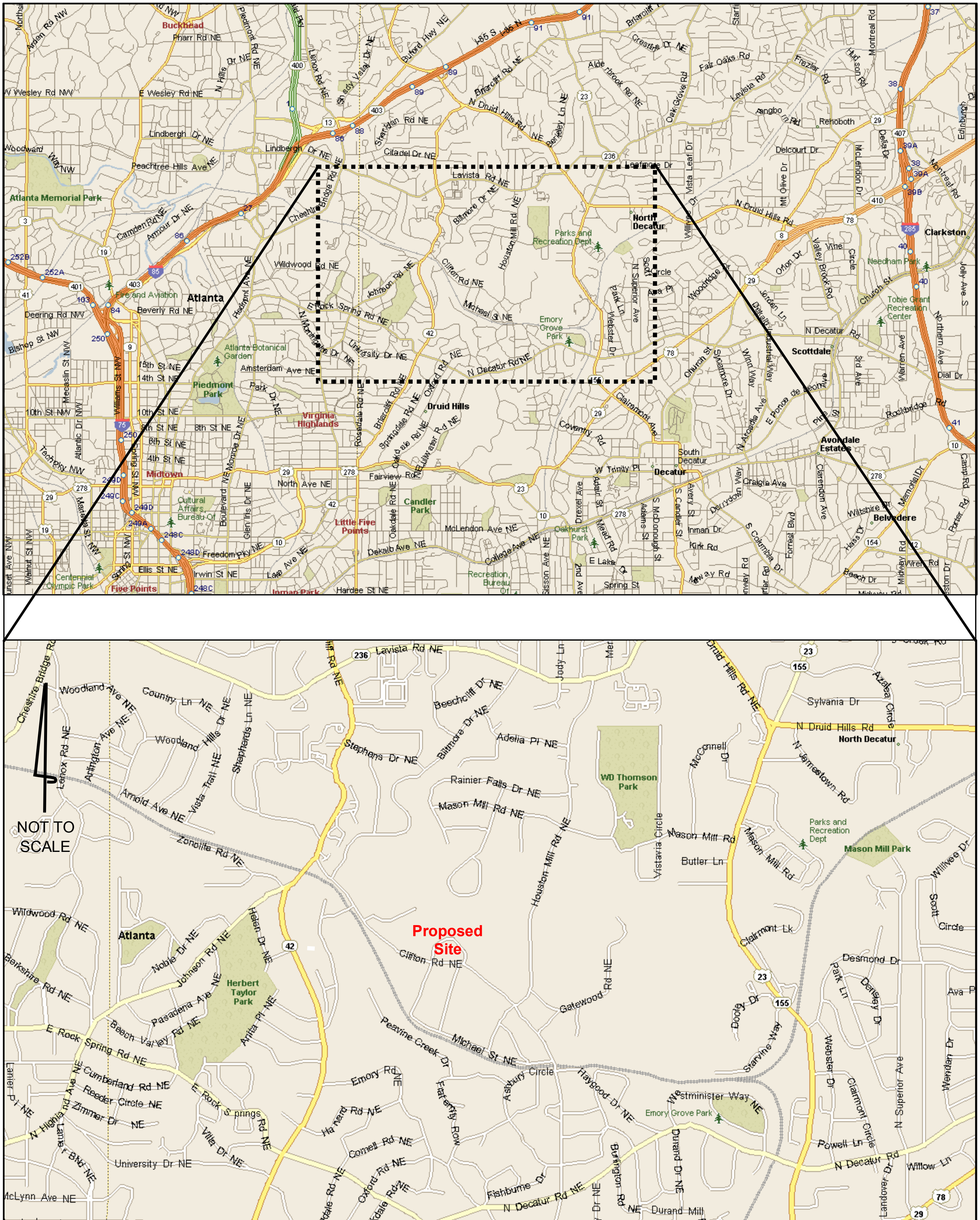
1.2 Site Plan Review

The proposed development is a 53-acre mixed-use/preservation development comprised of residential, hotel, and retail uses with self-contained parking bounded by Clifton Road on the south, protected forests on the north, Houston Mill Road on the east, and protected forests on the west. Approximately 22 acres of the site is to be developed with the remaining 31 acres remaining undisturbed. Three site driveways provide access to the site and are connected by an internal street. Sidewalks, planting buffers, and on-street parking are proposed along the driveways and the internal road where appropriate.

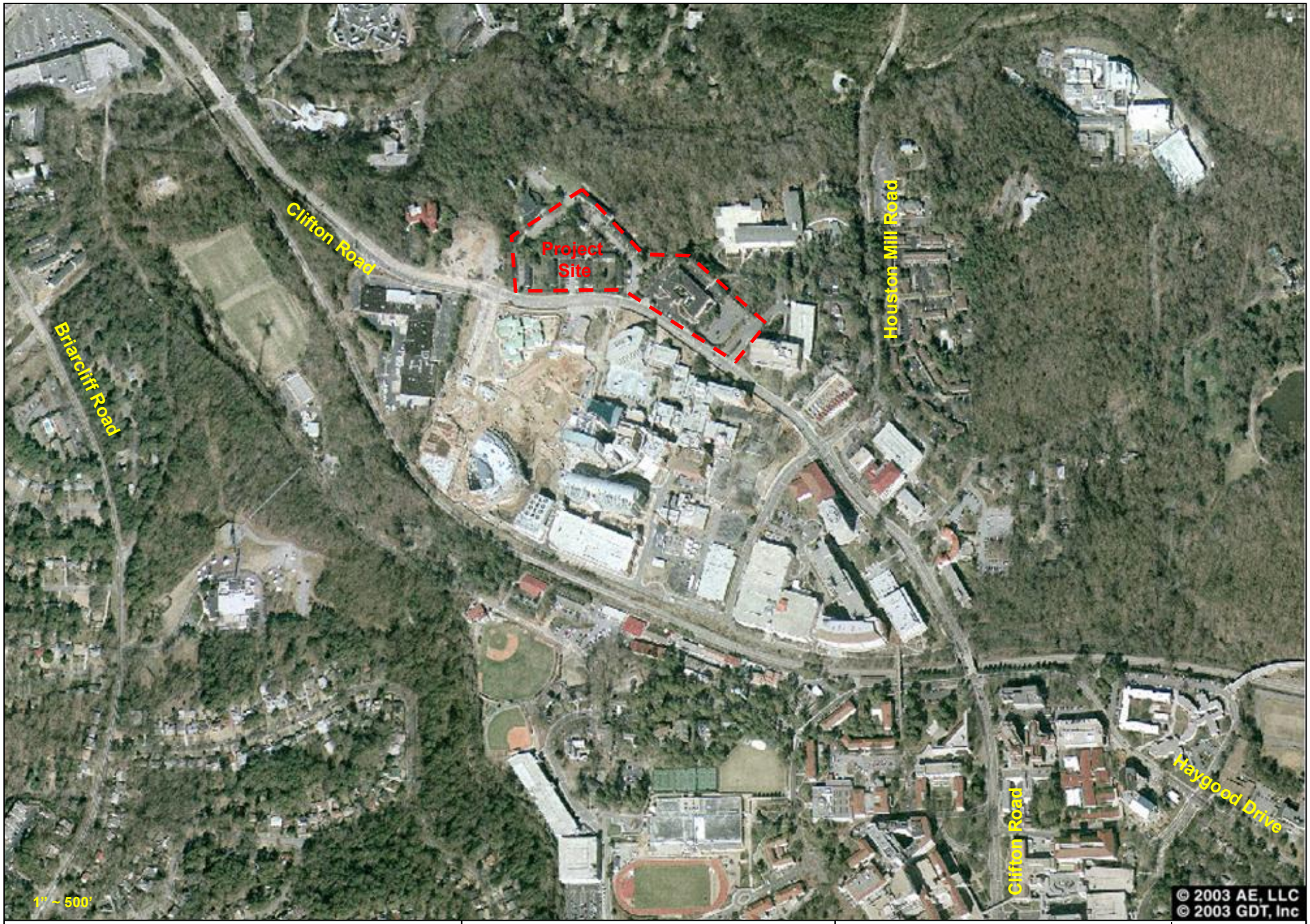
Figure 3 is a small-scale copy of the site plan. A full-size site plan consistent with GRTA's Site Plan Guidelines is also being submitted as part of the DRI Review Package.

1.3 Site Access

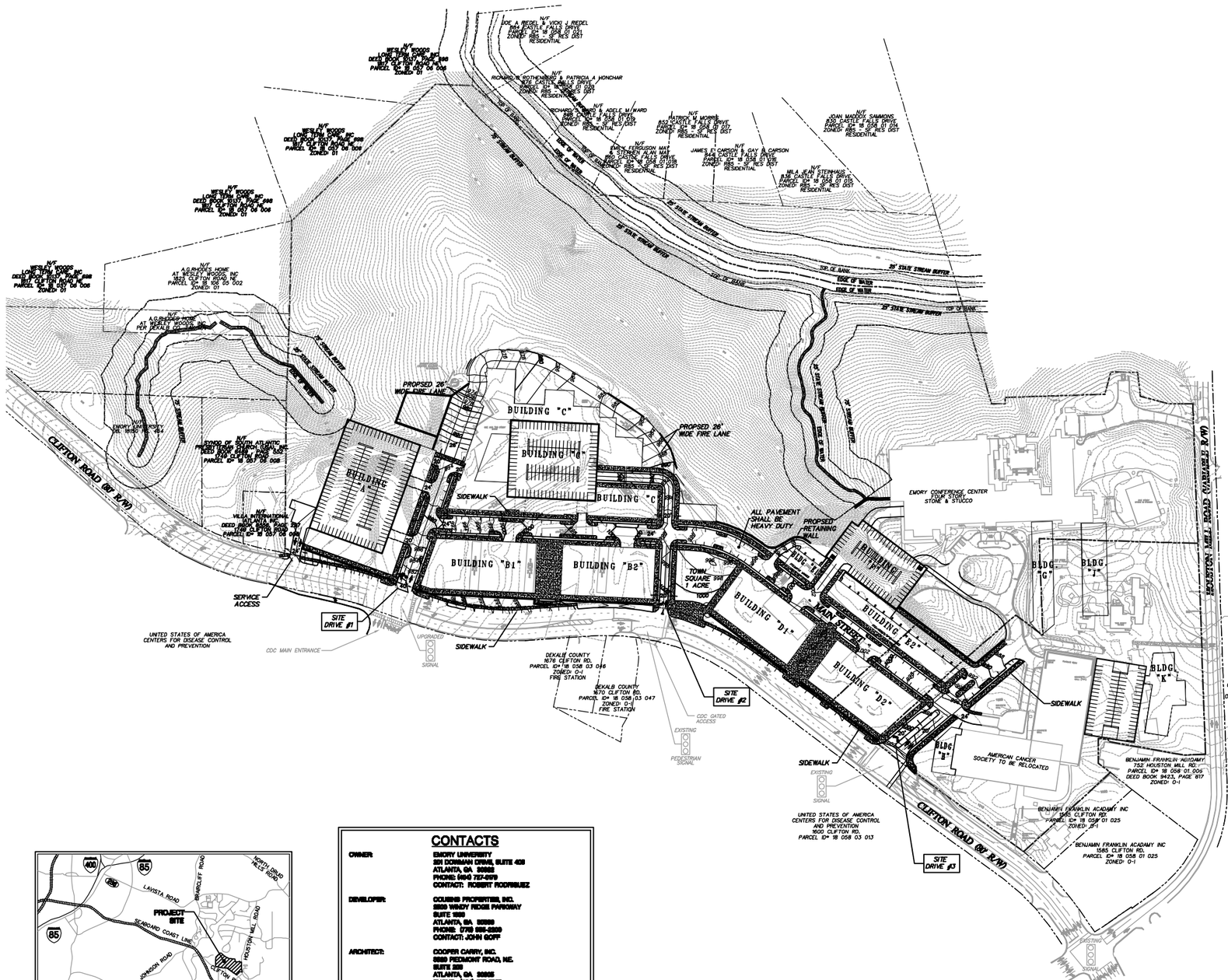
Access to the development will be provided at three site driveways along Clifton Road, all of which exist currently (with some relocation and upgrades). The first site driveway currently exists as an unsignalized driveway, providing access to the Turner Lane development. However, this driveway is approximately 150 feet east of the signalized intersection of Clifton Road at the Centers for Disease Control and Prevention (CDC) main entrance. As part of the site redevelopment, this driveway will be realigned with the CDC main entrance and will

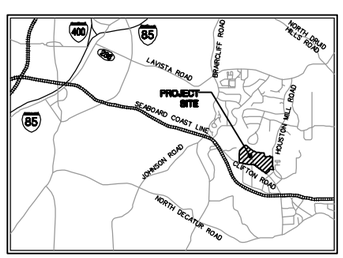


Kimley-Horn and Associates, Inc.	**Clifton Road Mixed Use DRI Transportation Analysis**	**Site Location**	**Figure 1**



Kimley-Horn and Associates, Inc.	Clifton Road Mixed Use DRI Transportation Analysis	Aerial Photograph	Figure 2





LOCATION MAP

CONTACTS

OWNER:
EMORY UNIVERSITY
201 DOWMAN DRIVE, SUITE 409
ATLANTA, GA 30322
PHONE: (404) 727-0179
CONTACT: ROBERT RODRIGUEZ

DEVELOPER:
COUSINS PROPERTIES, INC.
2500 WINDY RIDGE PARKWAY
SUITE 1600
ATLANTA, GA 30339
PHONE: (770) 955-2200
CONTACT: JOHN GOFF

ARCHITECT:
COOPER CARRY, INC.
3520 PIEDMONT ROAD, NE.
SUITE 225
ATLANTA, GA 30305
PHONE: (404) 237-2030
CONTACT: LYLE GREEN

CIVIL ENGINEER:
SOUTHERN CIVIL ENGINEERS, INC.
3026 ROYAL BOULEVARD SOUTH
SUITE 120
ALPHARETTA, GA 30022
PHONE: (770) 518-4260
FAX: (770) 518-4270
CONTACT: RODNEY D. RHEW

NOTES:

1. BUILDING FOOTPRINT IS BASED ON ARCHITECTURAL FILES DATED FEBRUARY 02, 2007
2. NO PROPOSED BIKE LANES/TRAILS.

SITE DATA

ZONING:
- EXISTING: O-I
- PROPOSED: PC-5

SITE AREA: 46.77 ACRES
- GROSS AREA (FOR OUR CALCS): 46.65 ACRES
- DEVELOPED AREA: 37.70 ACRES

PROPOSED LAND USE: MIXED USE

TOTAL BUILDING AREA: 1,417,000 SF
- RESIDENTIAL: 1,071,000 SF (972 UNITS)
- RETAIL: 53,000 SF
- HOTEL: 293,000 SF

PHASE 1

BUILDING A1 (MIXED USE): 160,000 SF
- BUILDING HEIGHT: 12 STORIES
- RESIDENTIAL: 139,000 SF (99 UNITS)
- RETAIL: 15,000 SF

BUILDING A2 (MIXED USE): 134,000 SF
- BUILDING HEIGHT: 12 STORIES
- RESIDENTIAL: 134,000 SF (128 UNITS)

BUILDING B1 (MIXED USE): 191,000 SF
- BUILDING HEIGHT: 5 STORIES
- RESIDENTIAL: 134,000 SF (99 UNITS)
- RETAIL: 37,000 SF

BUILDING B2 (MIXED USE): 114,000 SF
- BUILDING HEIGHT: 5 STORIES
- RESIDENTIAL: 94,000 SF (76 UNITS)
- RETAIL: 20,000 SF

BUILDING C (RESIDENTIAL): 359,000 SF
- BUILDING HEIGHT: 5 STORIES
- RESIDENTIAL: 357,200 SF (310 UNITS)
- RETAIL: 1,800 SF

PHASE 2

BUILDING D1 (MIXED USE): 114,000 SF
- BUILDING HEIGHT: 5 STORIES
- RESIDENTIAL: 94,000 SF (76 UNITS)
- RETAIL: 20,000 SF

BUILDING D2 (MIXED USE): 160,000 SF
- BUILDING HEIGHT: 5 STORIES
- RESIDENTIAL: 66,000 SF (60 UNITS)
- RETAIL: 94,000 SF

BUILDING E1 (ATT. SINGLE FAMILY): 13,000 SF
- RESIDENTIAL: 13,000 SF (5 UNITS)

BUILDING E2 (ATT. SINGLE FAMILY): 49,000 SF
- RESIDENTIAL: 49,000 SF (14 UNITS)

PHASE 3

BUILDING G (HOTEL): 150,000 SF
- BUILDING HEIGHT: 5 STORIES
- HOTEL: 150,000 SF (125 UNITS)

BUILDING H (RETAIL/PARKING): 127,000 SF
- BUILDING HEIGHT: 5 STORIES
- RETAIL: 8,000 SF

BUILDING J (HOTEL): 68,000 SF
- HOTEL: 68,000 SF (60 UNITS)

BUILDING K (HOTEL): 93,000 SF
- HOTEL: 93,000 SF (85 UNITS)

FAR: 0.45
- DEVELOPED AREA FAR: 1.03
- RESIDENTIAL UNITS/ACRE: 13.91

PARKING SPACES REQUIRED: 2,502 SPACES

OPEN SPACE:
- PROTECTED FOREST: 22.35 ACRES
- PARKS & SQUARES: 5.15 ACRES

PROPOSED PARKING: 2,502 SPACES

EXISTING LAND USE: HOTEL

BUILDING G (HOTEL): 57,000 SF
- HOTEL: 293,000 SF

BUILDING H (OFFICE): 150,000 SF
- OFFICE: 150,000 SF (5 STORIES)

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

NORTH

Kimley-Horn and Associates, Inc.
817 WEST PEACHTREE ST. NW
SUITE 501
ATLANTA, GEORGIA 30308-1121
Tel (404) 419-8700
Fax (404) 419-8701

NO.	REVISIONS	DATE	BY

CLIFTON ROAD MIXED USE
1703 CLIFTON ROAD

DRI SITE PLAN

EMORY UNIVERSITY
201 DOWMAN DRIVE
SUITE 409
ATLANTA, GA 30322
CONTACT: ROBERT RODRIGUEZ

COUSINS PROPERTIES INC.
2500 WINDY RIDGE PARKWAY
SUITE 1600
ATLANTA, GA 30339
CONTACT: JOHN GOFF

SCALE (H):	1"=100'
SCALE (V):	NONE
DESIGNED BY:	LW
DRAWN BY:	LW
CHECKED BY:	CP
DATE:	03/21/07
KHA PROJECT NO.:	013535003

SHEET NUMBER
1-00

Drawing name: I:\013535003_CliftonRd_DRI\CADD\Site Plan\Design\Site Plan.dwg SITE PLAN Mar 22, 2007 3:55pm by: luke.wennette

be operated by an upgraded (four-leg) signal. The traffic signal at the CDC gated entrance, located approximately 600 feet east of the main entrance, serves primarily as a pedestrian signal with occasional use for the CDC and the adjacent fire station, and is rarely utilized. The second site driveway is located across from this CDC entrance and currently operates as a full-movement unsignalized driveway. The second site driveway will be reconstructed as a right-in/right-out driveway at an unsignalized approach. The third and final site driveway is the existing signalized approach for the Emory Conference Center and Hotel. This site driveway will remain in its current location (approximately 600 feet from the CDC gated entrance) with minor upgrades where necessary.

1.4 Bicycle and Pedestrian Facilities

Sidewalks currently exist along the north side of Clifton Road, adjacent to the development. All sidewalks and buffers will be maintained or upgraded along with the addition of some on-street parking on the north side of Clifton Road to activate the street-level retail. All roadways internal to the site will have a 10' sidewalk and a 5' planting strip on both sides. Site Driveway 1, Site Driveway 3, and the internal main street will also include on-street parking as an amenity to the ground floor retail as well as a pedestrian safety enhancement.

1.5 Transit Facilities

The proposed development is located along Clifton Road across the street from the CDC and to the north of Emory's main campus. Additionally, the site is located within the Clifton Corridor TMA (CCTMA). Currently, two MARTA bus routes access the site: Route 6 and Route 245. Route 6 connects the Lindbergh rail station and the Inman Park Station on 20- to 40-minute headways. Route 245 (a Blue Flyer express bus route) connects the Lindbergh rail station and the Kensington rail station on 15- to 20-minute headways.

In addition to the MARTA bus routes, the proposed development is along multiple other bus routes operated by Emory's "Cliff" system. The Executive Park shuttle operates on 45- to 50-minute headways and connects the Executive Park (North Druid Hills Road) with the Emory University Hospital. The CCTMA / Decatur shuttle operates on 20- to 30-minute headways and connects the Emory Conference Center and Hotel with the Decatur MARTA rail station. Finally, Shuttle Route A (10- to 20-minute headways) connects Old Briarcliff Way with Lowergate Drive. The proposed development will have three stops within the development along the Cliff route, with one stop at the Emory Conference Center and Hotel, and two stops near Site Driveways 1 and 2.

Emory is committed to numerous transportation enhancements including shuttle system improvements. Such improvements include the rebranding of the shuttle system, revised routes to more locations, better signage, an Automated Vehicle Location (AVL) system, free shuttle service for all patrons, and the addition of Park-n-Ride facilities at the North DeKalb, Northlake, and South DeKalb Malls. These improvements, along with enhanced pedestrian facilities, are expected to provide more incentive for students, faculty, staff, and even visitors to take transit.

2.0 TRAFFIC ANALYSIS METHODOLOGY AND ASSUMPTIONS

2.1 Growth Rate

Background traffic is defined as expected traffic on the roadway network in future year(s) absent the construction and opening of the proposed project. Historical traffic count data from the Georgia DOT was reviewed for the area surrounding the proposed development, and a growth rate of 2% per year for four years along all adjacent roadways was agreed upon during the pre-application meeting with GRTA, ARC, GDOT and DeKalb County staff as consistent with other area traffic studies. Upon review of the CDC's master-planned expansion for 2009, which will add an approximate 500 employees to the campus, revised growth rates were proposed at significantly affected intersections. A 4% per year growth rate was proposed at the intersection of Clifton Road and the CDC's main entrance (for movements entering and exiting the CDC), and a growth rate of 3% per year was proposed for the following intersections: Briarcliff Road at Clifton Road, Clifton Road at Houston Mill Road, and Clifton Road at Haygood Drive / Asbury Circle as well as the through movements along Clifton Road at Site Driveways 2 and 3.

2.2 Traffic Data Collection

Year 2007 weekday peak hour turning movement counts were conducted in February and March, 2007, at eleven signalized intersections and two unsignalized intersection during the AM and PM peak periods.

The morning and afternoon peak hours varied between the ten (10) study intersections and are listed below:

- Briarcliff Road @ Lavista Road (AM Peak 7:45-8:45, PM Peak 5:00-6:00)
- Briarcliff Road @ Shepherds Lane (AM Peak 7:45-8:45, PM Peak 5:00-6:00)
- Briarcliff Road @ Clifton Road (AM Peak 7:30-8:30, PM Peak 4:45-5:45)
- Briarcliff Road @ N. Decatur Road (AM Peak 7:45-8:45, PM Peak 5:15-6:15)
- Houston Mill Road @ Lavista Road (AM Peak 7:30-8:30, PM Peak 5:00-6:00)
- Houston Mill Road @ Mason Mill Road (AM Peak 7:45-8:45, PM Peak 5:00-6:00)
- Houston Mill Road @ Clifton Road (AM Peak 8:00-9:00, PM Peak 4:30-5:30)
- Haygood Drive @ Clifton Road (AM Peak 7:30-8:30, PM Peak 5:15-6:15)
- N. Decatur Road @ Clifton Road (AM Peak 7:45-8:45, PM Peak 5:15-6:15)
- N. Decatur Road @ Haygood Drive (AM Peak 7:45-8:45, PM Peak 5:15-6:15)
- Clifton Road @ Turner Lane West/CDC Main Entrance (AM Peak 8:00-9:00, PM Peak 4:30-5:30)
- Clifton Road @ CDC Gated Driveway/Turner Lane East (AM Peak 8:00-9:00, PM Peak 4:30-5:30)
- Clifton Road @ Emory Conference Center and Hotel (AM Peak 7:45-8:45, PM Peak 4:30-5:30)

These study intersections are listed in *Section 3.4 Study Network Determination*.

All raw count data is included in the Appendix.

2.3 Detailed Intersection Analysis

Level of Service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. LOS analyses were conducted at all intersections within the study network using *Synchro Professional, Version 6.0*.

Levels of service for signalized intersections are reported for the intersection as a whole. One or more movements at an intersection may experience a low LOS, while the intersection as a whole may operate acceptably.

Levels of service for unsignalized intersections, with stop control on the minor street only, are reported for the side street approaches. Low levels of service for side street approaches are not uncommon, as vehicles may experience delay in turning onto a major roadway.

3.0 STUDY NETWORK

3.1 Gross Trip Generation

As stated earlier, the proposed development is expected to consist of 466 apartment dwelling units, 406 residential condominium/townhouse units, 200 hotel rooms and 121,103 square feet of retail area.

Traffic projections for these land uses were calculated using equations contained in the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Seventh Edition, 2003*. Average rates were used only when equations were not provided. Gross trips generated are displayed below in **Table 2**.

Table 2
Clifton Road Mixed Use DRI
Gross Trip Generation

Land Use	ITE Code	Daily Traffic		AM Peak Hour		PM Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2011)							
466 Apartment Dwelling Units	*220*	1,476	1,476	46	186	178	96
406 Condo/Townhouse Units	*230*	1,056	1,056	27	131	127	63
200 Hotel Rooms	*310*	708	708	59	38	63	55
121,103 SF Retail	*820*	3,846	3,846	107	69	341	369
		7,086	**7,086**	**239**	**424**	**709**	**583**

3.2 Trip Distribution

The anticipated directional distribution and assignment of new project trips was based on a review of the land uses in the area (aerial mapping), engineering judgment, and methodology discussions with GRTA, ARC, GDOT, and DeKalb County staff.

3.3 Level of Service Standards

For the purposes of this traffic analysis, an LOS standard of D was assumed for all intersections and segments within the study network. If, however, an intersection or segment currently operates at LOS E or LOS F conditions during an existing peak period, the LOS standard for that peak period becomes E, consistent with GRTA's Letter of Understanding.

3.4 Study Network Determination

A general study area was determined using GRTA's 7% rule. This rule recommends that all intersections and segments be analyzed which are impacted to the extent that the traffic from the proposed site is 7% or more of the service volume of the facility (at a previously established LOS standard, typically LOS D) be considered for analysis. The study area was agreed upon during methodology discussions with GRTA, ARC, GDOT, and DeKalb County staff, and includes the following intersections as stated in the Letter of Understanding:

- Briarcliff Road @ Lavista Road (Signalized)
- Briarcliff Road @ Shepherds Lane (Unsignalized)
- Briarcliff Road @ Clifton Road (Signalized)
- Briarcliff Road @ N. Decatur Road (Signalized)
- Houston Mill Road @ Lavista Road (Signalized)
- Houston Mill Road @ Mason Mill Road (Signalized)
- Houston Mill Road @ Clifton Road (Signalized)

- Haygood Drive @ Clifton Road (Signalized)
- N. Decatur Road @ Clifton Road (Signalized)
- N. Decatur Road @ Haygood Drive (Signalized)
- Clifton Road @ Turner Lane West (Site Driveway 1)* (Unsignalized)
- Clifton Road @ CDC Main Entrance* (Signalized)
- Clifton Road @ CDC Gated Driveway/Turner Lane East (Site Driveway 2)** (Unsignalized)
- Clifton Road @ Emory Conference Center and Hotel (Site Driveway 3) (Signalized)

* The intersections of Clifton Road @ Turner Lane West (Site Driveway 1) and Clifton Road @ CDC Main Entrance are located approximately 150' apart from one another. The CDC main entrance is signalized; however, Turner Lane is not controlled by this signal. While the two driveways were counted as one intersection, they were modeled separately in Synchro during the Existing and No-Build Conditions. Due to the realignment of Turner Lane West (Site Driveway 1) with the CDC main entrance as part of the construction of the development, they are analyzed as one signalized intersection during the Build Condition.

** The signal included here operates the gated CDC driveway as well as the adjacent fire station. Because neither is usually active, the signal operates freely, primarily as a pedestrian signal. Additionally, Turner Lane East (Site Driveway 2) is an unsignalized side street that is directly across Clifton Road from the CDC and fire station. For these reasons, the intersection of Clifton Road at Site Driveway 2 was analyzed as an unsignalized intersection for the Existing, No-Build, and Build Conditions.

Each of the above listed intersections was analyzed for the Existing 2007 Conditions, the 2011 No-Build Conditions, and the 2011 Build Conditions. The 2011 No-Build Conditions represent the existing traffic volumes grown at 2% per year for four years (3% per year or 4% per year at the specific intersections listed previously). The 2011 Build Conditions add the projected trips associated with the Clifton Road Mixed Use DRI development to the 2011 No-Build Conditions. Additionally, trips on the first two site driveways were removed during the Build scenario because all related existing uses will be demolished. However, to be conservative the trips associated with the existing land uses were not removed from the remaining intersections in the study network. Because the three site driveways exist currently, they were analyzed during the Existing and No-Build Conditions as they currently exist and in the Build Condition as redesigned.

3.5 Existing Facilities

Clifton Road

- Clifton Road is a two-way, four-lane undivided roadway oriented in the east-west direction in the vicinity of the proposed development. Clifton Road starts at Briarcliff Road north of the proposed development and runs southeast past the proposed development turning south to intersect N. Decatur Road, after which it continues south past Ponce de Leon Avenue (US 29/278) and into Downtown Atlanta. Clifton Road is classified as an Urban Collector Street between Briarcliff Road and N. Decatur Road, and an Urban Local Street south of N. Decatur Road to Ponce de Leon Avenue. Clifton Road has a posted speed limit in the vicinity of the proposed development of 35 MPH. No GDOT historical count data is available along Clifton Road in the vicinity of the project.

Briarcliff Road

- Briarcliff Road is a two-way, two-lane undivided roadway (with short four-lane segments from Shepherds Lane to near Johnson Road and south of Chalmette Drive) oriented north-south in the vicinity of the proposed development. Briarcliff Road begins near the I-285/Lavista Road interchange and runs west to North Druid Hills Road where it turns south and extends past Lavista Road to Ponce de Leon Avenue (US 29/278). Briarcliff Road then changes to Moreland Avenue and continues south beyond Downtown Atlanta. Briarcliff is classified as an Urban Minor Arterial with a posted speed limit in the vicinity of the proposed development of 35 MPH. According to the GDOT historical count data, the 2005 (most recent available) daily traffic volume along Briarcliff Road was 14,520 vehicles per day south of Clifton Road.

Houston Mill Road

- Houston Mill Road is a two-way, two-lane undivided roadway oriented in the north-south direction east of the proposed development and extends from Lavista Road south to Michael Street on Emory's campus. Houston Mill Road is classified as an Urban Collector Street from Lavista Road to Clifton Road, and an Urban Local Street from Clifton Road to Michael Street. The speed limit from Michael Street to Clifton Road is 25 MPH increasing to 30 MPH from Clifton Road to Lavista Road. According to the GDOT historical count data, the 2005 (most recent available) daily traffic volume along Houston Mill Road was 11,640 vehicles per day between Clifton Road and Michael Street.

Lavista Road

- Lavista Road is a two-way, two-lane undivided roadway oriented east-west, north of the proposed development. It runs southwest from Lawrenceville Highway northeast of I-285 to North Druid Hills Road where it turns west past Briarcliff Road to Cheshire Bridge Road. It then becomes Lindbergh Road and continues west to Peachtree Road. Lavista Road is classified as an Urban Minor Arterial with a posted speed limit of 35 MPH. According to the GDOT historical count data, the 2005 (most recent available) daily traffic volume along Lavista Road was 15,890 vehicles per day east of North Druid Hills Road.

N. Decatur Road

- N. Decatur Road is a two-way, four-lane undivided roadway oriented in the east-west direction south of the proposed development. It runs west from Cynthia McKinney Parkway to Briarcliff Road where it becomes East Rock Springs Road. Rock Springs Road continues west to North Highland Avenue where it becomes East Morningside Drive and continues west to Piedmont Avenue. N. Decatur Road is classified as an Urban Minor Arterial from Cynthia McKinney Parkway to Briarcliff Road and an Urban Collector Street west of Briarcliff Road. N. Decatur Road has a posted speed limit of 35 MPH. According to the GDOT historical count data, the 2005 (most recent available) daily traffic volume along N. Decatur Road was 20,090 vehicles per day just west of Clairmont Road.

Roadway classification descriptions are provided in **Table 3**.

Table 3
Clifton Road Mixed Use DRI
Roadway Classification

Roadway	Road Type	Number of Lanes	Posted Speed Limit (MPH)	GDOT Functional Classification	Annual Average Daily Traffic (Veh/Day)
Clifton Road	Two-Way	4	35 MPH	Urban Collector Street	19,014 (2006)*
Briarcliff Road	Two-Way	2/4	35 MPH	Urban Minor Arterial	14,520 (2005)
Houston Mill Road	Two-Way	2	30 MPH	Urban Collector Street	11,640 (2005)
Lavista Road	Two-Way	2	35 MPH	Urban Minor Arterial	15,890 (2005)
N. Decatur Road	Two-Way	2/4	35 MPH	Urban Minor Arterial	20,090 (2005)

* No GDOT count available. Count data from previous site tube counts was used.

Questions were raised at the Pre-Application Meeting regarding the existing and proposed functional classification of Clifton Road due to the nature of the proposed development and on-street parking. As mentioned above, Clifton Road is currently classified as an Urban Collector. One tier of roadways falls below the Urban Collector on the hierarchical scale: Urban Local Streets. According to AASHTO's *Geometric Design of Highways and Streets 2004*, an Urban Local Street has the following characteristics:

It primarily permits direct access to abutting lands and connections to the higher order of systems. It offers the lowest level of mobility and usually contains no bus routes. Service to through-traffic movement usually is deliberately discouraged.

The character of the Clifton Road Corridor will remain very much the same as it is today, with the addition of the on-street parking. Transit service will increase along Clifton Road as opposed to being removed. While traffic may slow slightly in the vicinity of the on-street parking, an alteration of the functional classification of the road will most likely not be necessary.

4.0 TRIP GENERATION

As stated earlier, trips associated with the proposed development were estimated using the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Seventh Edition, 2003*, using equations where available.

Mixed-use and pass-by reductions were taken according to the *ITE Trip Generation Handbook, June 2004* and GRTA guidelines. Reductions taken for alternative modes of transportation (walking, bicycle, and transit) are as agreed to and stated in the Letter of Understanding dated February 12, 2007. A reduction in vehicle trips due to internal capture (17.95% daily, 19.20% PM) as a result of the anticipated interaction between the residential, hotel, and retail uses within the proposed development was assumed for this analysis. A 20% reduction in residential trips and 10% reduction in non-residential trips were taken to account for the use of alternative modes of transportation along the corridor including bicycle, pedestrian, and transit options. Pass-by trip reductions were taken for the proposed retail uses (34% daily, 34% PM) following the internal capture and alternative mode reductions.

The total (net) trips generated and analyzed in this report are listed in **Table 4**.

Table 4
Clifton Road Mixed Use DRI
Net Trip Generation

	Daily Traffic		AM Peak Hour		PM Peak Hour	
	Enter	**Exit**	**Enter**	**Exit**	**Enter**	**Exit**
Gross Project Trips	**7,086**	**7,086**	**239**	**424**	**709**	**583**
Mixed-Use Reduction	*-1,272*	*-1,272*	*0*	*0*	*-124*	*-124*
Alternative Mode Reduction	*-842*	*-842*	*-21*	*-94*	*-112*	*-39*
Pass-By Reduction	*-982*	*-982*	*0*	*0*	*-90*	*-90*
Net New Trips	**3,990**	**3,990**	**218**	**330**	**384**	**329**

5.0 TRIP DISTRIBUTION AND ASSIGNMENT

New project trips were distributed onto the roadway network using the percentages agreed to during methodology discussions with GRTA, ARC, GDOT, and DeKalb County staff. **Figure 4** and **Figure 5** display the expected residential and non-residential trip percentages for the proposed development throughout the roadway network. These percentages were applied to the new projected trips generated by the development (see Table 4, above), and the volumes were assigned to the roadway network. The expected peak hour turning movements (project trips) generated by the proposed development are shown in **Figure 6**.

Due to the nature of the development and its purpose of providing local housing for employees of the Clifton Road corridor (Emory University, Emory Hospital and Children's Health Care of Atlanta, Centers for Disease Control, Druid Hills High School, etc.), a further assumption was made that the reduction in trips will be primarily commuting trips. Emory is proposing to provide incentives to all residents of this development to turn in their annual parking permits so that they need not to drive to work. Because of this proposal and the location of the development, many residents of the development are expected to take transit or walk to their place of employment instead of driving a vehicle. Additionally, due to the location of the hospital along the corridor and the non-standard work commutes of some of the employees, the assumption is that approximately 10% of the total residential trips reduced will be from work to home in the AM peak and from home to work in the PM peak.

The Clifton Road Mixed Use development is setting a precedent for development across Atlanta because of its focus to provide substantial nearby housing options for employees of a large employment center. The residents of the mixed-use development are expected to utilize alternate forms of transportation to commute to work, thus removing some existing vehicular trips from the network. In order to adequately capture that removal of trips, an additional reduction in background trips (during the Build scenario only) was taken equivalent to the 20% residential mode reduction in new trips. The additional reductions, the directional reverse of those noted in the above-mentioned residential alternative mode reduction, are 1,042 daily trips, 97 AM trips (87 in, 10 out), and 92 PM trips (9 in, 83 out).

Parking inventory data from Emory was obtained and used to locate the parking decks with the highest numbers of permits for faculty and staff from the university and hospital (those likely to live in the new development). Using existing count data and the location of the parking decks around Emory's campus, a distribution was created determining background vehicular trips likely to be removed from the network upon build-out of the mixed-use development. Refer to **Figure 7** for the proposed trip reduction distribution.

The reduction can be found in the analysis spreadsheets for the Build Condition. An additional row has been inserted into the AM and PM intersection spreadsheets called "Background Traffic Adjustment," and the reductions by movement are included in this row. The reductions are taken from the overall build volume (from the background volumes) and not as a component of the newly generated trips.

6.0 TRAFFIC ANALYSIS

6.1 Existing Traffic

The observed existing peak hour traffic volumes (as well as peak hour factors, heavy vehicle factors, and pedestrian volumes) were input in *Synchro 6.0*, along with the existing traffic signal cycle lengths, splits, and offsets. An Existing 2007 Conditions analysis was performed, and the results are displayed in **Table 5**. The existing peak hour traffic volumes are shown in **Figure 8**.

LEGEND

- Existing Site Driveways
- Proposed Site Driveways
- Existing Roadway Laneage
- Existing Traffic Signal
- Inset Study Intersection
- (XX%) % Trips In
- XX% % Trips Out

NOT TO SCALE

Project Site

Lavista Road
Briarcliff Road
Shepherds Lane
Driveway
Clifton Road
Rock Springs Road
N. Decatur Road
Houston Mill Road
Mason Mill Road
Haygood Drive
North Decatur Road
Asbury Circle

Site Driveway 1
Site Driveway 2
Site Driveway 3
CDC Main Driveway
CDC Driveway *

* Entrance gated.
Has little to no volume.

Figure 4

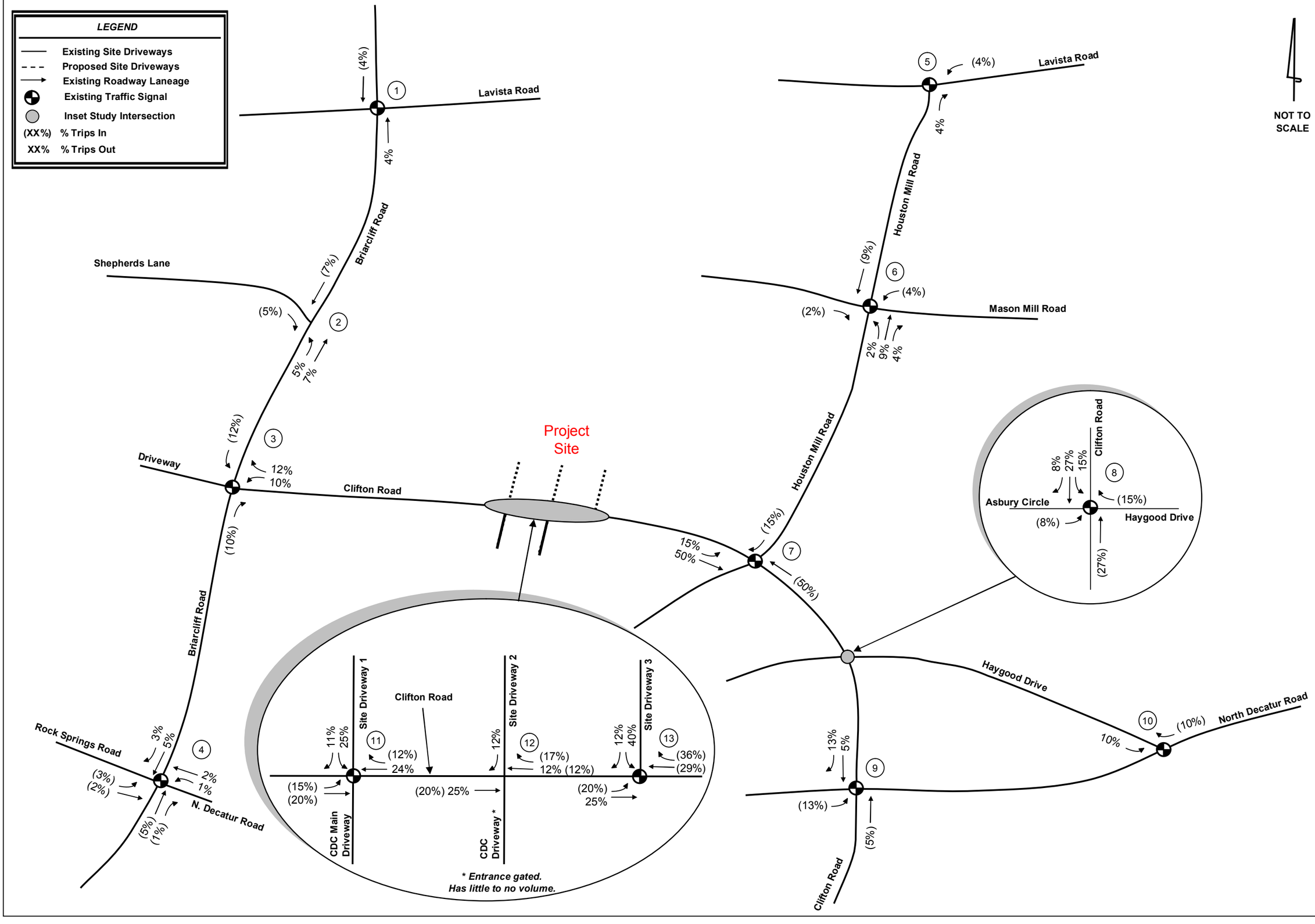
Residential Trip Distribution

Clifton Road Mixed Use DRI Transportation Analysis

Kimley-Horn and Associates, Inc.

LEGEND

- Existing Site Driveways
- Proposed Site Driveways
- Existing Roadway Laneage
- Existing Traffic Signal
- Inset Study Intersection
- (XX%) % Trips In
- XX% % Trips Out



NOT TO SCALE

Figure 5

Non-Residential Trip Distribution

Clifton Road Mixed Use DRI
Transportation Analysis

Kimley-Horn and Associates, Inc.

LEGEND

- Existing Site Driveways
- Proposed Site Driveways
- Existing Roadway Laneage
- Existing Traffic Signal
- Inset Study Intersection
- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips

NOT TO SCALE

Project Site

Lavista Road
Briarcliff Road
Shepherds Lane
Clifton Road
Driveway
Rock Springs Road
N. Decatur Road
Houston Mill Road
Mason Mill Road
Haygood Drive
North Decatur Road
Asbury Circle
Site Driveway 1
Site Driveway 2
Site Driveway 3
CDC Main Driveway
CDC Driveway*

* Entrance gated.
Has little to no volume.

Figure 6

Project Trips

Clifton Road Mixed Use DRI
Transportation Analysis

Kimley-Horn and Associates, Inc.

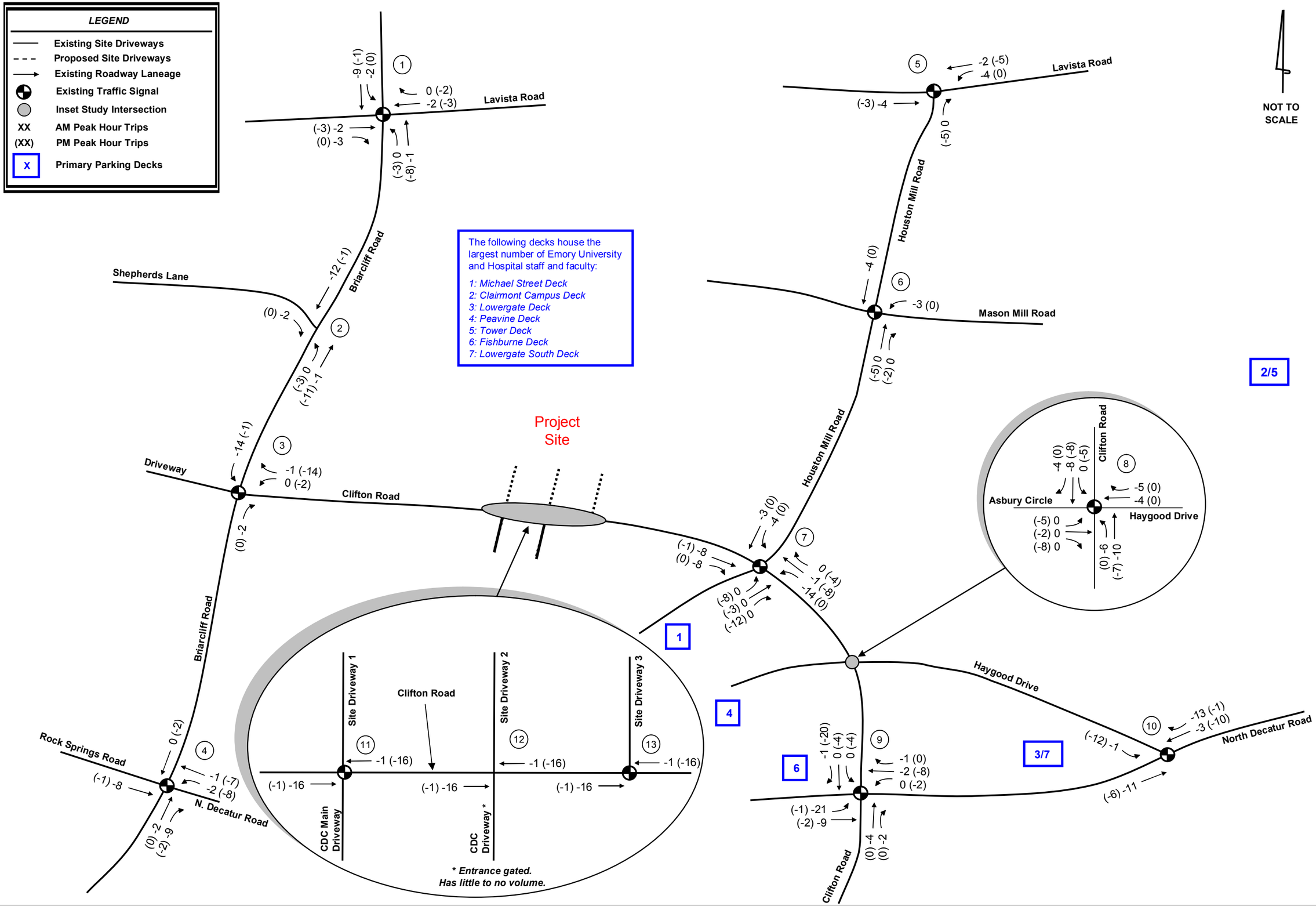


Figure 7

Background Traffic Adjustment

Clifton Road Mixed-Use DRI Transportation Analysis

Kimley-Horn and Associates, Inc.

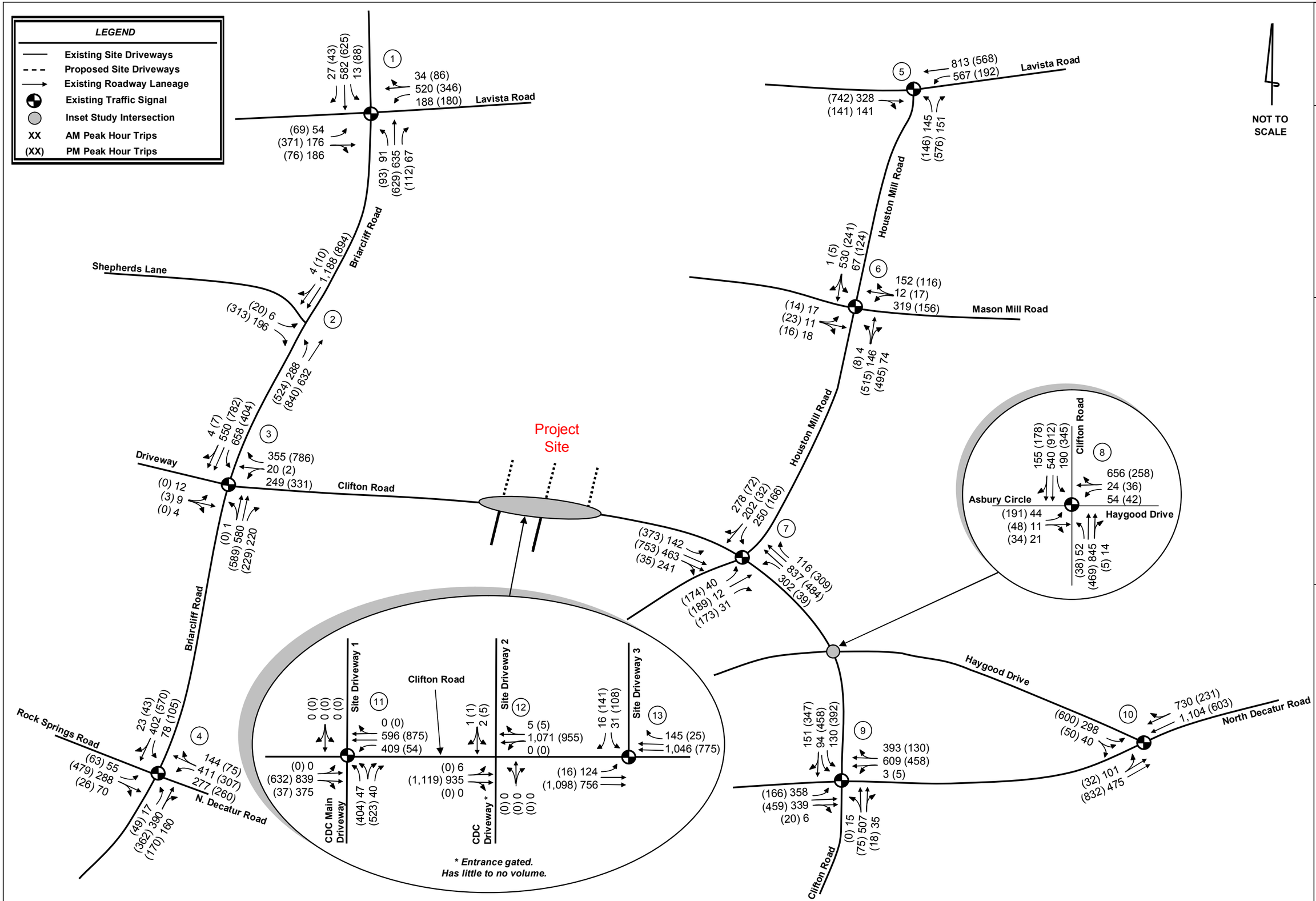


Figure 8

Existing 2007 Conditions

Clifton Road Mixed Use DRI
Transportation Analysis

Kimley-Horn and Associates, Inc.

Table 5
Clifton Road Mixed Use DRI
Existing 2007 Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour
1	Briarcliff Road @ Lavista Road	Signalized	D (AM) E (PM)	D (50.6)	E (61.2)
2	Briarcliff Road @ Shepherds Lane	Side-Street Stop-Controlled	E	F	F
3	Briarcliff Road @ Clifton Road	Signalized	E (AM) D (PM)	E (58.5)	D (51.3)
4	Briarcliff Road @ N. Decatur Road	Signalized	E	F (87.5)	F (87.2)
5	Houston Mill Road @ Lavista Road	Signalized	E (AM) D (PM)	E (57.5)	D (52.0)
6	Houston Mill Road @ Mason Mill Road	Signalized	D (AM) E (PM)	D (52.7)	E (60.1)
7	Houston Mill Road @ Clifton Road	Signalized	D	D (35.6)	D (39.5)
8	Haygood Drive @ Clifton Road	Signalized	D	C (33.9)	C (30.5)
9	N. Decatur Road @ Clifton Road	Signalized	E (AM) D (PM)	E (65.9)	D (45.2)
10	N. Decatur Road @ Haygood Road	Signalized	D	C (23.1)	C (27.7)
11A	Clifton Road @ Turner Lane West (Site Driveway 1)	Side-Street Stop-Controlled	D	A	A
11B	Clifton Road @ CDC Main Driveway	Signalized	D	C (22.3)	C (28.1)
12	Clifton Road @ Turner Lane East (Site Driveway 2)	Side-Street Stop-Controlled	D (AM) E (PM)	C	E
13	Clifton Road @ Emory Conference Center / Hotel (Site Driveway 3)	Signalized	D	B (12.6)	B (17.4)

Of the ten intersections analyzed (not including site driveways), seven are currently operating below the Level of Service Standard D during either the AM or PM peak period. The remaining three intersections have significant queuing problems on at least one approach. The existing site driveways along Clifton Road are operating at acceptable Levels of Service without significant queuing problems, with the exception of Site Driveway 2/Turner Lane East, which is operating at an LOS E during the PM peak period.

A general concern throughout the entire roadway network is a lack of capacity. Many of these roadways have only two lanes and often lack turn lanes as well. Proactive approaches to land use and pedestrians/transit facilities are moving the community in the correct direction; however, at the present time and likely into the near future, the existing roadway network is and will remain over capacity.

Briarcliff Road at Lavista Road is currently at an LOS E during the PM peak period as a result of significant volumes on intersecting two-lane roadways. The signal cannot process the volume on the links, and therefore, queuing occurs on all approaches. Shepherds Lane is at an LOS F during both peak periods due to the volume on Briarcliff Road and the lack of available gaps in traffic. This unsignalized approach is operationally deficient due to the sight distance issues and high mainline volumes. Because Shepherds Lane is a highly utilized cut-through to Lavista Road (for those wanting to avoid the intersection of Briarcliff Road at Lavista Road), northbound traffic is regularly queuing through the adjacent intersection of Briarcliff Road at Clifton Road while waiting to turn left. Also, because Briarcliff Road converts from two through lanes northbound (south of Clifton Road) to one through lane and one left-turn lane (north of Clifton Road), delays are common. The final intersection along Briarcliff Road (N. Decatur Road) suffers from a lack of capacity similar to that of Briarcliff Road at Lavista Road. Both roadways have only two lanes with turn lanes, and the signal cannot adequately process the vehicular demand.

The intersection of Houston Mill Road at Lavista Road does not meet the LOS D Standard for the AM peak period. The AM peak hour has a high westbound left-turn volume opposing a reasonably high single-lane eastbound through volume. Houston Mill Road at Mason Mill Road does not meet LOS D standards during the PM peak because the intersection includes only one-lane approaches (no turn lanes). The lack of north and south left-turn lanes creates significant delays in the morning while a high volume of northbound right-turn vehicles causes delays in the evening. The intersection of Houston Mill Road at Clifton Road meets the LOS Standard D; however, the queuing along Houston Mill Road southbound/westbound during the AM peak period can be significant and has been observed many times (while not displayed as severely in Synchro) to extend to Mason Mill Road.

Haygood Drive at Clifton Road is also operating better than the LOS D standard; however, due to the high volume of westbound right turns during the AM peak period, in conjunction with "no turn on red" signs, the westbound approach has a tendency to queue. The intersection of N. Decatur Road at Clifton Road does not meet the LOS D standard during the AM peak period as a result of the total volume at the intersection (all approaches except for the southbound approach sustain 95th percentile queues between 400' and 650'). The intersection of N. Decatur Road at Haygood Drive, while not demonstrating capacity problems in its Levels of Service, has significant queuing problems in both peak periods due to spillback from adjacent intersections. The westbound approach queues during the AM peak period due to spillback from N. Decatur Road at Clifton Road and other intersections in between. Clairmont Road at N. Decatur Road (intersection outside our study network) causes eastbound and southbound queues at Haygood Drive during the PM peak period.

As previously noted, the site driveways along Clifton Road are operating above the LOS standard, with the exception of the unsignalized approach of Turner Lane East (Site Driveway 2) at Clifton Road during the PM peak period. This driveway has a very low volume on it; however, vehicles attempting to make a southbound left-turn maneuver are unable to easily do so due to high volume of through traffic along Clifton Road, and the southbound approach therefore operates at an LOS E.

All signalized intersections and unsignalized approaches that operate at an LOS E or F during either period will have an adjusted LOS E standard for that time period for all future analyses. Therefore, seven intersections and one site driveway will have an LOS E standard for at least one time period.

6.2 2011 No-Build Traffic

The No-Build Conditions include the existing traffic grown at a yearly rate of 2%, 3%, or 4% depending upon the intersection as a result of general growth in the area as well as the CDC's 2009 master-planned expansion. These volumes, and the existing signal cycle lengths, splits, and offsets were input into *Synchro 6.0,* and an analysis of the projected No-Build Conditions was performed. The results are displayed in **Table 6**.

Table 6
Clifton Road Mixed Use DRI
Projected 2011 No-Build Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour
1	Briarcliff Road @ Lavista Road	Signalized	D (AM) E (PM)	E (67.6)	E (77.7)
2	Briarcliff Road @ Shepherds Lane	Side-Street Stop-Controlled	E	F	F
3	Briarcliff Road @ Clifton Road	Signalized	E (AM) D (PM)	F (97.4)	F (85.1)
4	Briarcliff Road @ N. Decatur Road	Signalized	E	F (116.7)	F (110.1)
5	Houston Mill Road @ Lavista Road	Signalized	E (AM) D (PM)	F (82.1)	E (69.2)
6	Houston Mill Road @ Mason Mill Road	Signalized	D (AM) E (PM)	E (70.0)	F (91.3)
7	Houston Mill Road @ Clifton Road	Signalized	D	D (47.4)	D (46.1)
8	Haygood Drive @ Clifton Road	Signalized	D	D (48.0)	C (36.6)
9	N. Decatur Road @ Clifton Road	Signalized	E (AM) D (PM)	F (85.5)	D (54.0)
10	N. Decatur Road @ Haygood Road	Signalized	D	C (30.7)	C (31.8)
11A	Clifton Road @ Turner Lane (Site Driveway 1)	Side-Street Stop-Controlled	D	A	A
11B	Clifton Road @ CDC Main Driveway	Signalized	D	C (30.3)	C (31.6)
12	Clifton Road @ Turner Lane (Site Driveway 2)	Side-Street Stop-Controlled	D (AM) E (PM)	C	E
13	Clifton Road @ Emory Conference Center / Hotel (Site Driveway 3)	Signalized	D	B (13.2)	B (19.0)

Given the volumes, signal timings, and existing roadway conditions, seven of the intersections are projected not to meet the adjusted LOS standard by time period. Various levels of mitigation are proposed to adjust the operations of these intersections to reach an acceptable LOS.

The first recommended modification incorporates improvements to three interrelated intersections: Briarcliff Road at Lavista Road (Intersection #1), Shepherds Lane (Intersection #2), and Clifton Road (Intersection #3). The primary issue with this network of intersections is a lack of capacity in conjunction with additional bottlenecks. In order to provide sufficient capacity through this segment of the corridor, two lanes in each direction should be consistently maintained along Briarcliff Road as well as along Lavista Road specifically at the intersection. This involves widening Briarcliff Road from north of Clifton Road to north of Lavista Road and widening Lavista Road on either side of Briarcliff Road (and tapering back to one lane in each direction). Widening Lavista Road at the intersection with Briarcliff Road only will only work if sufficient distance is provided on each receiving lane for vehicles to merge without delays. The optimal solution may instead be to widen Lavista Road to four lanes for an extended length.

Prohibiting northbound left turns at Shepherds Lane would remove an existing bottleneck as well as would provide an additional lane that could be converted to a through lane (thus removing the need to widen the road in that segment of the corridor). By constructing a median along Briarcliff Road to the north of Clifton Road, Shepherds Lane would operate as a right-in/right-out access point and alleviate the northbound cut-through traffic. By prohibiting northbound left turns at Shepherds Lane, the traffic will instead travel northbound along Briarcliff Road and will likely make a northbound left turn at Lavista Road. This additional northbound left-turning traffic will necessitate an additional northbound left-turn lane (creating dual left-turn lanes) at Lavista Road. To alleviate right-of-way concerns as well as to create a more pedestrian-friendly intersection, it is recommended to convert the northbound and southbound exclusive right-turn lanes into shared through/right lanes along Briarcliff Road at Lavista Road. The final modifications to this segment of the corridor include the conversion of one southbound through lane along Briarcliff Road at Clifton Road to an exclusive left-turn lane (creating dual left-turn lanes with protected-only phasing) and the addition of a second westbound right-turn lane (creating dual right-turn lanes) along Clifton Road with overlap phasing. With these recommended improvements to Briarcliff Road at Shepherds Lane, little can be done to further improve the ability of right-turn traffic to turn onto Briarcliff Road from Shepherds Lane. Because other alternatives are available, the projected LOS along Shepherds Lane can be considered acceptable.

It should be noted that DeKalb County is currently studying the Briarcliff Road corridor in pursuit of a long-range plan. The modifications listed above are consistent with recommendations currently being considered by the county.

The next improvement recommendation is the widening of Briarcliff Road to the north and south of N. Decatur Road (Intersection #4) to two lanes in each direction. It is possible to taper back to one lane in each direction a distance away from the intersection or to continue the four-lane section until it intersects an existing four-lane section (Johnson Road to the north and Chalmette Drive to the south).

Roadway improvements are also necessary at one intersection along Houston Mill Road in order to meet the LOS standard during both peak periods. The intersection of Houston Mill Road at Lavista Road (Intersection #5) can be improved by optimizing signal timings; however, eastbound queuing is still significant. At the intersection of Houston Mill Road and Mason Mill Road (Intersection #6), a southbound left-turn lane is expected to improve the operations from LOS E (AM) and LOS F (PM) to LOS D (AM) and LOS E (PM). The intersection is expected to just barely meet the LOS E standard for the PM peak period with this improvement. A northbound right-turn lane would have a significant impact on the PM peak period, however.

The final recommended No-Build improvement occurs at the intersection of N. Decatur Road and Clifton Road (Intersection #9). The addition of a westbound right-turn lane along N. Decatur Road will likely bring this intersection up to its LOS standards for both the AM and PM peak periods.

Incorporating all above required improvements, **Table 7** shows the expected LOS and delay for each intersection. All study intersections meet their respective LOS standards with the added improvements with the exception of Shepherds Lane at Briarcliff Road. The projected intersection laneage, proposed improvements, and traffic volumes for the 2011 No-Build Condition are shown in **Figure 9.**

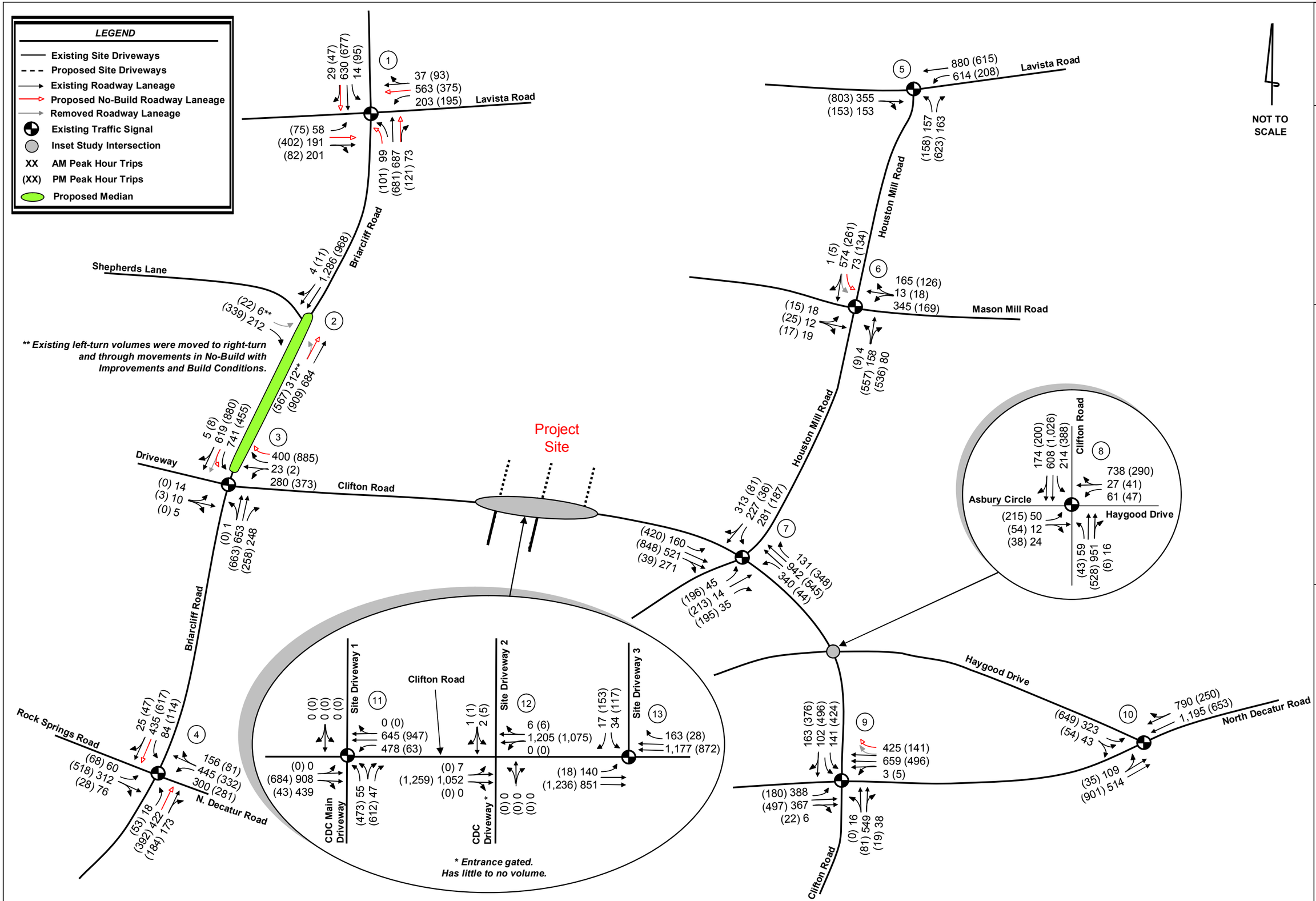


Figure 9

Projected 2011 No-Build Conditions

Clifton Road Mixed Use DRI Transportation Analysis

Kimley-Horn and Associates, Inc.

Table 7
Clifton Road Mixed Use DRI
Projected 2011 No-Build IMPROVED Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour
1	Briarcliff Road @ Lavista Road	Signalized	D (AM) E (PM)	D (47.3)	D (54.7)
2	Briarcliff Road @ Shepherds Lane	Side-Street Stop-Controlled	E	E	F
3	Briarcliff Road @ Clifton Road	Signalized	E (AM) D (PM)	D (43.8)	D (39.5)
4	Briarcliff Road @ N. Decatur Road	Signalized	E	D (45.6)	D (54.2)
5	Houston Mill Road @ Lavista Road	Signalized	E (AM) D (PM)	D (36.6)	C (34.0)
6	Houston Mill Road @ Mason Mill Road	Signalized	D (AM) E (PM)	D (37.1)	E (77.2)
7	Houston Mill Road @ Clifton Road	Signalized	D	D (44.9)	D (42.0)
8	Haygood Drive @ Clifton Road	Signalized	D	D (43.5)	D (35.3)
9	N. Decatur Road @ Clifton Road	Signalized	E (AM) D (PM)	D (46.5)	D (44.1)
10	N. Decatur Road @ Haygood Road	Signalized	D	C (26.8)	C (29.9)
11A	Clifton Road @ Turner Lane (Site Driveway 1)	Side-Street Stop-Controlled	D	A	A
11B	Clifton Road @ CDC Main Driveway	Signalized	D	C (30.7)	C (29.2)
12	Clifton Road @ Turner Lane (Site Driveway 2)	Side-Street Stop-Controlled	D (AM) E (PM)	C	E
13	Clifton Road @ Emory Conference Center / Hotel (Site Driveway 3)	Signalized	D	B (14.4)	B (18.6)

6.3 2011 Build Traffic

The traffic associated with the proposed development was added to the 2011 No-Build volumes. At this time, all existing trips generated at Site Driveways 1 and 2 were removed because the existing development currently accessing those driveways will be demolished for construction of the proposed mixed-use development. Additionally, the trip reduction methodology discussed previously was also applied under the assumption that with full build-out of the site, some of the new residents will no longer be commuting to and from work. Site Driveway 1 will be aligned with the CDC Main Entrance at the time of construction; therefore, all Build Conditions consider only one signalized intersection at this location.

The Build volumes were input into *Synchro 6.0*. The results of the analysis are displayed in **Table 8**.

Improvements made to the site driveways and adjacent roadways during the Build Condition include the following:

Site Driveway 1 @ Clifton Road:
- Two southbound lanes along Site Driveway 1 with two receiving lanes
- Site Driveway 1 aligned with the current CDC Main Driveway and incorporation into signal operation
- Restripe existing pavement to include an eastbound left-turn lane along Clifton Road (roadway is currently striped with hatching; therefore, no realignment of the road is necessary)

Site Driveway 2 @ Clifton Road:
- Right-in / right-out driveway with one approach lane and one receiving lane

Site Driveway 3 @ Clifton Road:
- Maintain existing laneage along Site Driveway 3

Table 8
Clifton Road Mixed Use DRI
Projected 2011 Build Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour
1	Briarcliff Road @ Lavista Road	Signalized	D (AM) E (PM)	D (47.5)	E (56.3)
2	Briarcliff Road @ Shepherds Lane	Side-Street Stop-Controlled	E	E	F
3	Briarcliff Road @ Clifton Road	Signalized	E (AM) D (PM)	D (46.8)	D (41.9)
4	Briarcliff Road @ N. Decatur Road	Signalized	E	D (45.9)	E (55.1)
5	Houston Mill Road @ Lavista Road	Signalized	E (AM) D (PM)	D (37.9)	D (36.5)
6	Houston Mill Road @ Mason Mill Road	Signalized	D (AM) E (PM)	D (39.0)	F (87.3)
7	Houston Mill Road @ Clifton Road	Signalized	D	E (65.5)	D (52.8)
8	Haygood Drive @ Clifton Road	Signalized	D	D (49.3)	C (33.2)
9	N. Decatur Road @ Clifton Road	Signalized	E (AM) D (PM)	D (46.0)	D (50.2)
10	N. Decatur Road @ Haygood Road	Signalized	D	C (31.8)	C (30.5)
11	Clifton Road @ CDC Main Driveway / Site Driveway 1	Signalized	D	E (76.8)	D (36.1)
12	Clifton Road @ Turner Lane (Site Driveway 2)	Side-Street Stop-Controlled	D (AM) E (PM)	C	C
13	Clifton Road @ Emory Conference Center / Hotel (Site Driveway 3)	Signalized	D	B (14.1)	C (30.7)

The Build analysis indicated deficiencies at three signalized intersections and one unsignalized intersection. With the recommended improvements to Briarcliff Road at Shepherds Lane (Intersection #2) during the No-Build Condition, little can be done to further improve the ability of right-turn traffic to turn onto Briarcliff Road. Because other access alternatives are available, the LOS expected along Shepherds Lane can be considered acceptable.

Additional improvements can be recommended at the remaining three signalized intersections. The northbound right-turn lane discussed as an additional, but not necessary, improvement in the No-Build Conditions at the intersection of Houston Mill Road at Mason Mill Road (Intersection #6) is expected to be necessary in the Build Conditions in order for the intersection to meet the standard during the PM peak period. Low volumes generated by the development that access the intersection are expected to be sufficient enough to degrade the Level of Service below the standard. The condition of the intersection during the No-Build scenario, however, is the source of the problem. The anticipated deficiency at the intersection of Houston Mill Road at Clifton Road (Intersection #7) can be mitigated with the addition of a northbound left-turn lane along Clifton Road. While significant queuing is still projected to occur along westbound Houston Mill Road, the expected LOS is improved to an LOS D for the AM peak period. A westbound right-turn lane has the potential to further improve this intersection to an LOS C for the AM period and to reduce the queue in the through lane by 500 feet.

The final mitigation that is necessary is at the intersection of Clifton Road at Site Driveway 1/CDC Main Entrance (Intersection #11). Due to the incorporation of Site Driveway 1 into the signal operation as well as the high volume entering the CDC in the AM peak period (particularly the westbound left-turn volume), the signal is no longer expected to operate at an acceptable LOS. Due to the configuration of the CDC Main Driveway (left-turn, shared left-right-turn, and right-turn lanes) and the low volume of the driveway expected on the weekends, it is necessary and preferable to operate this signal with split-phasing for the driveways. In order to improve the expected LOS at the intersection during the AM peak period, two options are available: a westbound left-turn lane creating dual left-turn lanes into the CDC, or an eastbound right-turn lane along Clifton Road. The right-turn lane is preferable for several reasons. The addition of a westbound left-turn lane would require realignment of Clifton Road and protected-only phasing for the dual left turns. The addition of a right-turn lane, however, would necessitate only construction of the lane without affecting the geometry of the centerline of Clifton Road and would potentially remove more delay from the intersection (the dual left-turns produce less benefits due to the change from protected-permissive to protected-only phasing).

Incorporating all above required improvements, **Table 9** shows the LOS and delay for each intersection. All study intersections are expected to meet their respective LOS standards with the added improvements. The projected intersection laneage, proposed improvements and traffic volumes for the year 2011 Build Conditions are shown in **Figure 10.**

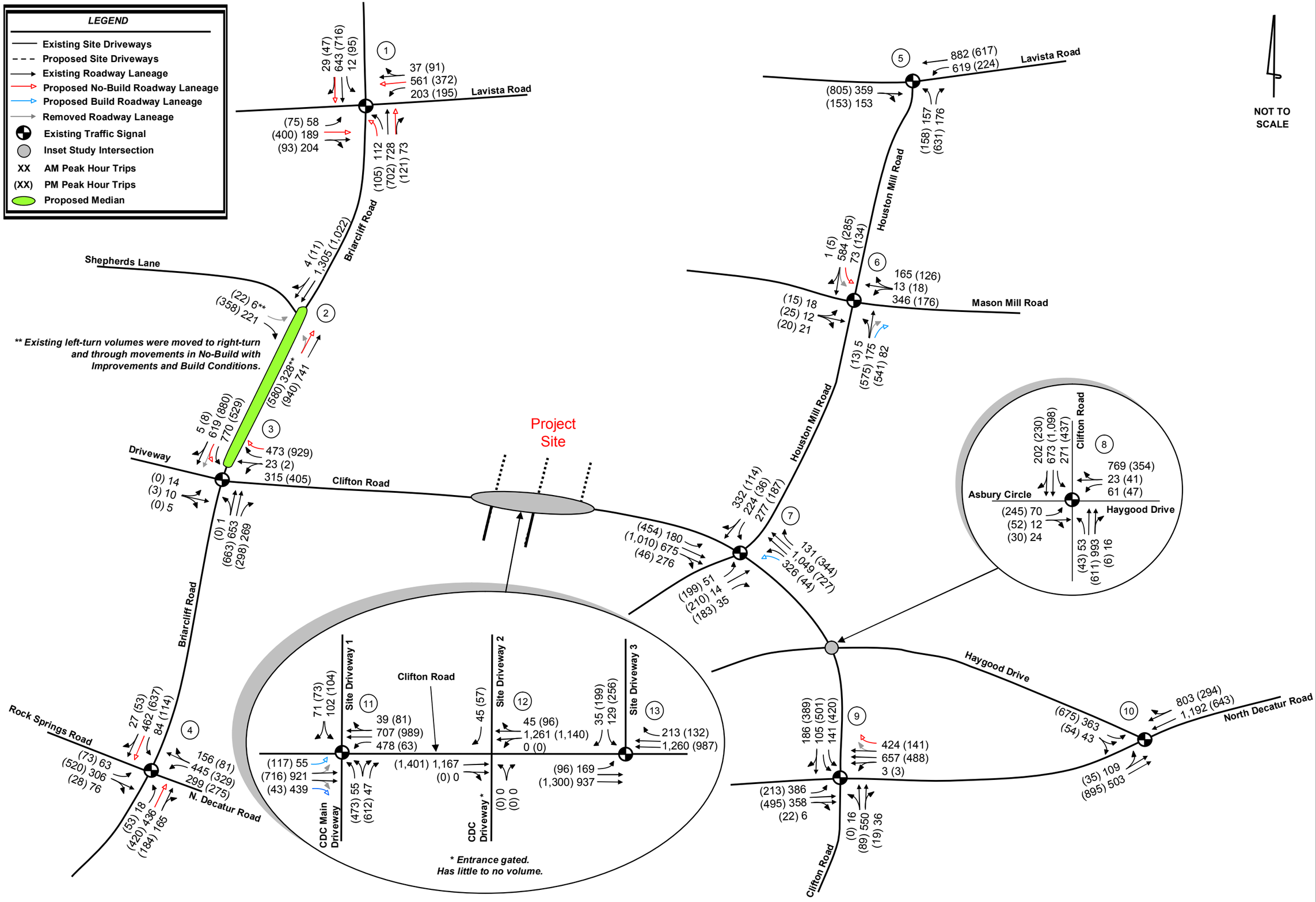


Figure 10

Projected 2011 Build Conditions

Clifton Road Mixed Use DRI Transportation Analysis

Kimley-Horn and Associates, Inc.

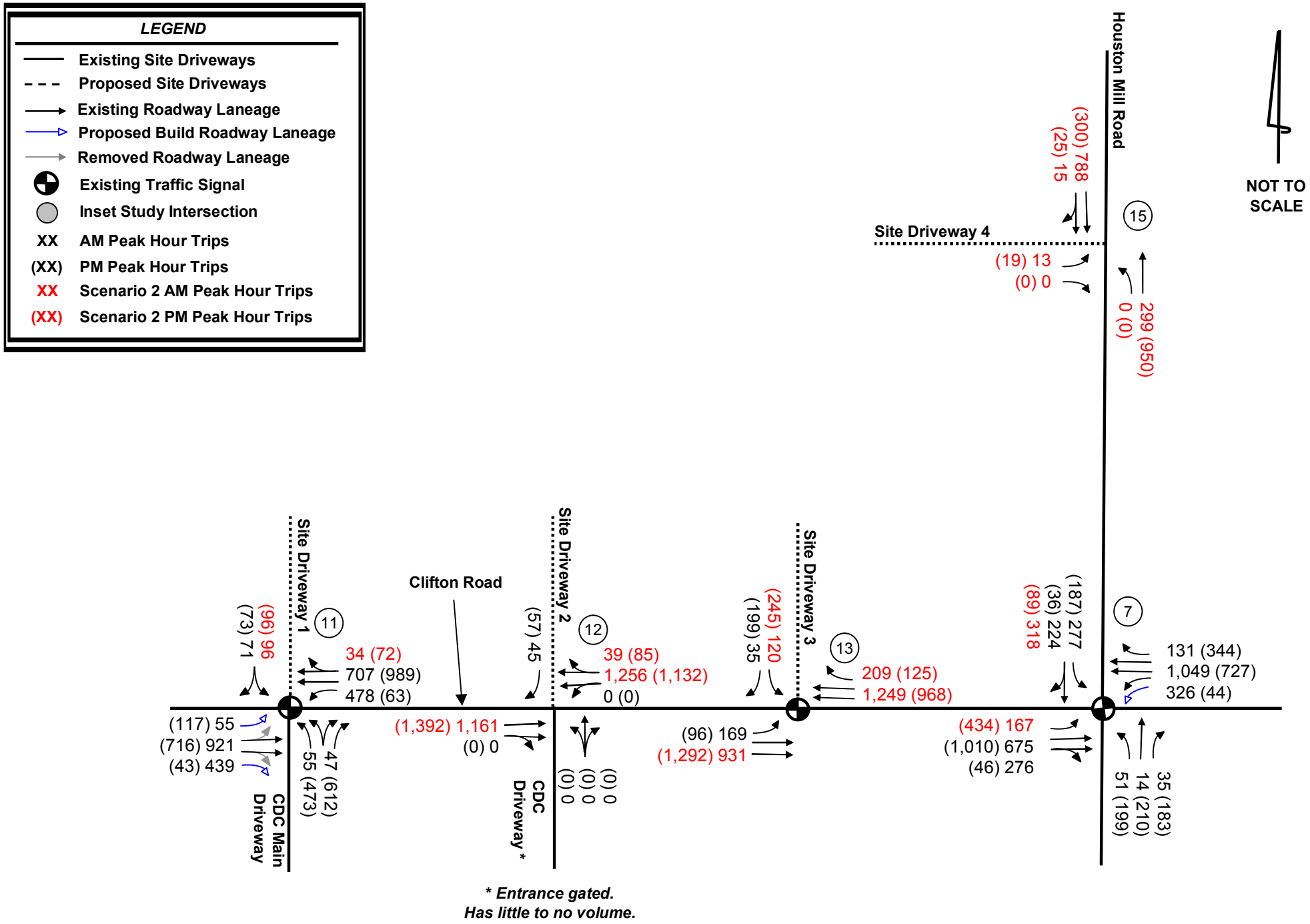
Table 9
Clifton Road Mixed Use DRI
Projected 2011 Build IMPROVED Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour
1	Briarcliff Road @ Lavista Road	Signalized	D (AM) E (PM)	D (47.5)	E (56.3)
2	Briarcliff Road @ Shepherds Lane	Side-Street Stop-Controlled	E	E	F
3	Briarcliff Road @ Clifton Road	Signalized	E (AM) D (PM)	D (46.8)	D (41.9)
4	Briarcliff Road @ N. Decatur Road	Signalized	E	D (45.9)	E (55.1)
5	Houston Mill Road @ Lavista Road	Signalized	E (AM) D (PM)	D (37.9)	D (36.5)
6	Houston Mill Road @ Mason Mill Road	Signalized	D (AM) E (PM)	D (36.9)	B (19.9)
7	Houston Mill Road @ Clifton Road	Signalized	D	D (49.6)	D (52.4)
8	Haygood Drive @ Clifton Road	Signalized	D	D (50.0)	C (33.0)
9	N. Decatur Road @ Clifton Road	Signalized	E (AM) D (PM)	D (46.2)	D (50.2)
10	N. Decatur Road @ Haygood Road	Signalized	D	C (31.8)	C (30.5)
11	Clifton Road @ CDC Main Driveway / Site Driveway 1	Signalized	D	D (37.4)	D (37.6)
12	Clifton Road @ Turner Lane (Site Driveway 2)	Side-Street Stop-Controlled	D (AM) E (PM)	C	C
13	Clifton Road @ Emory Conference Center / Hotel (Site Driveway 3)	Signalized	D	B (12.4)	C (30.9)

6.4 2011 Build Traffic – Scenario 2

As recommended by GRTA for the DRI analysis, an additional scenario was analyzed which includes the three proposed site driveways along Clifton Road as well as a fourth unsignalized access point onto Houston Mill Road (a service driveway that currently exists). This driveway is approximately 900 feet north of Clifton Road. The proposed residential and non-residential distributions were revised to include the site driveway as well as traffic entering and exiting from Houston Mill Road. The revised project trips for the site were developed and the total 2011 volumes are shown in **Figure 11**.

All three proposed site driveways and the intersection of Houston Mill Road at Clifton Road were affected by the redistribution of trips. The LOS results for the new Build – Scenario 2 are displayed in **Table 10**. Without the recommended improvements from the Build IMPROVED Condition, Houston Mill Road at Clifton Road (Intersection #7) still is not expected to meet the LOS D standard, despite the removal of traffic from the intersection. Additionally, the new driveway on Houston Mill Road has an anticipated LOS F for the PM peak hour due to heavy northbound movement along Houston Mill Road. While not failing in the AM peak period, a significant possibility exists that the southbound queuing spillback along Houston Mill Road from Clifton Road may extend beyond the new site driveway and therefore disrupt the operations of the driveway.



** Entrance gated. Has little to no volume.*

Kimley-Horn and Associates, Inc.	**Clifton Road Mixed Use DRI Transportation Analysis**	**Projected 2011 Build Conditions - Scenario 2**	**Figure 11**

Table 10
Clifton Road Mixed Use DRI
Projected 2011 Build - Scenario 2 - Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour
7	Houston Mill Road @ Clifton Road	Signalized	D	E (59.3)	D (49.6)
11	Clifton Road @ CDC Main Driveway / Site Driveway 1	Signalized	D	D (37.3)	D (37.1)
12	Clifton Road @ Turner Lane (Site Driveway 2)	Side-Street Stop-Controlled	D (AM) E (PM)	C	C
13	Clifton Road @ Emory Conference Center / Hotel (Site Driveway 3)	Signalized	D	B (12.7)	C (29.8)
15	Houston Mill Road @ Site Driveway 4	Side-Street Stop-Controlled	D	C	F

The modifications recommended in the Build IMPROVED Condition were included in the next analysis, as can be noted in **Table 11**. By including the second northbound left-turn lane along Clifton Road, the anticipated LOS improves to LOS D at the intersection of Houston Mill Road at Clifton Road. The same gap and queuing problems from the Build – Scenario 2 model are expected to occur along Site Driveway 4 in the Build IMPROVED – Scenario 2 model.

Table 11
Clifton Road Mixed Use DRI
Projected 2011 Build IMPROVED - Scenario 2 - Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour
7	Houston Mill Road @ Clifton Road	Signalized	D	D (47.7)	D (49.8)
11	Clifton Road @ CDC Main Driveway / Site Driveway 1	Signalized	D	D (37.2)	D (37.1)
12	Clifton Road @ Turner Lane (Site Driveway 2)	Side-Street Stop-Controlled	D (AM) E (PM)	C	C
13	Clifton Road @ Emory Conference Center / Hotel (Site Driveway 3)	Signalized	D	B (12.1)	C (29.8)
15	Houston Mill Road @ Site Driveway 4	Side-Street Stop-Controlled	D	C	F

While it is not likely that Site Driveway 4 would queue consistently throughout the day, it is providing little relief to the intersection of Houston Mill Road at Clifton Road. Additionally, the grade is fairly steep along Houston Mill Road (-5% southbound at Clifton Road), which may present sight distance problems for those vehicles exiting the driveway. At this time, the additional site driveway along Houston Mill Road is not recommended.

7.0 IDENTIFICATION OF PROGRAMMED PROJECTS

The *TIP, STIP, RTP, and GDOT's Construction Work Program* were searched for currently programmed transportation projects within the vicinity of the proposed development. Research concluded that several projects are currently programmed in the area surrounding the proposed development. Area projects are displayed in **Table 12** and shown in **Figure 12**. Detailed information on the projects is also included in the Appendix.

Table 12
Clifton Road Mixed Use DRI
Programmed Area Projects

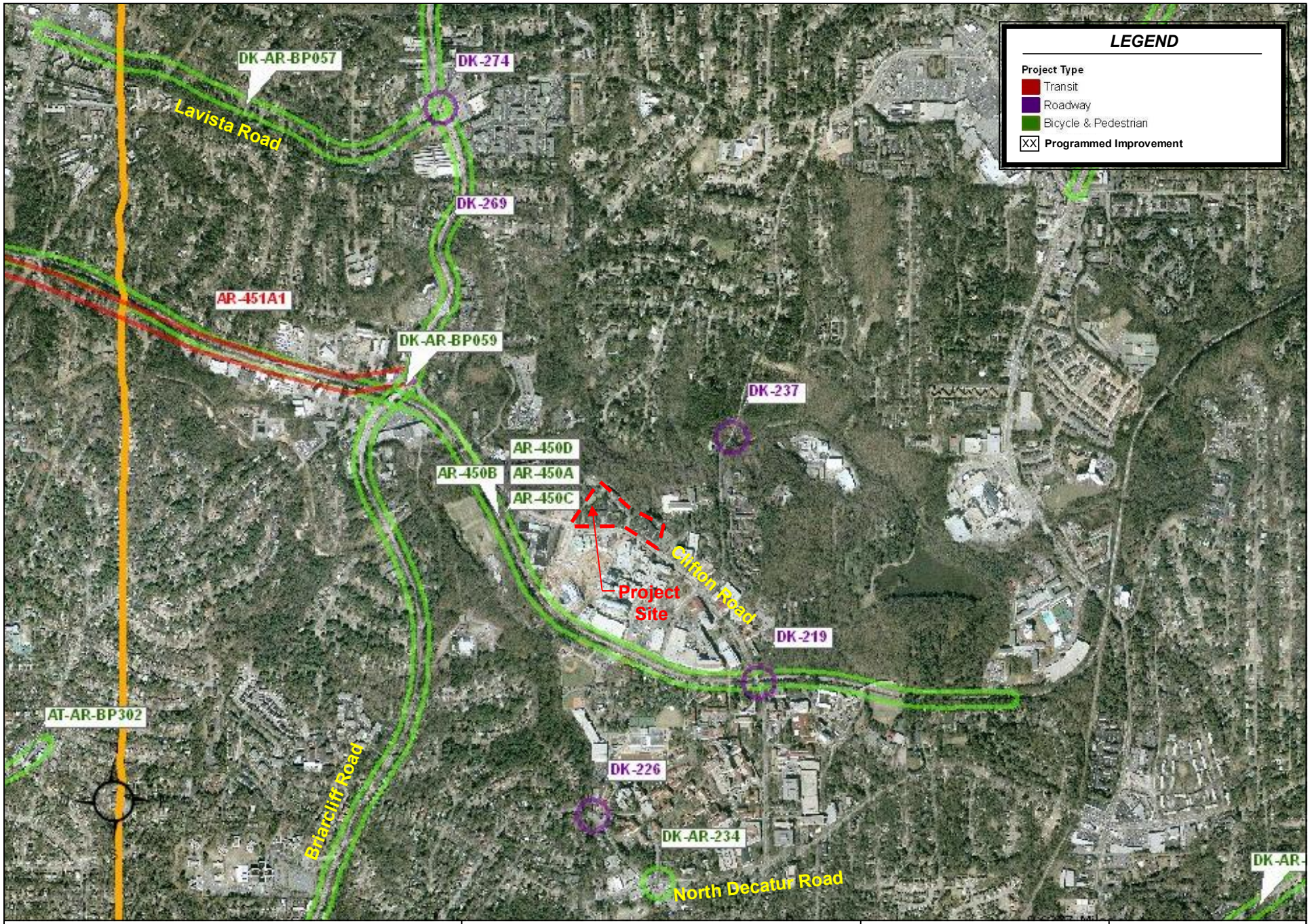
GDOT #: 0006268 ARC #: DK-AR-234	N. Decatur Street Road Improvements (Oxford Road to Dowman Drive) – 2006
GDOT #: 0002407 ARC #: DK-AR-BP057	Briarcliff Road Pedestrian Improvements (Ponce de Leon Avenue to North Druid Hills Road) – 2010
GDOT #: 0002904 ARC #: DK-AR-BP059	Lavista Road Pedestrian Improvements (Cheshire Bridge Road to Briarcliff Road) – 2010
GDOT #: 753290 ARC #: DK-274	Lavista Road at Briarcliff Road Intersection Operational Upgrades – 2012

8.0 INGRESS/EGRESS ANALYSIS

Access to the development will be provided at three site driveways along Clifton Road, all of which exist currently (with some relocation and upgrades). The first site driveway currently exists as an unsignalized driveway, providing access to the Turner Lane development. However, this driveway is approximately 150 feet east of the signalized intersection of Clifton Road at the CDC main entrance. As part of the site redevelopment, this driveway will be realigned with the CDC main entrance and will be operated by an upgraded (four-leg) signal. The second site driveway (located 600 feet to the east of Site Driveway 1 and across the street from a fire station and a gated CDC entrance that is rarely utilized) will be reconstructed as a right-in/right-out driveway at an unsignalized approach. The third and final site driveway (approximately 600 feet to the east of Site Driveway 2 along Clifton Road) is the existing signalized approach for the Emory Conference Center and Hotel. This site driveway will remain in its current location with minor upgrades where necessary.

9.0 INTERNAL CIRCULATION ANALYSIS

The proposed site plan consists of three vehicular driveways and two service access driveways. Service driveways were not included in this analysis. Site Driveway 1 is located along Clifton Road at the existing signalized entrance to the Center for Disease Control, located to the west of the proposed development, and is anticipated to operate as a full-movement driveway, creating the fourth approach to the existing signal. Site Driveway 2 is an existing driveway located along Clifton Road near the middle of the site and is anticipated to be modified to operate as a right-in/right-out driveway with side-street stop-controlled operation. Site Driveway 3 is an existing driveway with full-movement access, located along Clifton Road oriented toward the east of the proposed development, and the existing signal at this location will remain operational. An internal roadway proposed within the site parallel to Clifton Road will provide adequate circulation to the proposed buildings on the site. Internal sidewalks are also proposed to provide pedestrian circulation within the site.



Kimley-Horn and Associates, Inc.	Clifton Road Mixed Use DRI Transportation Analysis	Programmed Improvements	Figure 12

10.0 COMPLIANCE WITH COMPREHENSIVE PLAN ANALYSIS

The DeKalb County Future Land Use Plan designates the project site as several different land uses. These include:

- Institutional (INS)
- Office-Professional (OPR)
- Transportation, Communications, Utilities (TCU)
- Low-Intensity Commercial (LIC)
- Public Open Space (POS)

No changes to the Future Land Use Plan are proposed with the development of this site.

11.0 NON-EXPEDITED CRITERIA

11.1 Quality, Character, Convenience, and Flexibility of Transportation Options

The proposed development is located along MARTA Bus Routes 6 and 245 on Clifton Road. See the attached route maps for detailed route descriptions. In addition, the site is proposing three stops along Emory's "Cliff" system, which includes the Executive Park shuttle, the CCTMA/Decatur shuttle and Shuttle Route A. Emory continues to plan and implement shuttle upgrades and enhancements which will provide greater incentive for taking transit. Sidewalks are also proposed within the development and along Clifton Road in the vicinity of the site.

Those traveling by vehicle have access to Briarcliff Road, which leads to North Druid Hills and I-85 to the north and US 29/278 (Ponce de Leon) to the south. Lavista Road is also located near the site and provides access to Buckhead and I-85 to the west and North Druid Hills and I-285 to the east.

11.2 Vehicle Miles Traveled

Table 13 displays the reduction in traffic generation due to alternative mode reductions. Total trip reductions equal approximately 43.7% of gross trips.

Table 13
Trip Reductions

	Build-out Total
Daily Gross Trip Generation	14,171
(-) Mixed-Use Reductions	- 2,544
(-) Alternative Mode Reductions	- 1,684
(-) Pass-By Reductions	- 1,964
Net Trips	7,979

11.3 Relationship Between Location of Proposed DRI and Regional Mobility

The proposed development is located in unincorporated DeKalb County, just east of Atlanta near Emory University. Many of the residents of this development will likely work in town or within the development, so vehicular commuting trips have the potential to be short (or even a reverse commute). Similarly, many of the employees will likely live nearby or within the development, which will also potentially shorten commute times and take vehicular trips off of the network.

11.4 Relationship Between Proposed DRI and Existing or Planned Transit Facilities

The proposed development is located along MARTA Bus Routes 6 and 245 along Clifton Road and along Emory's "Cliff" shuttle system. Additional bus stops for the Cliff System are proposed along Clifton Road within the property.

Emory and the Clifton Corridor TMA are exploring two future transit options: an enhanced circulator system which would involve a modern streetcar system and a commuter-type rail shuttle service which would involve a diesel heavy rail car. Other transit opportunities around the Clifton Corridor, which could provide connections to the area, include the Brain Train, the Commuter Rail System (Lovejoy to Atlanta), the BeltLine / C-Loop, and the Peachtree Streetcar.

11.5 Transportation Management Association Designation

The proposed development is located within the Clifton Corridor Transportation Management Association (TMA). The Clifton Corridor TMA focuses on addressing transportation concerns, improving accessibility and mobility, share services, improving air quality, and promoting alternative forms of transportation to mitigate traffic congestion.

11.6 Offsite Trip Reduction and Trip Reduction Techniques

A 20% mode reduction was applied to the residential trips due to incentives provided to those forfeiting parking passes at work in exchange for discounted housing with shuttle service. Additionally, a 10% mode reduction was applied to the non-residential trips due to the retail being proposed, which will provide more opportunities for non-residential users to walk or take transit when in need of food or retail options. A reduction in vehicle trips was also taken due to internal capture (17.95% daily, 19.20% PM) as a result of the anticipated interaction between the residential, hotel, and retail uses within the proposed development. Finally, pass-by trip reductions were taken for the proposed retail uses (34% daily, 34% PM) following the internal capture and alternative mode reductions.

11.7 Balance of Land Uses – Jobs/Housing Balance

Please refer to the Area of Influence Analysis, located in *Section 13.0* of this report.

11.8 Relationship Between Proposed DRI and Existing Development and Infrastructure

The development is located in an area where the existing infrastructure is adequate to serve the needs of the development upon build-out (2011).

12.0 AREA OF INFLUENCE

This section will describe the Area of Influence (AOI) demographics, AOI average wage levels, expected DRI housing costs, and the availability of jobs within the AOI that would reasonably position employees to purchase housing or rent within the proposed DRI.

12.1 Criteria

As part of the non-expedited review process for a DRI, an Area of Influence Analysis must be performed to determine the impact of the proposed development on the balance of housing and jobs within the immediate area surrounding the proposed development. For this proposed development expansion, the non-expedited review criterion is as follows:

> 7. The proposed DRI:
>
> (c) Is located in an area of influence with employment opportunities which are such that at least twenty-five percent (25%) of the persons that are reasonably anticipated to live in the proposed DRI and are reasonably expected to be employed will have an opportunity to find employment appropriate to such persons' qualifications and experience within the Area of Influence;

12.2 Study Area Determination and Characteristics

The Area of Influence is comprised of the area within six road-miles of the proposed development. To determine the AOI, *TransCAD* was used to measure six road miles from the nearest intersection to the project (Clifton Road and Clifton Way). The population and housing statistics for the AOI were determined by taking the area outlined in *TransCAD*, creating a boundary in GIS format, and overlaying the boundary with a GIS layer containing Census tract information. The Area of Influence (located within DeKalb and Fulton Counties) can be seen in **Figure 13**. Information obtained from the census tracts can be seen in **Table 14**.

Table 14
Area of Influence
Census Tract Information

Total Households	140,131
Population in Households	291,579
Average household size	2.08
Total Workers	170,979
Workers per Household	1.22
Owner Occupied	44.8%
Renter Occupied	55.2%

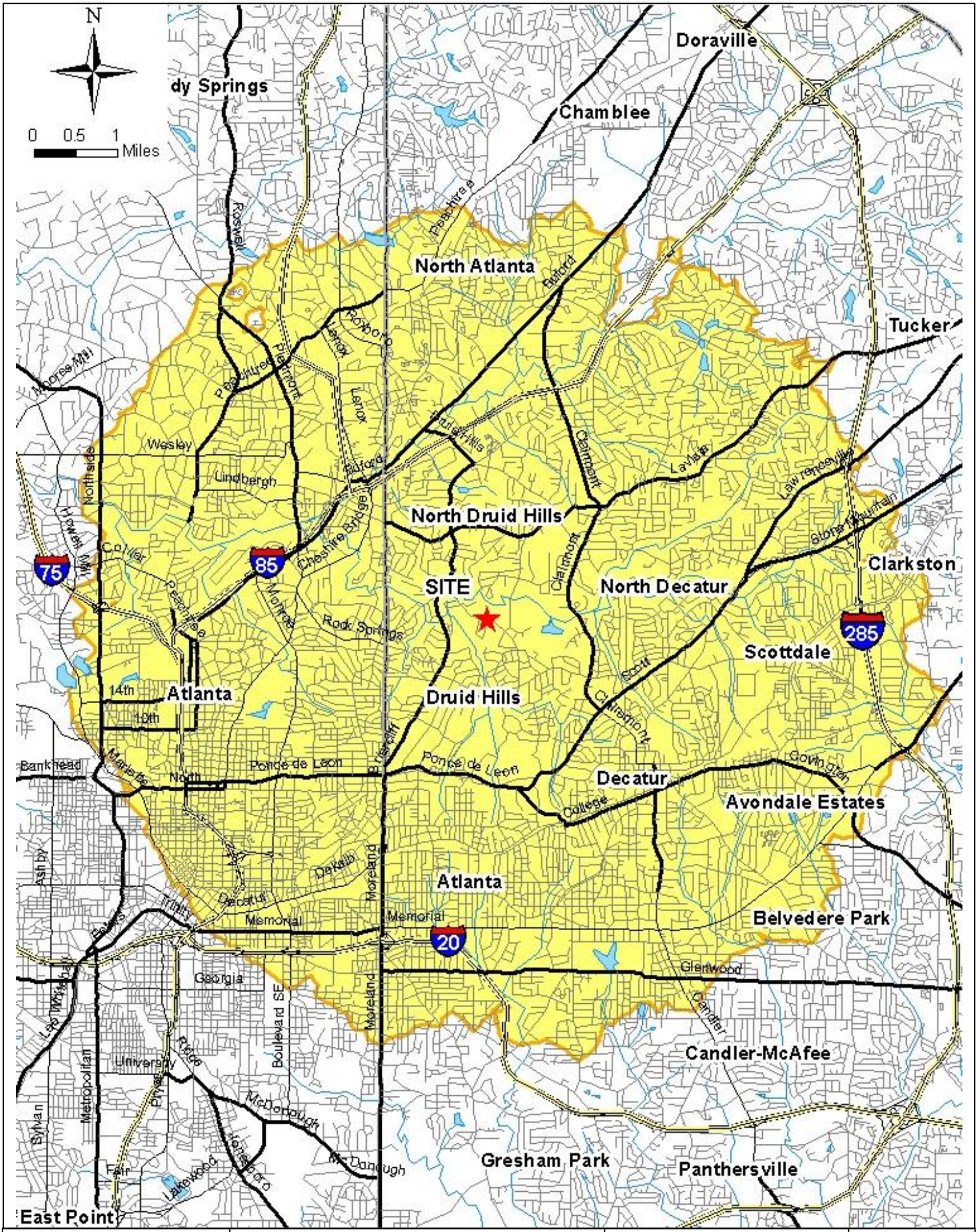
As can be seen from the table above, the total population within the Area of Influence is 291,579, residing within 140,131 households (an average of 2.08 people per household). The AOI area totals 49,018 acres.

Using the above calculated average of 2.08 persons per household, it can be anticipated that the proposed DRI will house approximately 1,814 people (872 proposed dwelling units multiplied by 2.08). Based on information obtained from the Census tracts, it is estimated that approximately 1,064 of these expected 1,814 residents would be workers. The remainder of this section will demonstrate the availability of jobs for these expected workers within the development at or above the necessary income level to afford housing within the DRI.

The Atlanta Journal-Constitution website was researched to find current listings of condominiums/townhouses for sale and apartments for rent in the vicinity of the proposed development (30329 Zip Code). At the time of this report, approximately 53 condo/townhouse/single family homes were listed in the area, ranging in price from $119,900 to $1,234,900 (purchase price). Approximately 72 apartments/homes were available for rent, ranging in price from $500 to $1,475 (monthly rental).

12.3 Development Housing Analysis

Approximately eleven different price ranges of condominiums/townhouses and four different price ranges of apartments will be available for purchase within the proposed development. **Tables 15** and **16** below display the number of units available for purchase/rental, the average purchase/rental price, and the number of workers expected to reside in homes at each price range.



Kimley-Horn and Associates, Inc.	**Clifton Road Mixed Use DRI Transportation Analysis**	**Area of Influence**	**Figure 13**

Table 15 Estimated Workers per Household (Purchase)			
	Number of Units	**Average Price**	**Number of Workers**
A-S	17 units for sale	$227,500	21
A-1BR	73 units for sale	$313,750	89
A-2BR	106 units for sale	$504,000	129
A-3BR	22 units for sale	$751,000	27
A-LW	7 units for sale	$450,500	9
C-S	12 units for sale	$162,500	15
C-1BR	53 units for sale	$224,000	65
C-2BR	77 units for sale	$360,000	94
C-3BR	16 units for sale	$536,500	20
C-LW	5 units for sale	$321,750	6
TH	17 units for sale	$350,000	21
	406 total units	**-**	**495 total workers**

Table 16 Estimated Workers per Household (Rental)			
	Number of Units	**Average Cost/Month**	**Number of Workers**
Studio	78 units for rent	$1,020	95
1 BR	196 units for rent	$1,200	239
2 BR	106 units for rent	$1,570	129
2 BR+	87 units for rent	$2,020	106
	466 total units	**-**	**569 total workers**

In order to determine the number of jobs available within the AOI that would provide adequate income, information about the types of jobs within the AOI and the average salaries for these positions was collected first. Information about the types of jobs available within the AOI was obtained from Claritas, a data solutions company. A map with the boundary of the AOI was sent to Claritas, and a report containing the types of employment opportunities and number of each type of job was compiled. The Claritas report is included in the Appendix of this report. Next, the Georgia Department of Labor website was researched to obtain average salary information for the positions available within the AOI. Average salary information for jobs in DeKalb and Fulton Counties was matched to the jobs existing within the AOI. This information (also available in the Appendix), along with the information provided by Claritas, is included in **Table 17**, on the following page.

Table 17
Area of Influence
Jobs and Average Salaries

Industry / Business Type	# Businesses	# Employees	Average Salary
Retail Trade	4,540	66,030	$26,724
Building Materials and Garden Supply	119	2,639	-
General Merchandise Stores	82	3,829	-
Food Stores	338	6,322	-
Auto Dealers and Gas Stations	242	2,416	-
Apparel and Accessory Stores	535	3,413	-
Home Furniture, Furnishings, and Equipment	540	5,939	-
Eating and Drinking Places	1,476	27,565	-
Miscellaneous Retail Stores	1,208	13,907	-
Finance	2,546	35,442	$54,270
Banks, Savings and Lending Institutions	520	8,760	-
Securities and Commodity Brokers	391	6,860	-
Insurance Carriers and Agencies	297	6,533	-
Real Estate	1,251	11,882	-
Trusts, Holdings, and Other Investments	87	1,407	-
Services	11,246	187,449	-
Hotels and Other Lodging	145	10,814	$16,009
Personal Services	1,851	9,698	-
Business Services	3,230	44,801	$65,346
Motion Picture and Amusement	563	5,576	$33,640
Health Services	1,843	49,880	$39,581
Legal Services	1,629	16,436	$65,346
Education Services	304	30,828	$43,138
Social Services	508	8,375	$39,581
Miscellaneous, Membership Organizations and Nonclassified	1,173	11,041	-
Agriculture	251	3,151	$16,276
Mining	5	36	$61,724
Construction	866	7,331	$45,369
Manufacturing	716	20,362	$52,281
Transportation, Communication/Public Utilities	665	25,293	$98,576
Wholesale Trade	776	12,763	$60,333
Public Administration	711	42,690	$45,436
Total	22,322	400,547	-

12.4 Affordable Housing Analysis

In order to calculate the number of expected workers likely to find appropriate employment within the AOI, it was necessary to first estimate the yearly cost of each tier. For purchased units, it was assumed that no more than one-third of an individual's income would be used for mortgage costs, that a 7.0% interest rate on a 30-year conventional loan could be obtained, and that a 10% down payment would be made. The monthly rent for apartments was assumed to be the monthly cost for the calculation. Because there is an average of 1.22 workers expected per household, the required income for each range was divided by 1.22 to determine the average salary each worker within the development would be expected to earn in order to provide their "fair share" of the housing costs. This methodology assumes an equal burden on all workers within the development, and is considered to be a conservative approach since it eliminates the lower paying positions within the AOI from consideration in the analysis. **Table 18** displays the number of workers expected in each price range, as well as the number of jobs available at the necessary average income level to afford housing within that price range. As can be seen in the table, there are more than enough positions available within the AOI for expected workers within the proposed development to find employment at the required minimum income level for both levels of pricing within the development, thus satisfying the GRTA requirement of 25%.

Table 18
Expected Workers

	Average Monthly Price	Necessary Income per Expected Worker (Yearly)	Expected Workers per Price Range	Jobs at or above Necessary Income
Condominiums/Townhouses				
A-S	$1,362	$40,196	21	235,982
A-1BR	$1,879	$55,436	89	99,329
A-2BR	$3,018	$89,050	129	25,293
A-3BR	$4,497	$132,692	27	0
A-LW	$2,697	$79,597	9	25,293
C-S	$973	$28,712	15	299,813
C-1BR	$1,341	$39,578	65	294,237
C-2BR	$2,156	$63,607	94	86,530
C-3BR	$3,212	$94,793	20	25,293
C-LW	$1,927	$56,849	6	99,329
TH	$2,096	$61,840	21	86,530
Apartments				
Studio	$1,020	$30,098	95	299,813
1 BR	$1,200	$35,410	239	294,237
2 BR	$1,570	$46,328	129	155,133
2 BR+	$2,020	$59,607	106	99,329
Percent of expected workers likely to find necessary employment within the AOI				**97.5%**

13.0 ARC'S AIR QUALITY BENCHMARK

The proposed development is mixed-use on approximately 53 acres (22 developed acres). Because residential is the dominant use and the dwelling unit to acre ratio is greater than 15 units per acre, the development meets the ARC criteria for a 6% reduction.

The site is located within a quarter mile of MARTA bus stops and Emory's Cliff shuttle stops; therefore, the development meets the ARC criteria for a 3% reduction. In addition, the site is located within the Clifton Corridor TMA and provides parking management and incentives, which qualifies for a 5% reduction.

The proposed site plan shows bike/ped networks providing connections to uses within the site as well as to uses adjoining the site and it meets the residential density target above; therefore, the development meets the ARC criteria for a 5% reduction.

The proposed development meets the ARC criteria of 15% with a total of 19% VMT reduction. These reductions are displayed below in **Table 19**.

Table 19
ARC VMT Reductions

Units per acre greater than 15 du/ac	-6%
Located within ¼ mile of transit bus stop	-3%
Located within a transportation management association and provides parking management	-5%
Provides bike/ped connections within/adjoining the site and meets density target	-5%
Total Reductions	**19%**