



PLANNING COMMISSION MEETING

JUNE 1, 2017

ALPHARETTA CITY HALL
COUNCIL CHAMBERS
2 PARK PLAZA
6:30 PM

- I. CALL TO ORDER
- II. ROLL CALL
- III. APPROVAL OF MEETING MINUTES

a.

The May Minutes will be considered for Approval on July 12, 2017.

- IV. ITEMS FROM BOARD MEMBERS
- V. ITEMS FROM STAFF
- VI. PUBLIC HEARING

- a. CLUP-17-02/Z-17-04 Taylor Morrison/40 Cumming Street
Consideration of a request to rezone 0.837 acres from R-15 (Dwelling, 'For-Sale' Residential) to DT-LW (Downtown Live-Work) and rezone 10.868 acres from R-15 to DT-R (Downtown Residential) to allow for the construction of 40 'For-Sale' townhomes, 30 'For-Sale' detached homes and to allow a historic structure to be used for an office. A comprehensive land use plan amendment is requested from Downtown Residential Density to Central Business District. The property is located on the north side of Cumming Street between Highway 9 and Manning Drive at 40 Cumming Street and is legally described as being located in Land Lots 1196 and 1253, 2nd District, 2nd Section, Fulton County, Georgia.
- b. c. CU-17-06/V-17-15 Village Park at Wills Road/Assisted Living
Consideration of a request for conditional use to allow an assisted living facility. Variances are requested to reduce setbacks, increase building height and reduce the undisturbed buffer requirement between residential and non-residential uses. The property is located at the northwest corner of Highway 9 and Wills Road at 437 Wills Road and 1650 South Main Street and is legally described as being located in Land Lot 600, 1st District, 2nd Section, Fulton County, Georgia.
- c. b. CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/V-17-16 Northwinds Summit/Pope & Land
Consideration of a request to rezone 24.547 acres from O-I (Office-Institutional) to MU (Mixed Use) to allow for the construction of a mixed-use development, including 140 For-Rent' apartment units, 32 'For-Sale' stacked condominium units, 1,230,000 square feet of office, 140-room hotel and 30,000 square feet of retail/restaurant use. A comprehensive land use plan amendment is requested from Corporate Office to Mixed Use, as well as a master plan amendment to the Northwinds Master Plan Pod A to add the proposed development mix to the subject property. A conditional use is requested to allow 'Dwelling, 'For-Rent' Residential' use and a variance is requested from the 'Dwelling, 'For-Rent' Residential' standards and to reduce the minimum lot size in the MU district. The property is located at the northeast corner of Haynes Bridge Road and Georgia 400 and is legally described as being located in Land Lots 752, 753, 798 and 799, 1st District, 2nd Section, Fulton County, Georgia.
- d. PH-17-12 UDC TEXT AMENDMENTS (Deferred by Planning Commission)
Consideration of text amendments to the Unified Development Code addressing 'Hotel' definitions and reduce front setback requirements for certain North Main Street properties

- VII. ADJOURNMENT



CITY COUNCIL MEETING STAFF REPORT

SUBMITTING DEPARTMENT: COMMUNITY DEVELOPMENT

SUBMITTED BY: KATHI COOK

DRAFTED BY: MICHAEL WOODMAN

I. AGENDA ITEM TITLE: CLUP-17-02/Z-17-04 TAYLOR MORRISON/40 CUMMING STREET

PLANNING COMMISSION: JUNE 1, 2017

CITY COUNCIL: JUNE 19, 2017

II. RECOMMENDATION:

Approve CLUP-17-02/Z-17-04 Taylor Morrison/40 Cumming Street, subject to the following conditions:

1. The site, consisting of approximately 10.9 acres, shall be zoned DT-R and developed substantially similar to site plan submitted by PEC, dated 5/17/2017, except for modifications required to comply with the conditions below. However, lot yield depicted is not guaranteed and subject to meeting all City code requirements and conditions of zoning.
2. The Lewis-Manning House property, consisting of approximately 0.8 acres, shall be zoned DT-LW and developed substantially similar to site plan submitted by PEC, dated 5/17/2017, except for modifications required to comply with the conditions below. Use shall be restricted to office or HOA use.
3. The permitted residential product on the property shall be single-family detached. Minimum lot size shall be 6,000 square feet along Cumming Street, Manning Drive and adjacent to existing residential. Internal lots shall have a minimum lot size of 2,500 square feet in order to maximize tree saves.
4. Lots along Manning Drive and lots that back up to existing homes on Manning Drive shall have a minimum lot width of 80'.
5. Homes adjacent to existing residential and commercial shall be front loaded.
6. Single-family detached architecture and materials shall be developed substantially similar to the renderings prepared by Main Street Designs, dated 5/22/2017, except for modifications required to comply with these conditions, and in compliance with the Alpharetta Downtown Code subject to approval by Staff. Front porches and stoops shall have a minimum depth of 8'. Bay windows shall have a minimum depth of 2'. 4-sided architecture and materials shall be required. A minimum 50% of homes along Cumming Street and Manning Drive shall be brick or stone.
7. If townhome use is approved, architecture and materials shall be developed substantially similar to the renderings prepared by Main Street Designs, dated 5/22/2017, except for modifications required to comply with these conditions, and in compliance with the Alpharetta Downtown Code subject to approval by Staff. Townhomes shall have a low pitched roofline, tall windows, decorative window trim and wide cornice overhangs with decorative brackets beneath as depicted in photographic examples of Italianate style, as approved by Staff. Some form of brick panel shall be required in the blank space below small windows. Front porches and stoops shall have a minimum depth of 8'. Bay windows shall have a minimum depth of 2'. 4-sided architecture and materials shall be required.
8. The Historic Lewis-Manning House shall be restored and protected. Restoration and modifications shall require review and approval by Staff. The exterior of the home shall be restored prior to the first Certificate of Occupancy on the property. Landscaping and fencing style shall be designed to complement the time period of the historic home.
9. An easement shall be recorded on the final plat providing for use of the Lewis-Manning House yard as amenity space for the proposed subdivision.

10. The yard surrounding the Lewis-Manning House shall be enhanced with landscape, hardscape, seating areas and a sculpture or fountain, as approved by Staff. Evergreen plantings shall be required along the north and east sides of the Lewis-Manning House.
11. Developer shall provide a statement on the final plat and in the HOA covenants, conditions & restrictions providing for the protection and maintenance of the Lewis-Manning House.
12. The Lewis-Manning House shall be permitted 1 monument sign not to exceed 10 square feet and 1 wall sign shall not exceed 4 square feet both to be approved by the DRB. The property will forever be known as the Lewis Manning House and will be so designated by a plaque, which will be affixed to the exterior of the structure as approved by the DRB.
13. A minimum 15' transitional, planted buffer, as depicted on the zoning plan, shall be provided adjacent to the existing Manning Drive residential properties to the east and shall be planted with evergreen trees and/or shrubs to provide a visual screen between uses, as approved by Staff. Buffer shall be recorded as undisturbed.
14. A minimum 15' landscape buffer shall be provided adjacent to properties to the west zoned commercial.
15. Roadways with on-street parking shall incorporate curb extensions at intersections. Internal road shall include on-street parking and sidewalk, where feasible, as approved by Staff.
16. Civic space along Cumming Street shall be developed with a park-like setting with heavy decorative landscape, hardscape, walls and seating. The landscape shall include plant selections promoting the historic district. Civic area to be maintained by the HOA.
17. The corner of Cumming Street and Manning Drive shall be heavily landscaped with evergreen plantings to screen the side of Units 4 & 5 and internal driveway and decorative ornamental plantings.
18. A stacked stone, brick or granite wall shall be constructed between homes and front landscape area. Under ledge wall lighting shall be required. Benches and a public art pedestal shall be approved by Staff.
19. Civic and amenity areas shall include a mix of trees, shrubs, and ground covers of varying heights, textures and colors as approved by Staff.
20. Development shall not be gated and roads will be private and maintained by the HOA.
21. Developer shall remove, by hand, trash from the stream at the north end of the property.
22. Add trees, shrubs and ground cover plantings to the south side of the multi-use trail where cleared or sparse. Plantings will consist of traditional native southern plants creating a manicured park-like natural appearance as approved by Staff.
23. In addition to required trees in the on-street parking bump outs, shade trees alternating with flowering ornamental trees shall be planted on the backside of the sidewalk as approved by Staff. In lieu of tree grates, the soil area around the trees shall be planted with evergreen ornamental grasses, groundcovers or shrubs. Creeping fig or another creeping vine shall be planted to cover decorative and retaining walls as approved by Staff.
24. Civic space depicted on Sheet Z3 along Cumming Street and the stream, as well as the sidewalk connecting the two areas shall be recorded for public use. Multi-use path along Cumming Street shall be a 12' concrete accessible path. Multi-use path connection and along stream shall be a minimum 6' concrete accessible path and incorporated within a 10' pedestrian access easement. Easement documents shall address maintenance responsibilities, which shall be maintained by the HOA. Decorative entrance signage with arch, lighting, seating areas, landscape and hardscape shall be provided, as approved by Staff.
25. Driveways shall be a minimum 18' from garage to back of sidewalk or less than 5'.
26. Parking areas and internal driveways shall be heavily screened from Cumming Street, Manning Drive and civic space.
27. Internal sidewalks shall be provided to the fronts of units and shall be a minimum 5' with pedestrian-scale lighting provided throughout the development.
28. Fencing visible from the street or civic areas shall be decorative as approved by Staff.
29. Existing trees shall be preserved as depicted on Sheet Z1 prepared by PEC, revised 5/19/2017. In addition, the developer shall save the following trees: #71 (24" Water Oak), #539 (24" Water Oak) and #540 (25" Water Oak). Additional encroachments shall be allowed per this plan with additional tree care to offset the

encroachment as approved by Staff. The 2 non-specimen trees along Manning Drive shall be incorporated into lots along Manning Drive.

30. Remove exotic and invasive trees and shrubs within open space, tree save areas and stream buffer and replant where sparse as approved by Staff.
31. Final streetscape shall match the approved Downtown streetscape standards and include decorative pedestrian lighting as approved by Staff. Street trees shall be required along Cumming Street within the beauty strip, as well as behind the sidewalks as a continuation of what has been previously planted or designed in the Downtown, as approved by Staff. Heavy landscaping shall be provided along Manning Drive, as approved by Staff. All required landscaping shall be outside of utility easements.
32. Street trees of the proper size and locations shall be required along all internal roads as approved by Staff.
33. Off-site tree encroachment shall be limited to no more than 20% on the CRZ and shall require notification/approval by property owner, as approved by administrative variance.
34. Decorative paver aprons shall be required at the project driveway as approved by Staff.
35. Landscape, hardscape, fences and walls shall complement materials used in the Downtown, as approved by Staff.
36. No more than 10% of the residential units shall be permitted to be rented, as recorded in the HOA's declarations and covenants.
37. Overhead utilities shall be placed underground.
38. Final detention area shall be substantially similar to site plan with no additional tree clearing.

III. REPORT IN BRIEF:

The applicant, Taylor Morrison, is requesting to rezone approximately 10.9 acres from R-15 (Dwelling, 'For-Sale' Residential) to DT-R (Downtown Residential) to allow for the construction of 40 'For-Sale' townhome units and 29 'For-Sale' detached homes. An additional rezoning of approximately 0.8 acres from R-15 to DT-LW (Downtown Live-Work) is requested to allow a historic structure (Lewis-Manning House) to be restored and used as an office. A change to the Comprehensive Land Use Plan designation of the Lewis Manning House property is requested from 'Downtown Residential Density' to 'Mixed Use Live Work'. The property is located on the north side of Cumming Street between Highway 9 and Manning Drive at 40 Cumming Street.

DISCUSSION

The submitted request, if approved, will allow Taylor Morrison to construct 69 'For-Sale' townhome and single-family detached units on 11.71 acres with a residential density of 5.89 dwelling units per acre. In addition, the applicant proposes to save and restore the Lewis-Manning House and to use it as an office. The property is located on the north side of Cumming Street between Highway 9 and Manning Drive at 40 Cumming Street and 136 Manning Drive.

The property consists of three (3) parcels of land, including two (2) single-family detached homes and a small vacant residential lot. The subject property and surrounding properties are zoned R-15 to the east, R-12 to the north, C-1 and O-I to the west and O-I and R-15 to the south. The Manning Drive subdivision is adjacent to the east, Manning's Ridge to the north, North Main Street commercial and office properties to the west and Alpharetta First United Methodist Church to the south. The proposed residential use is consistent with the Comprehensive Land Use Plan designation of the property, which is 'Downtown Residential Density'. The applicant proposes a comprehensive land use plan amendment to allow the Lewis-Manning House to be used as an office.

The Lewis-Manning House was built in 1895 for Col. Tom Lewis and later sold to the Manning Family in 1905. The 2-story home was designed in the Queen Anne style. The applicant proposes to save and restore

the home and to use it as a professional office. This request is similar to the East of Main development, where the Ben Manning House was saved, restored and approved for use as a professional office.

As reflected in the table below, a total of 280 townhomes have been approved within the Downtown Overlay. However, townhome units have not been approved along Cumming Street, only detached small lots. For comparison, 156 single-family detached (SFD) units and 90 condominium units have been approved in the Downtown Overlay. The Downtown Master Plan, which was approved in February 2015, included a Market Study (see table below) indicating that the Downtown area could absorb 185-210 townhome units over the next five (5) years. It is worth noting that the *For-Sale Housing Demand Analysis for Downtown Master Plan; Alpharetta, GA* states the following:

“The outcome of this analysis is intended to provide a guide for master-planning the Downtown Alpharetta study area. As noted in the master plan document, the results are a measure of market viability not a prediction or recommendation for Downtown development.”

‘For-Sale’ Residential Approved within the Downtown Overlay

Development	Downtown Area	Number*
Edward Andrews Homes	Thompson St	23 TH/17 SFD
Thompson St Flats	Thompson St	24 C
Southerton	Thompson St	3 SFD
Old Milton Holdings	Thompson St	25 SFD/88 TH/42 C
Hedgewood (Voysey)	Thompson St	42 SFD
Aycock	Thompson St	7 SFD
East of Main	Academy St	41 SFD/42 TH
Lehigh Homes	Cumming St	9 SFD
Twelve on Canton	Canton St	12 SFD
Teasley Place	Canton St/Academy St	24 C
Chelsea Walk	Old Milton Pkwy	49 TH
Perling (Devore & South Main)	South Main St	78 TH
Total		156 SFD/280 TH/90 C

*SFD = Single Family Detached, TH = Townhome, C = Condominium

Downtown Master Plan 5-Year Market Study (Approved February 2015)

Housing Type	Number of Units
Townhomes	185 – 210
Single-Family Detached	40 – 45
High-end Condominium	45 – 50
Entry-mid Priced Condominium	220 – 250
For-Rent Apartments	315 - 340

Residential densities vary in the Downtown, as shown in the table below. The applicant’s proposed density of 5.89 dwelling units per acre is lower than many other recent approvals in the Downtown. The surrounding neighborhoods of Manning Drive and Manning’s Ridge have residential densities between 1.5 and 2.0 dwelling units per acre. However, the closest approval is Lehigh Homes at 2.9 units per acre. The applicant’s request for 5.89 units per acre is more than double nearby approved density.

Downtown Overlay – Residential Densities

Development Name	Type	Acres	Density
Southerton/Aycock	10 SFD	1.232 acres	8.1 units/acre
City Center	42 SFD, 156 Apartments	25 acres	8.0 units/acre
Edward Andrews	17 SFD, 23 TH	5.85 acres	6.8 units/acre
Old Milton Holdings/Notting Hill	25 SFD, 89 TH, 42 Condo	23.89 acres	6.5 units/acre
Thompson Street Flats	24 Condo	2.39 acres	10.0 units/acre
Thompson St/Burnett Circle	43 TH	5.722 acres	7.5 units/acre
Lehigh Homes	9 SFD	3.1 acres	2.9 units/acre
Teasley Place	24 Condo	2.2 acres	10.9 units/acre
East of Main	41 SFD, 42 TH	10.43 acres	8.0 units/acre
Newvale (f.k.a. Olmstead Park)	23 TH	2.39 acres	9.6 units/acre
Twelve on Canton	12 SFD	5.465 acres	2.2 units/acre
Perling – S. Main/Devore	78 TH, 129 Apartments	12.913 acres	16.0 units/acre
Chelsea Walk	49 TH	7.04 acres	7.0 units/acre

SITE PLAN

The submitted site plan depicts 40 townhome units in six (6) buildings and 29 single-family detached homes on 11.71 acres. Each building is proposed to be three (3) stories or 35'. Single-family detached homes are oriented to Cumming Street and Manning Drive and are also depicted backing up to the Manning Drive properties at a ratio of two (2) proposed single-family lots to one (1) existing lot in Manning Drive subdivision. The single-family detached lot sizes vary from 3,000 square feet for lots along Manning Drive to 6,200 square feet for lots adjacent to the existing homes along Manning Drive. Townhome lots range from 1,600 to 3,000 square feet, with a minimum townhome width of 20'.

One (1) project driveway is depicted on Cumming Street. The applicant's original site plan depicted access from Manning Drive, which is consistent with the principles of transportation planning. However, the applicant made a decision to move the project access to Cumming Street due to a significant amount of concern voiced by the Manning Drive subdivision over possible negative impacts to their neighborhood. Access to the Lewis-Manning House and associated parking is proposed through the project driveway on Cumming Street.

16 on-street guest parking spaces are depicted at various locations throughout the development, which exceeds the Downtown Code requirement of 0.15 parking spaces per residential unit. Six (6) parking spaces are provided at the rear of the Lewis-Manning House, which meets the Downtown Code requirement of three (3) parking spaces per 1,000 square feet for office use. A 12' multi-use trail (sidewalk) is proposed along Cumming Street and a 5' sidewalk is proposed on Manning Drive. A minimum 15' landscape buffer is depicted along the east side of the property, adjacent to existing single-family lots on Manning Drive. Minimum building setbacks are shown as follows:

- Cumming Street – 10'
- Manning Drive – 10'
- Internal (Side) Setbacks – 0'
- Internal (Rear) Setbacks – 10' (alley), 3' (No alley)

The applicant's site plan depicts 1.23-acres of amenity space and 0.88-acres of civic space. A linear park is depicted along Cumming Street and includes a 12' concrete multi-use trail. A six-foot (6') sidewalk runs through the center of the property and will provide a connection between the multi-use trail along Cumming Street and a pocket park on the north end of the property adjacent to the stream. Additional pocket parks are depicted at other locations within the development, with some including tree save areas.

The Alpharetta Downtown Code requires a minimum 10% civic space and 10% amenity space. UDC Subsection 3.2.4(l) considers a site's open space requirements to be completely satisfied when a development incorporates a historic building. The Lewis-Manning House (40 Cumming Street) is on the City's Historic Resources Inventory List and the developer will make necessary improvements to allow for human habitation of the structure. A legal agreement will be required guaranteeing the maintenance of the building through the established HOA.

There are several trees on the subject property identified as specimen quality, consisting mainly of Hardwoods (Oak, Poplar, Sweet Gum, Maple and Dogwood) and Pines. Staff had concerns with the applicant's initial site plan, which did not save many specimen trees. The applicant revised the site plan to incorporate additional tree save areas, including two (2) areas around the Lewis-Manning House, an area at the center of the site and the area along and through the stream buffer. The Arborist stated that additional trees should be saved on the property, such as a large grouping of trees on the eastern side of the site near the existing residential. Also, the applicant should be required to limit tree removal for detention beyond what is identified on the site plan.

Stormwater management facilities are depicted as two (2) above-ground facilities, with proposed locations near the stream in the northeast corner of the site and just south of 160 Manning Drive.

ELEVATIONS

The applicant's proposed renderings reflect three (3) architectural styles approved in the Downtown Overlay, including Queen Anne, Greek Revival and Italianate. According to the applicant's architect, the single-family detached homes will be a mix of the three (3) above-mentioned architectural styles and the townhome buildings will be Italianate architectural style. Renderings of the single-family detached product depict a variety of materials, including siding, board and batten and brick. Renderings of the townhome product depict 4-sided brick buildings.

The City's Downtown Architect reviewed the proposed building elevations and finds the elevations to be generally in compliance with the Downtown Code. The following comments were provided by the Downtown Architect:

- Townhome Product:
 - Small windows in the middle leave a blank area. Use some form of brick panel to help the proportions.
 - Italianate style includes a low pitched roofline, tall windows and decorative window trim, which is not fully realized on the townhome rendering.
 - It is unclear if the townhome buildings have the wide cornice overhangs with decorative brackets beneath as depicted in examples of Italianate style.
 - The stoop and bay windows should have more depth.

- Single-family Detached Product:
 - Building footprints and rooflines should have more variation.
 - Need more masonry product on single-family detached homes.
- General Comment:
 - All buildings should be 4-sided architecture with the same primary building material on all 4 sides.

TRAFFIC

The applicant commissioned a Traffic Impact Assessment (TIA) at the request of staff in order to evaluate the effect of new traffic from the development. The development's trip generation is presented in Table 1 below. Based on the traffic study assumptions, approximately 59 new vehicle trips are expected to be added to the City transportation system during the PM Peak Hour period. It should be noted that the site plan and proposed development intensity has changed since the traffic study was initiated. However, the number of trips expected from the current proposal are less than presented in the study.

Table 1: Project Trip Generation Summary							
Land Use (Intensity)	ITE Code	Daily Traffic		AM Peak Hour		PM Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
19 units – Single-Family Detached Housing	210	113	113	6	17	15	9
52 units – Residential Condominium / Townhouse	230	182	182	5	26	23	12
Total New Trips		295	295	11	43	38	21

Intersection operations were evaluated along Cumming Street at North Main Street, the proposed site access, Manning Drive and Cricket Lane. At all intersections, traffic operations were found to perform at or better than the Level of Service C, well within the City's transportation system performance goals.

One element identified in the TIA is that traffic congestion experienced along Cumming Street at North Main Street is difficult under existing and proposed conditions, with vehicle queues extending beyond the proposed site access at times during the PM Peak Hour period. As one approach to avoid exacerbating the issue, the intersection at Manning Drive was evaluated assuming an alternative site access onto Manning Drive. Even with all proposed site traffic and existing traffic from Manning Drive, the intersection was found to continue to operate at or better than Level of Service C, making the alternative site access onto Manning Drive a scenario worth considering.

SCHOOLS

Residential development is known to increase school enrollment. Fulton County calculated the potential maximum number of children who may live on the property by using the Fulton County Schools standard calculation to identify the number of children that a residential development will generate. The following chart outlines these figures:

FULTON COUNTY SCHOOLS – 40 Townhome Units & 29 Single-Family Detached Units

School	Single Family Average #
Manning Oaks Elementary School	5 to 22 students
Hopewell Middle School	2 to 9 students
Alpharetta High School	5 to 17 students
TOTAL	12 to 48 students

Based on the total figure for all three school levels, it can be assumed that the proposed development could house approximately 12 – 48 school age children. Numbers provided by Fulton County Schools show that Alpharetta High School has capacity; however, Manning Oaks Elementary School and Hopewell Middle School are currently over capacity.

STANDARDS FOR ZONING CHANGES

The Planning Commission and the City Council shall consider the following standards in considering a rezoning application, giving due weight or priority to those factors particularly appropriate to the circumstances of each application:

- a. Whether the zoning proposal will permit a use that is suitable in view of the zoning use and development of adjacent and nearby property.

Response: The zoning proposal is suitable as it relates to adjacent or nearby properties, if conditions are approved restricting the residential product to single-family detached and requiring lots adjacent to or fronting on Manning Drive to be of a similar sized lot. While approval of the applicant's request would result in the Lewis-Manning House being used as a private office, the restoration and protection of the structure is a benefit to the Alpharetta community and the yard will remain open to residents of the subdivision as amenity space.

- b. Whether the zoning proposal will adversely affect the existing use or usability of adjacent or nearby property.

Response: The zoning proposal will not adversely affect the existing use or usability of adjacent or nearby properties, if conditions are approved restricting the residential product to single-family detached and requiring lots adjacent to or fronting on Manning Drive to be of a similar sized lot. While approval of the applicant's request would result in the Lewis-Manning House being used as a private office, the restoration and protection of the structure is a benefit to the Alpharetta community and the yard will remain open to residents of the subdivision as amenity space.

- c. Whether the zoning proposal will adversely affect the natural environment.

Response: The applicant's proposal respects the on-site stream and associated buffers. Tree save areas are depicted at several locations on the site. Staff recommends a condition requiring additional tree saves.

- d. Whether there are substantial reasons why the property cannot or should not be used as currently zoned.

Response: The subject property could be developed under the existing zoning of R-15, which is similar to the zoning of surrounding residential subdivisions and only allows single-family detached homes. While approval of the applicant's request would result in the Lewis-Manning House being used as a private office, the restoration and protection of the structure is a benefit to the Alpharetta community and the yard will remain open to residents of the subdivision as amenity space.

e. Whether the zoning proposal will result in a use that will or could cause an excessive or burdensome use of public facilities or services, including but not limited to existing streets and transportation facilities, schools, water or sewer utilities, and police or fire protection.

Response: The zoning proposal should not have significant impacts on public facilities or services. However, the proposal would represent an increase to the allowable density on the subject property.

f. Whether the zoning proposal is supported by new or changing conditions not anticipated or reflected in the existing zoning on the property.

Response: The subject property is located in the Downtown Overlay, which reflects. The proposed use of the Lewis-Manning House for an office is consistent with the Downtown Master Plan vision of a walkable, mixed-use environment. However, staff recommends that the residential product be limited to single-family detached units due to concerns over townhomes being overbuilt in the City.

g. Whether the zoning proposal reflects a reasonable balance between the promotion of the public health, safety, morality or general welfare against the right to unrestricted use of property.

Response: The applicant's zoning proposal generally reflects a reasonable balance. The proposed residential use is consistent with the Downtown Master Plan and the proposed office use of the Lewis-Manning House is consistent with the live-work vision in the Downtown. However, staff recommends that the residential product be limited to single-family detached units due to concerns over townhomes being overbuilt in the City.

h. Whether there are substantial reasons why the property cannot be used in accordance with existing zoning.

Response: The subject property could be developed under the existing zoning of R-15, which is similar to the zoning of surrounding residential subdivisions and only allows single-family detached homes. While approval of the applicant's request would result in the Lewis-Manning House being used as a private office, the restoration and protection of the structure is a benefit to the Alpharetta community and the yard will remain open to residents of the subdivision as amenity space.

i. The extent to which the zoning proposal is consistent with the Comprehensive Plan.

Response: The request to allow 'For-Sale' residential uses is consistent with the comprehensive land use plan designation of the property, which is Downtown Residential Density. However, the request to use the Lewis-Manning House as an office does not meet the comprehensive land use plan designation of the property. Therefore, the applicant proposes a change to the designation of the Lewis-Manning House property to Mixed Use Live Work.

COMPREHENSIVE LAND USE PLAN

Unified Development Code Section 4.1.3 Standards for CLUP amendment approval, provides the following criteria for consideration when evaluating a request for a change in land use:

A. The extent to which a change in the economy, land use or development opportunities of the area has occurred.

Response: If the applicant's request is approved, the Lewis-Manning House will be saved and restored as a condition of zoning. The request to utilize the historic structure as an office is consistent with the Downtown Master Plan, which encourages the preservation of historic resources.

B. The extent to which the proposed designation is in compliance with the goals and policies of the Plan.

Response: The applicant's proposal is consistent with many of the goals and policies in the City's Comprehensive Plan, including promoting a mix of uses and walkability in the Downtown.

C. The extent to which the proposed designation would require changes in the provision of public facilities and services.

Response: The proposal would not generate significant impacts on public facilities and services.

D. The extent to which the proposed designation would impact the public health, safety, and welfare.

Response: While approval of the applicant's request will result in the Lewis-Manning House being used as a private office, the restoration and protection of the structure is a benefit to the Alpharetta community and the yard will remain open to residents of the subdivision as amenity space.

E. The extent to which additional land area is needed to be developed for a specific type of use.

Response: Not applicable.

F. The extent to which area demographics or projections are not occurring as projected.

Response: Not applicable.

CONCURRENCES

Staff has reviewed the applicant's proposal and finds that it can generally support the applicant's request for comprehensive land use plan amendment and rezoning. While the proposed change of use is consistent with the intent of the Downtown Master Plan, staff has concerns with the proposed residential density immediately adjacent to Manning Drive, as well as entitlement of additional townhome units in the Downtown. Lehigh Homes was approved in 2016 with a density of 2.9 units per acre and a minimum lot size of 7,000 square feet. A similar detached development could be developed on the subject property. Staff supports the preservation of the Lewis-Manning House and the proposed use of the structure as a professional office. If approval is considered, conditions are recommended that guarantee maintenance

and protection of the historic structure, as well as restricting the residential product to single-family detached and to limiting the residential density adjacent to Manning Drive.

CITIZEN PARTICIPATION PLAN

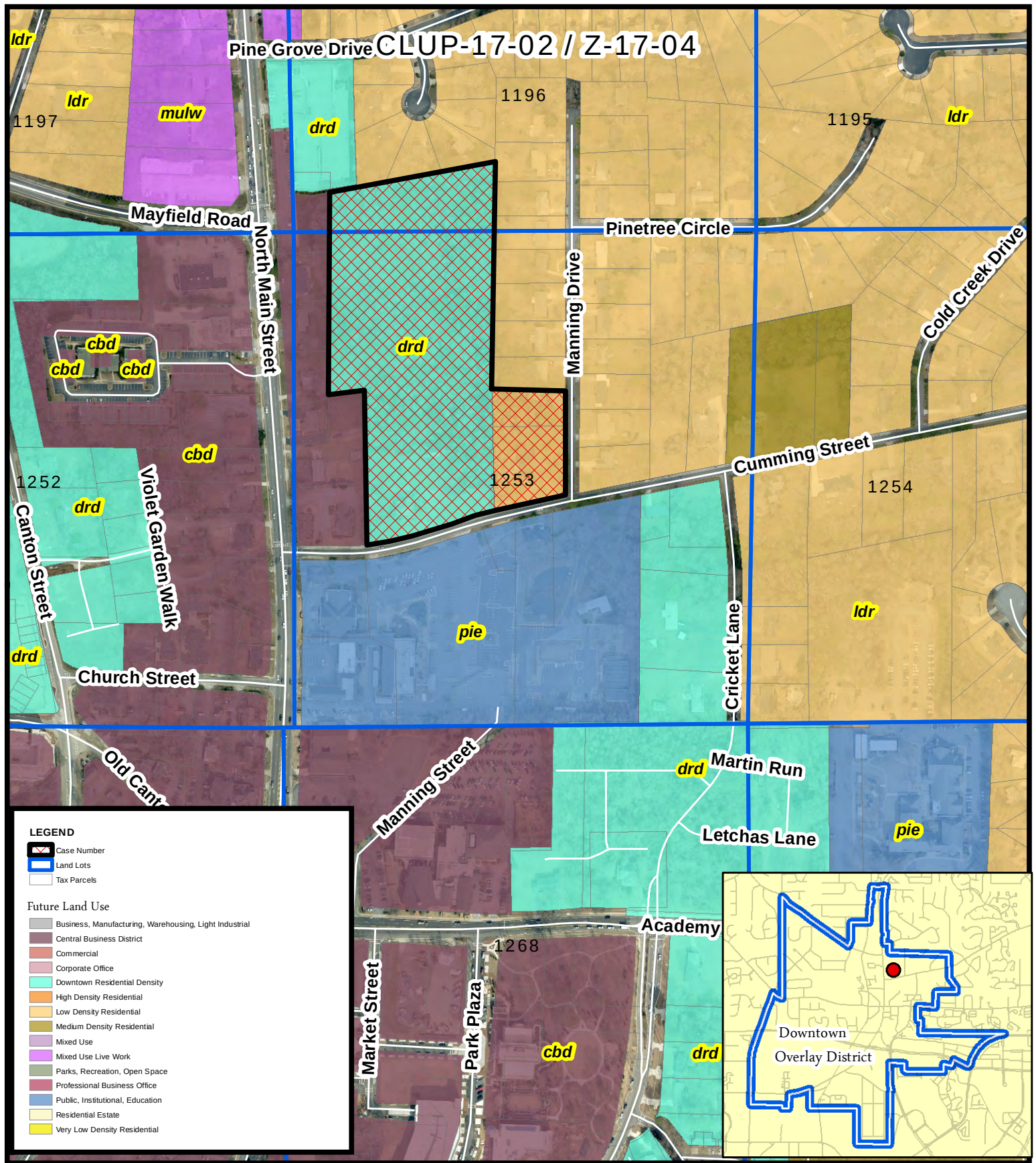
The report submitted by the applicant states that property owners within 500' were contacted regarding the applicant's intent. The report states that the applicant met with Manning's Ridge HOA Board, residents of Manning Drive subdivision and other adjacent property owners. According to the applicant, support for the project was mixed, with many saying that they would support the project if the project driveway was moved to Cumming Street. Other topics of concern that were raised, included stormwater, trees, density and townhome product.

At the request of the neighborhood, Staff met with several residents from Manning Drive subdivision to provide an overview of the applicant's request and to allow the neighborhood to voice their concerns. The following list of concerns were provided at this meeting:

- Not enough notice given to neighborhood by the applicant for a community meeting. Requested that the applicant defer to June or July.
- Do not support project access from Manning Drive. Access should be from existing driveway on Cumming Street.
- Density is too high. Density should represent a transition to surrounding, existing neighborhoods.
- Increase size of lots adjacent to Manning Drive subdivision. Lot sizes should be 1-to-1 (proposed vs. existing).
- Concerned that using the Lewis-Manning house as an office would destroy the interior of the home.
- Concerns over stormwater (location, run-off, mosquitos).
- Save more trees, many trees over 100 years old.
- Provide buffer between proposed development and Manning Drive subdivision (undisturbed and/or replanted, possibly a fence).
- All buildings should be 4-sided architecture and masonry materials.
- The City should purchase the property for a park or the developer should build a city park with very low density lots surrounding the park.
- Concern with townhomes being over-built. Applicant should provide a market study to support the request.
- What will happen to wildlife on the property?

IV. ATTACHMENTS:

- Site Plan
- Renderings

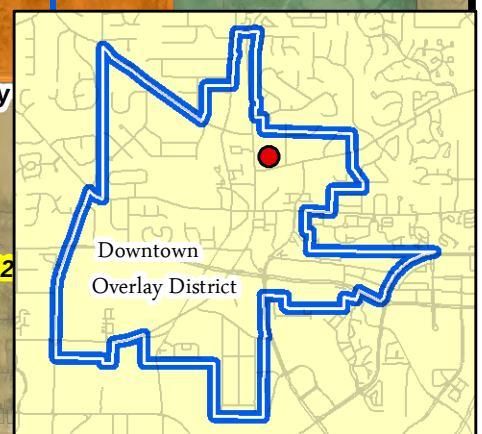
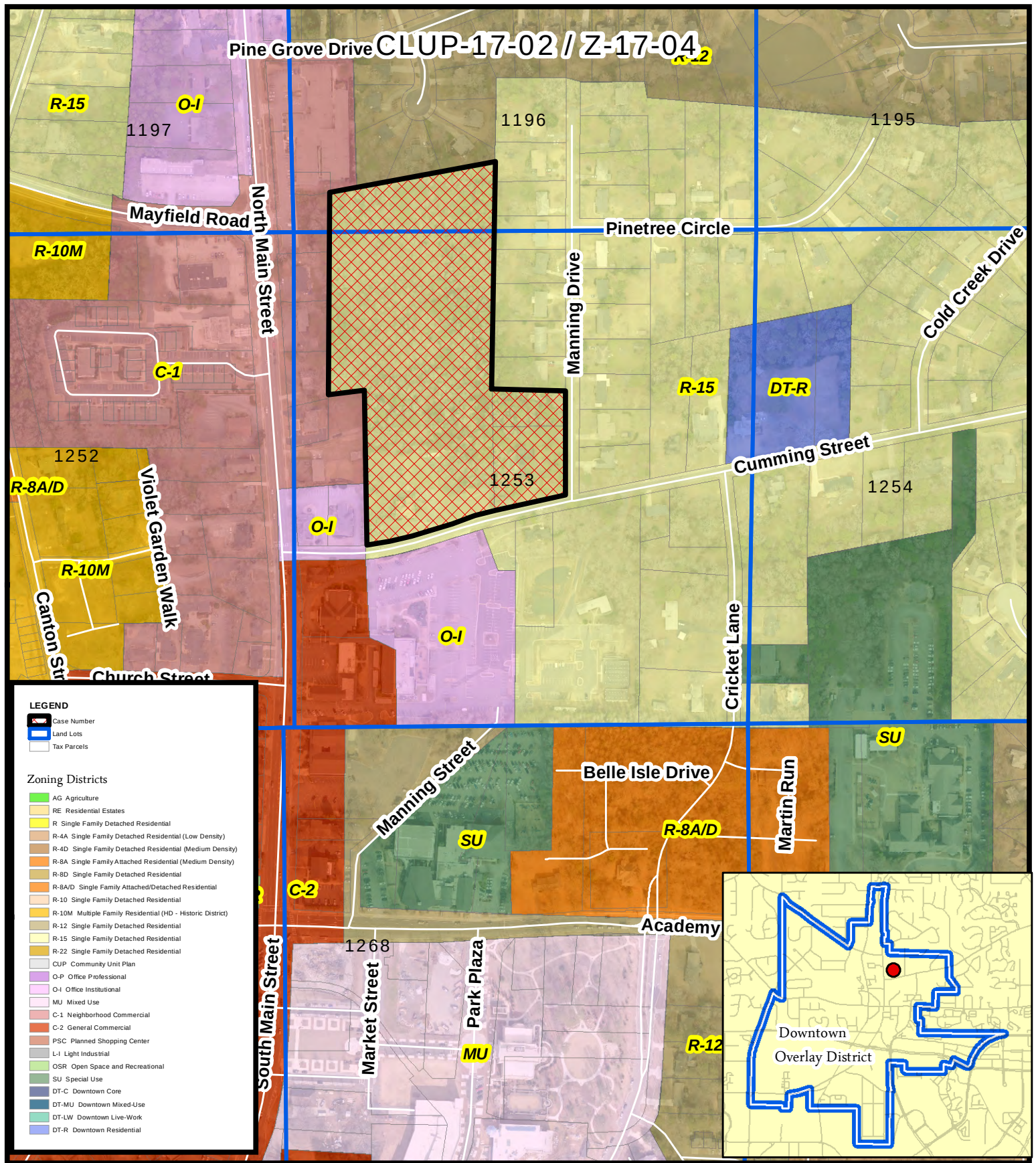


Future Land Use Taylor Morrison 40 Cumming Street

CLUP-17-02/Z-17-04
D/LL: 2/2/1196, 1253
PC Date: 5/10/17
CC Date: 5/22/17



Location Map Provided by:
Community Development - GIS

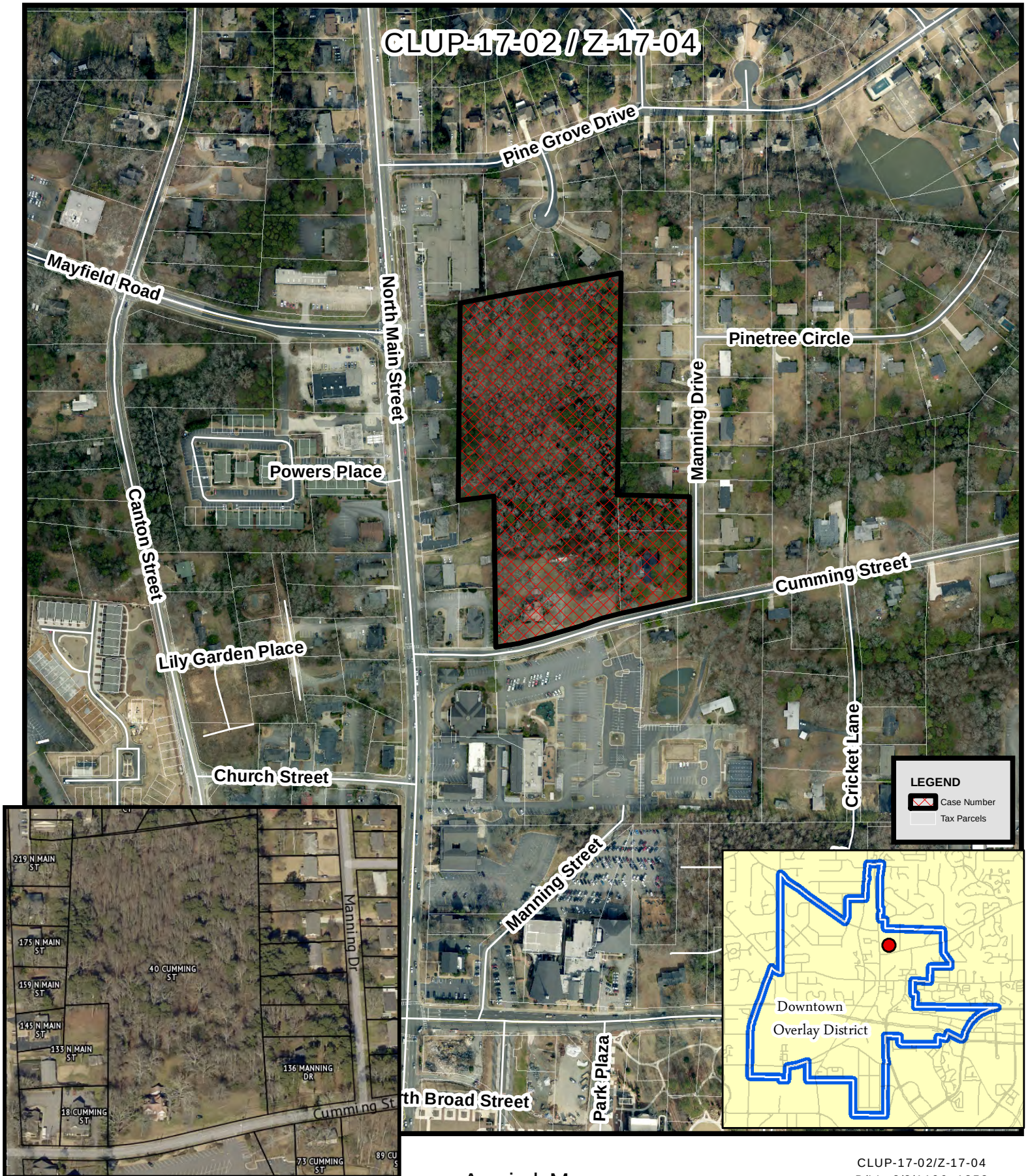


Zoning Map Taylor Morrison 40 Cumming Street

CLUP-17-02/Z-17-04
D/LL: 2/2/1196, 1253
PC Date: 5/10/17
CC Date: 5/22/17

Location Map Provided by:
Community Development - GIS

CLUP-17-02 / Z-17-04

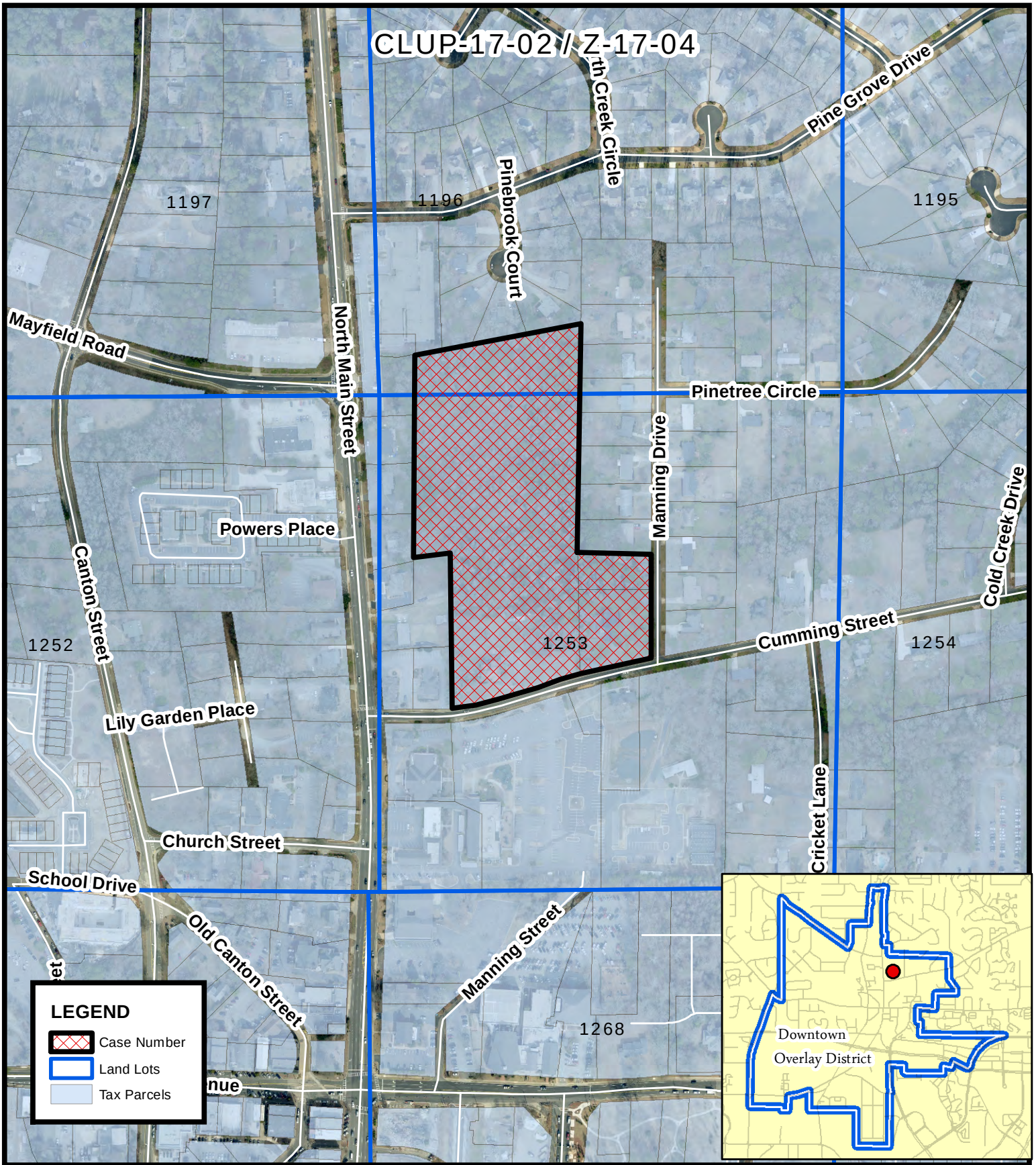


Aerial Map
Taylor Morrison
40 Cumming Street

CLUP-17-02/Z-17-04
D/LL: 2/2/1196, 1253
PC Date: 5/10/17
CC Date: 5/22/17

Location Map Provided by:
Community Development - GIS

CLUP-17-02 / Z-17-04

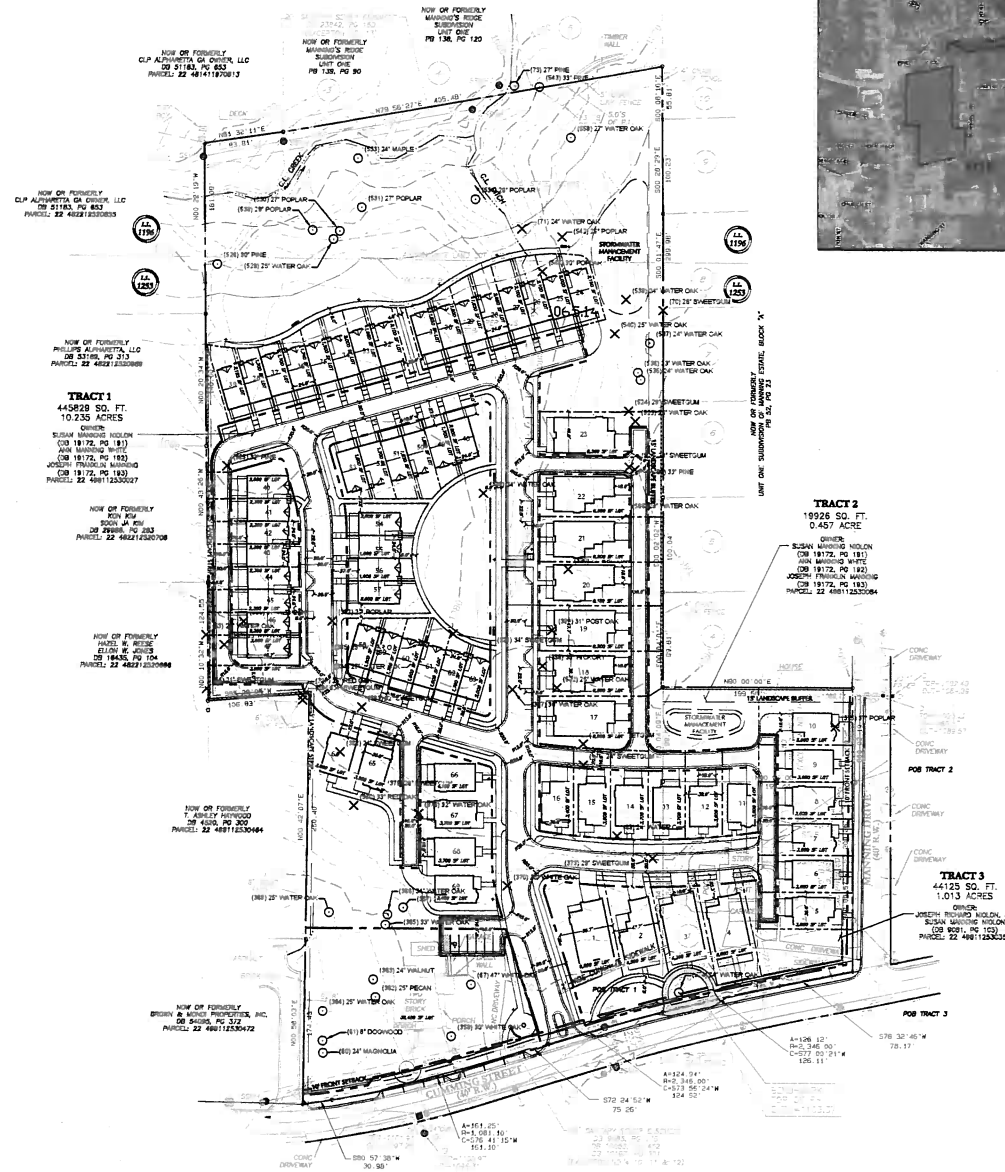


Location Map
Taylor Morrison
40 Cumming Street

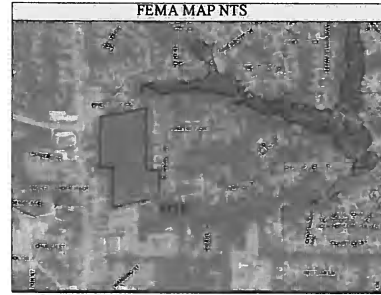
CLUP-17-02/Z-17-04
D/LL: 2/2/1196, 1253
PC Date: 6/01/17
CC Date: 6/19/17

Location Map Provided by:
Community Development - GIS

Site Plan 5.19.17 w/Maple Tree Removed



FEMA MAP NTS



SITE LOCATION MAP NTS



SITE DATA:

TOTAL SITE AREA	11.705 ACRES
PARCEL 1	837 ACRES
PARCEL 2	10.868 ACRES

ZONING

CURRENT ZONING	R-15
PROPOSED ZONING (PARCEL 1)	DT-LW
PROPOSED ZONING (PARCEL 2)	DT-R
ZONING JURISDICTION	CITY OF ALPHARETTA

RESIDENTIAL DT-R DENSITY

TOTAL RESIDENTIAL UNITS	69 HOMES
SF ATTACHED HOMES	40 UNITS
SF DETACHED HOMES	29 UNITS
RESIDENTIAL DENSITY STANDARD PER UDC (WITHOUT CONDITIONAL USE PERMIT)	8 UNITS/ACRE
DENSITY PROPOSED (70UNITS / 11.705 ACRES)	5.89 UNITS/ACRE

PERIMETER SETBACK SUMMARY (DT-R & DT-LW)

FRONTAGE PROPERTY SETBACK	10 FEET MIN.
SIDE YARD SETBACK	0 FEET
REAR YARD SETBACK	3/10 FEET
TRANSITIONAL BUFFER ZONE	N/A
LANDSCAPE STRIP (ABUTTING PROPERTIES TO THE WEST)	5 FEET

PARCEL 1 (DT-R) LOT STANDARDS	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

DETACHED LOTS	
FRONT, SIDE, REAR SETBACK	0 FEET
BUILDING SEPARATION	10 FEET
LOT AREA	2,500 SF. MIN
LOT WIDTH	25 FT. MIN

ATTACHED LOTS

FRONT, SIDE, REAR SETBACK 0 FEET
BUILDING SEPARATION 0 FEET
LOT AREA 900 SF. MIN
LOT WIDTH 20 FT. MIN
LOT COVERAGE 70% MAX/ 60% PROVIDED

PARCEL I PARKING SUMMARY (DT-R)	
---------------------------------	--

RESIDENTIAL PARKING	292 SPACES
(2 GARAGE SPACES & 2 DRIVEWAY SPACES PER UNIT + 16 GUEST SPACES)	
RESIDENTIAL TOTAL HOMES	69 HOMES
RESIDENTIAL PARKING REQUIRED	2 / HOME = 138 SPACES
RESIDENTIAL PARKING PROVIDED	276 SPACES
GUEST PARKING REQUIRED	11 Sp. (15*69)
GUEST PARKING PROVIDED	16 SPACES

PARCEL 2 PARKING SUMMARY (DT-LW)
--

OFFICE PARKING REQUIRED (3,777 SF)	3/1000 SF = 11 SPACES
OFFICE PARKING PROVIDED	3/1000 SF = 12 SPACES

PARCEL 2 - 40 CUMMING STREET BUILDING (DT-LW)

BUILDING SQ FEET (PER FULTON COUNTY ACCESSOR)	3,777 SQ. FT.
---	---------------

PARCEL 2 LOT STANDARDS (DT-LW)

LOT AREA 2,500 SF. MIN
LOT WIDTH 25 FT. MIN
LOT COVERAGE 70% MAX/ 38% PROVIDED

CIVIC & AMENITY SPACE SUMMARY

TOTAL OPEN SPACE REQUIRED	20% OF SITE
OPEN SPACE REQUIREMENTS ARE SATISFIED IN TOTAL BASED ON THE PRESERVATION OF 40 CUMMING STREET HOUSE ON THE SITE PER SEC 3.2.4-I	
CIVIC SPACE ON SITE (SEE OPEN SPACE EXHIBIT)	7.9%
AMENITY SPACE ON SITE (SEE OPEN SPACE EXHIBIT)	10.5%
TOTAL OPEN SPACE PROVIDED	18.4%

40 CUMMING STREET, 136 MANNING DRIVE
A MASTER PLANNED RESIDENTIAL COMMUNITY
FOR
TAYLOR MORRISON

TAYLOR MORRISON
FOR

SUITE 295
ALPHARETTA, GA 30009
JOHNS@TAYLORCORRISON.COM
CITY OF ALPHARETTA
FULTON COUNTY,
GA 30004

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AND ENGINEERS COLLABORATIVE
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REVISIONS:

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TECHNICAL SITE PLAN



SCALE: 1" = 60'
DATE: MAY 19, 2017
PROJECT: 16334.00

THIS SEAL IS ONLY VALID IF COUNTER SIGNED
AND DATED WITH AN ORIGINAL SIGNATURE.

A circular professional engineer seal for the State of California. The outer ring contains the text "REGISTERED PROFESSIONAL ENGINEER" and "STATE OF CALIFORNIA". The inner circle contains the text "No. 10000" and "1980". The seal is stamped over the signature of the engineer.

5-19-17
GSWCC LEVEL II DESIGN PROFESSIONAL

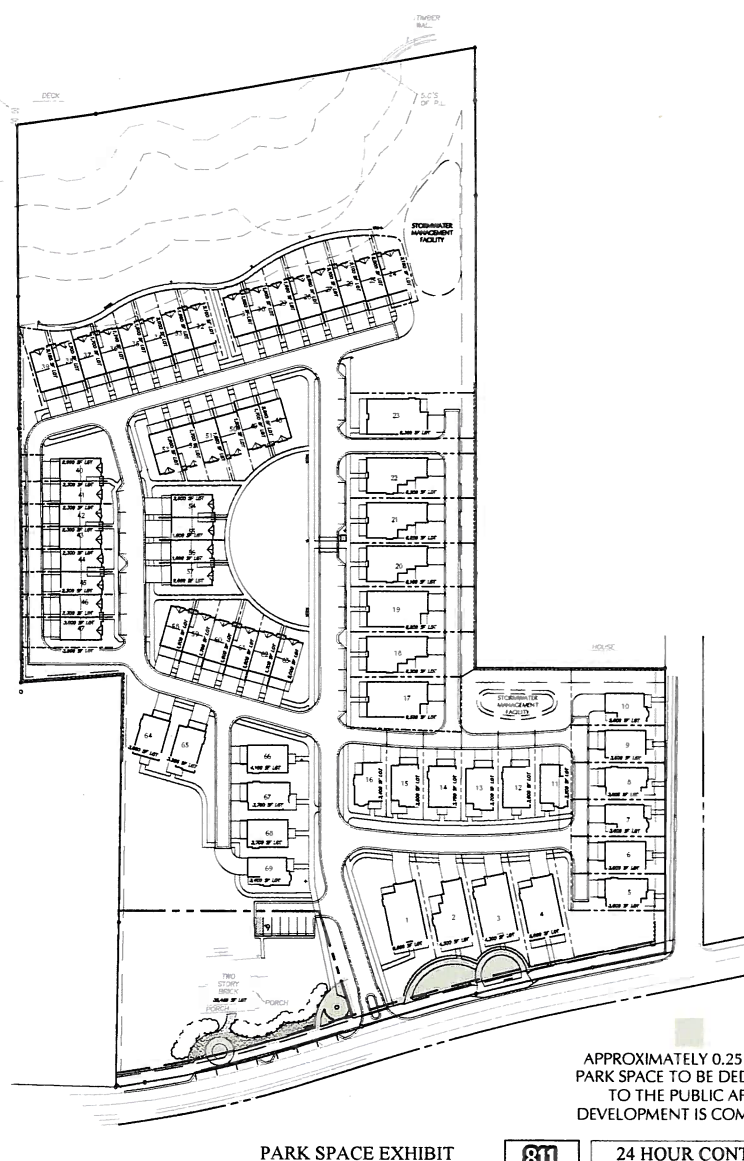
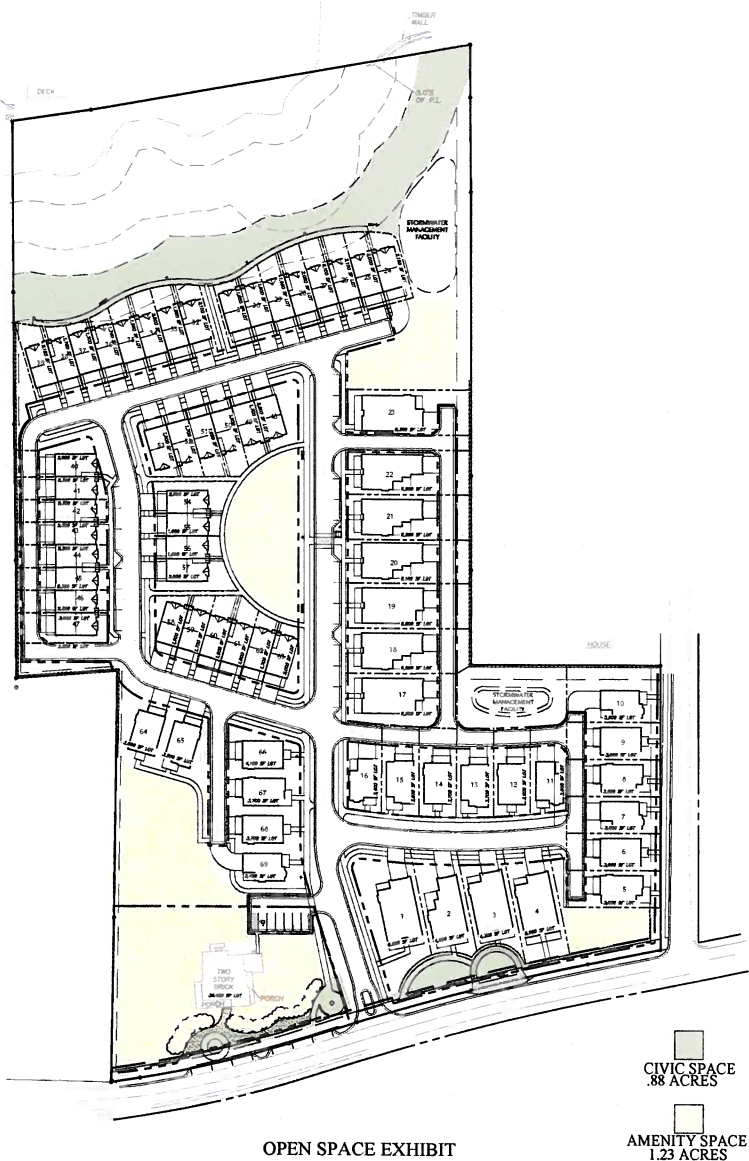
CERTIFICATION # 0000059389 EXP. 10/27/2018



811
 Know what's below.
 Call before you dig.

24 HOUR CONTACT:
JONATHAN JONES
jojones@taylormorrison.com

Z1
SHEET



APPROXIMATELY 0.25 ACRES
PARK SPACE TO BE DEDICATED
TO THE PUBLIC AFTER
DEVELOPMENT IS COMPLETED



24 HOUR CONTACT:
JONATHAN JONES
jojones@taylormorrison.com

40 CUMMING STREET, 136 MANNING DRIVE
A MASTER PLANNED RESIDENTIAL COMMUNITY FOR

FOR
TAYLOR MORRISON

JOHNES SUTAY@ORMORRISON.COM
ALPHARETTA, GA 30009
SUITE 295
4450 NORTH POINT PARKWAY
CITY OF ALPHARETTA
FULTON COUNTY,

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W/Maple Tree Removal

Site Plan 5.19.17

REVISIONS:-

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SHEET TITLE
OPEN SPACE &
PARK EXHIBIT

SCALE: 1" = 60'
DATE: MAY 19, 2017
PROJECT: 16334.00

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AND DATED WITH AN ORIGINAL SIGNATURE.



**GSWOC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #00000989 EXP. 10/27/2018**

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The Manning Community Architectural Design



The Lewis - Manning House

Lewis-Manning Architectural Influence:

The Lewis Manning House was created in the end of the Romantic Era that dominated the architectural trends in the United States in the mid 1800's.

The architectural styles included:

- Queen Anne
- Greek Revival
- Italianate

Our goal is to take you back in time to when the City of Alpharetta was formed and the Romantic styles dominated. We take pride in our heritage and the ability to honor and preserve history.



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Alpharetta, Georgia

Date: May 22, 2017

TaylorMorrison.

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Alpharetta, GA 30022

Queen Anne Style:

Identifying Features:

Steeply Pitched or Irregular
Shaped Roofs

Patterened Shingles

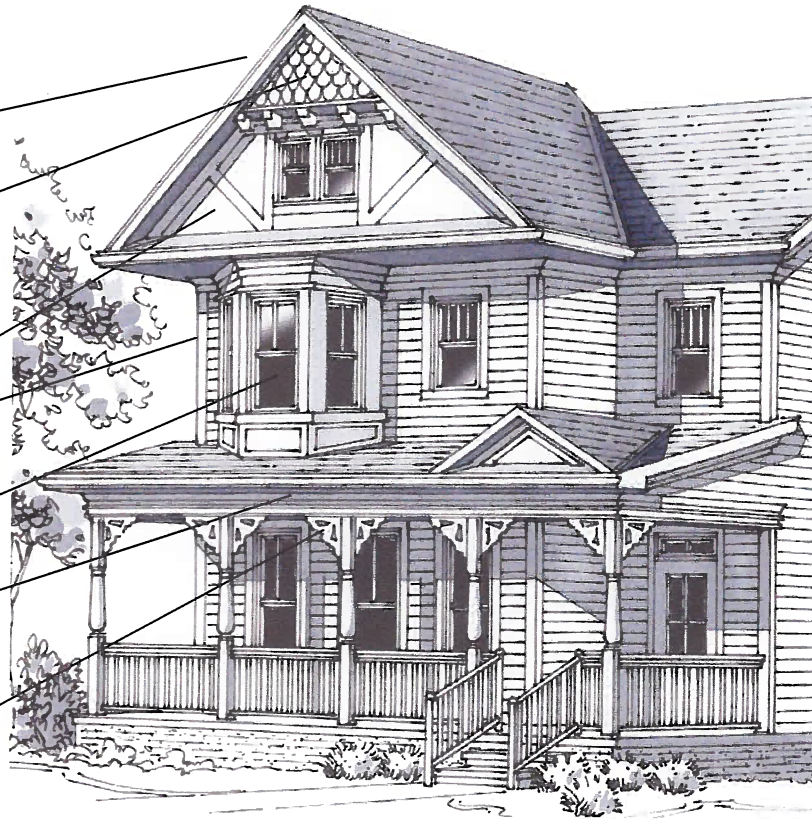
Dominate Front Facing Gable

Asymmetrical Facade

Cutaway Bay Windows

Full or Partial Porch

Decorative porch brackets,
pickets or columns



Queen Anne Style

Background:

Queen Anne style became popular by the architect Richard Norman Shaw in the 19th Century. Distinguished by half timber and patterned masonry, ornate spindlework and intricate detailing. The Lewis-Manning House constructed in 1895 is modeled after the Queen Anne style.



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Italianate Style:

Identifying Features:

Symmetrical or Asymmetrical
massing

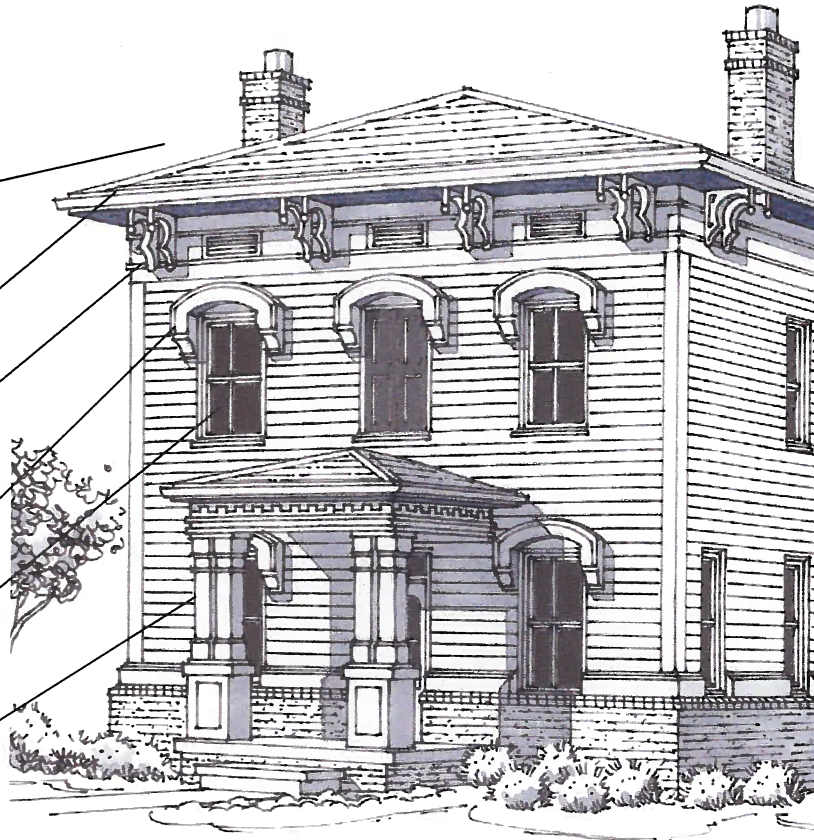
Low pitched main roof (5:12)

Wide overhanging eaves with
decorative brackets

Elaborate window treatment

Two pane window glazing

Single story porches w/ re-
strained detailing and square
posts



Italianate Style

Italianate Style:

Italianate styling dominated urban housing in the decades between 1860 and 1880 in the Eastern and Midwest region. Italianate houses are characterized by wide projecting cornices with brackets, low pitched roofs and decorative window trim.



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Gothic Revival Style:

Identifying Features:

Symmetrical structure massing

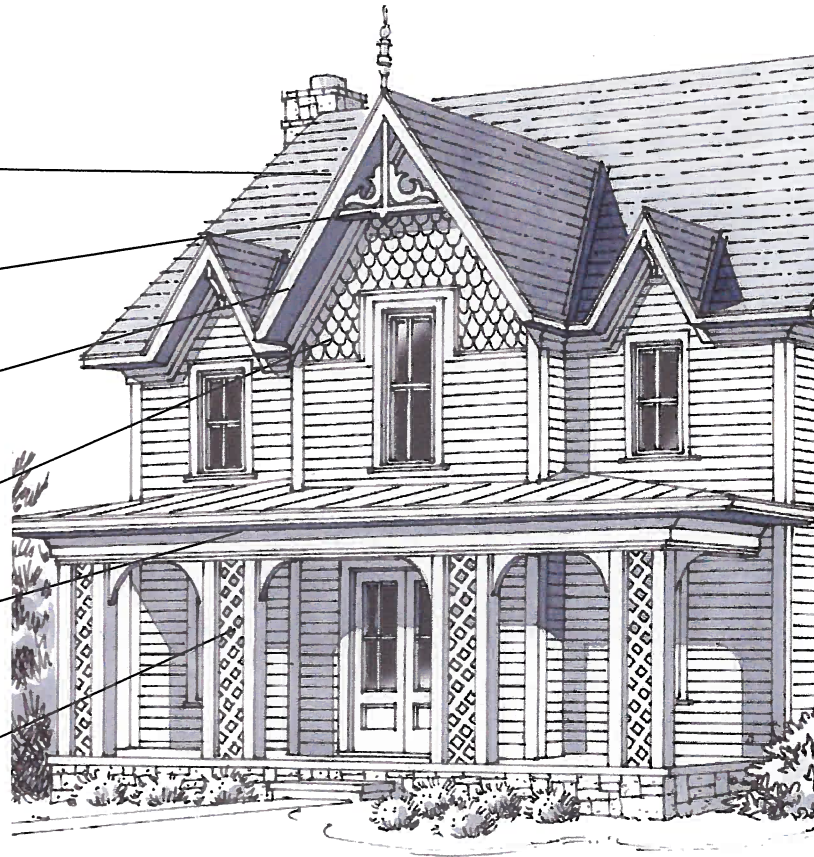
Steep pitch roofs with cross gable bracing

Center or paired gables

Wall surface extending into gable without break

One story full porch

Porch columns with decorative bracing



Gothic Revival Style

Gothic Revival Style:

The Gothic Revival style was more complex and difficult to construct therefore less common. The style grew in popularity in the 1860's in the South. Considered one of the romantic houses using detailing from the European Swiss Chalet. This style became popular by the architect Andrew Jackson Downing's publication in 1842.



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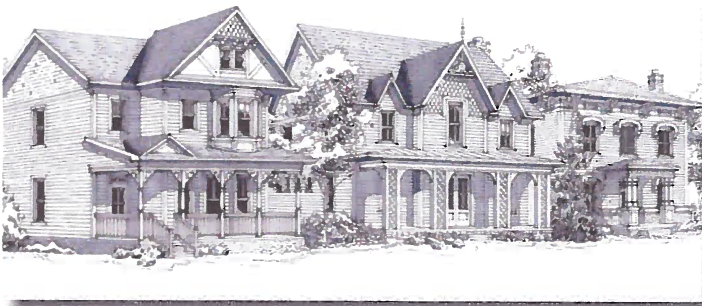
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The Manning Community

Product Overview



Single Family Streetscape View

Single Family Product Line:

- Alley Load Garage Single Family
- 2 Story
- Slab and Basement Conditions

Product Name: Square Footage:

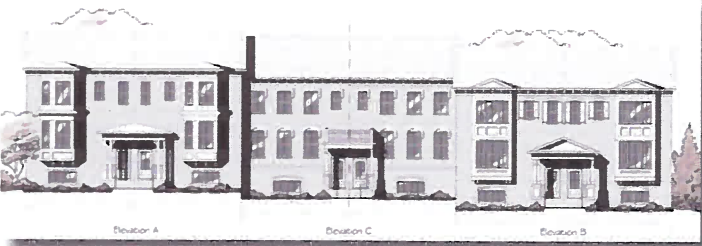
Buckingham	2,256 sq. ft.
Chastain	2,536 sq. ft.
Providence	2,958 sq. ft.
Rutland	2,900 sq. ft.
Cameron	3,104 sq. ft.

Townhome Product Line:

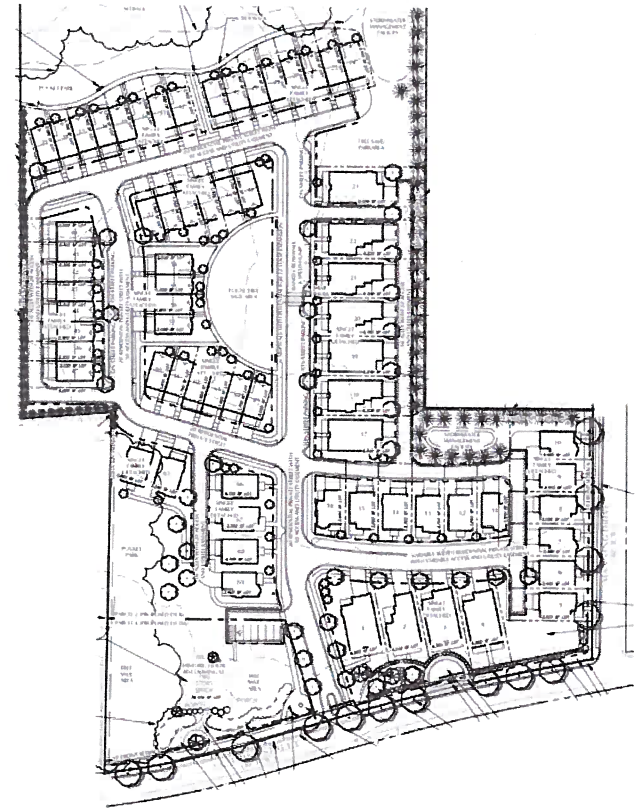
- Alley Load Garage
- 3 Story Drive Under
- Finished Terrace Level
- 2 & 3 Bedroom Options

Product Name: Square Footage:

Merlot	2,536 sq. ft.
Riesling	2,536 sq. ft.



Townhome Streetscape View



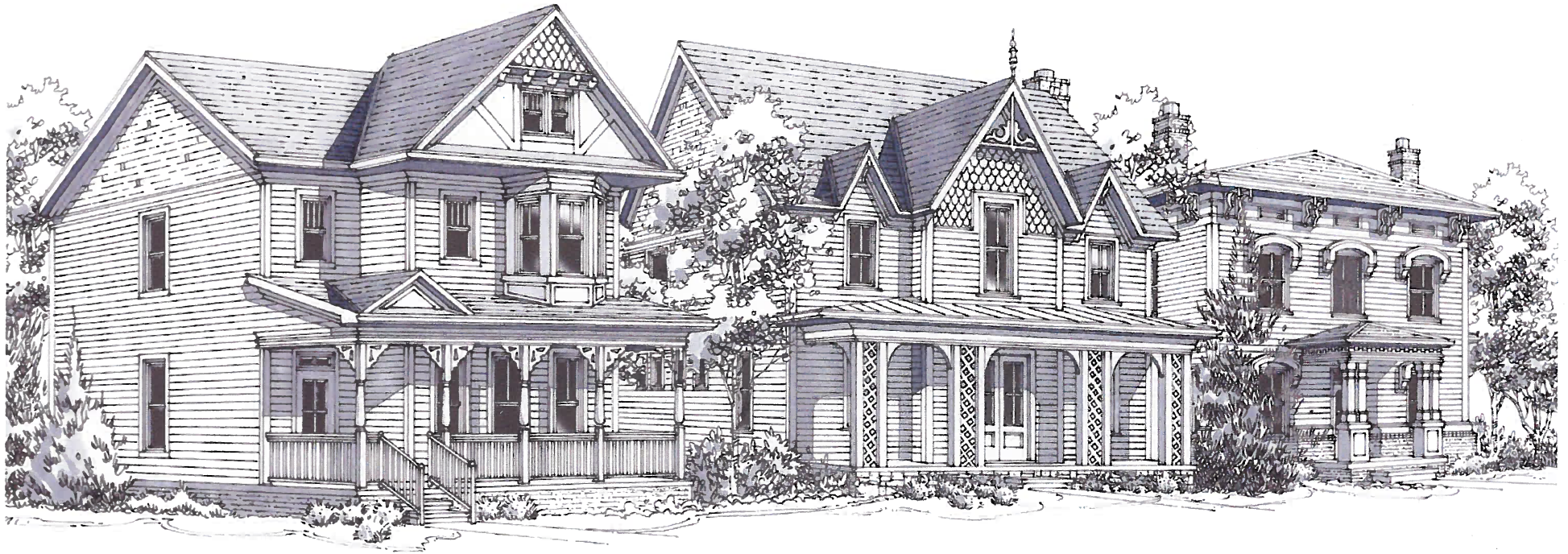
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Single Family Product Line



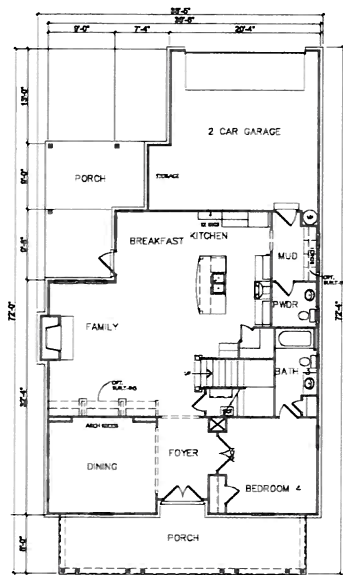
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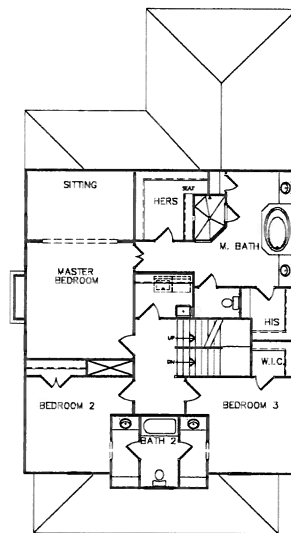
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1st FLOOR PLAN - RUTLAND "E"



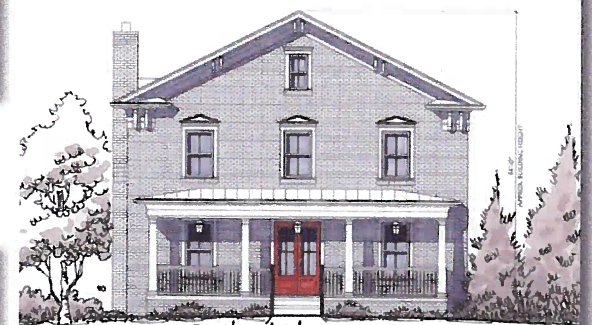
2nd FLOOR PLAN - RUTLAND "E"



Rutland Elevation E
Gothic Revival



Rutland Elevation G
Queen Anne



Rutland Elevation F
Italianate

The Rutland



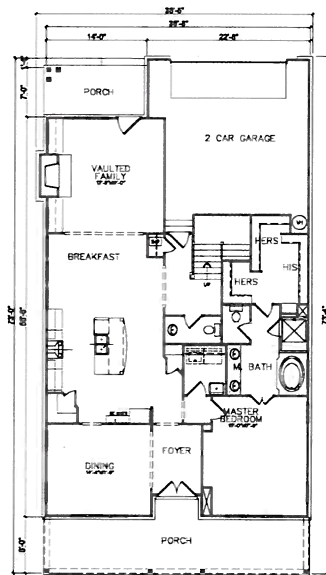
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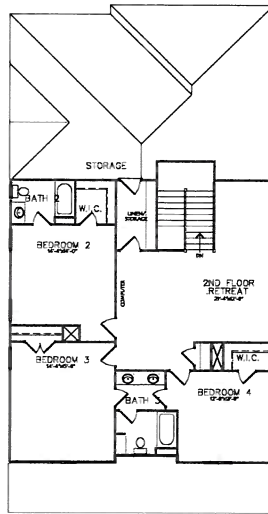
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1st FLOOR PLAN - CAMERON 'E'



2nd FLOOR PLAN - CAMERON 'E'



Cameron Elevation E
Gothic Revival



Cameron Elevation G
Queen Anne



Cameron Elevation F
Italianate

The Cameron



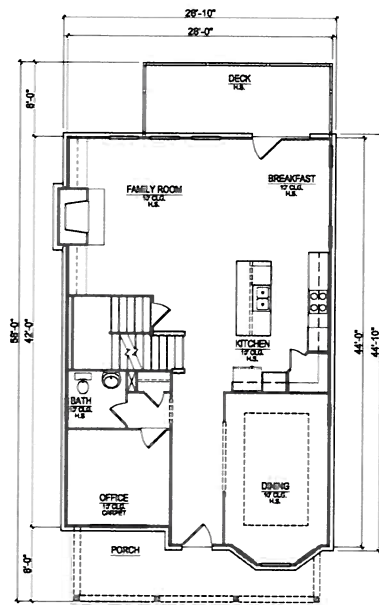
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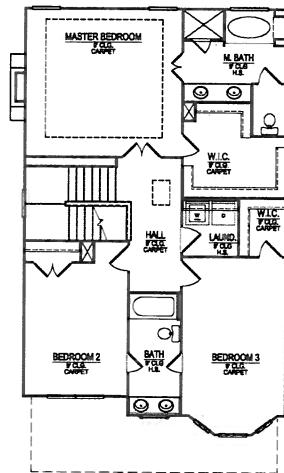
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1st FLOOR PLAN - BUCKINGHAM "E"



2nd FLOOR PLAN - BUCKINGHAM "E"

The Buckingham



Buckingham E
Queen Anne



Buckingham G
Gothic Revival



Buckingham F
Italianate



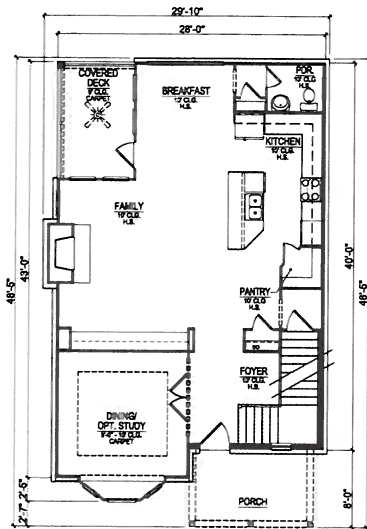
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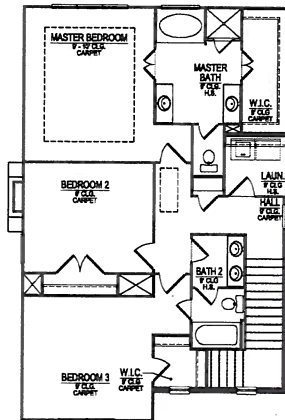
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1st FLOOR PLAN - CHASTAIN "E"



2nd FLOOR PLAN - CHASTAIN "E"



Chastain Elevation E

Italianate



Chastain Elevation G

Italianate



Chastain Elevation F

Gothic Revival

The Chastain



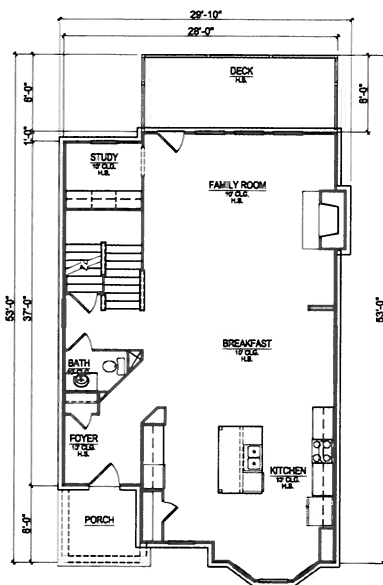
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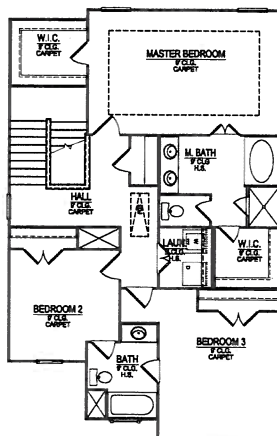
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1st FLOOR PLAN - PROVIDENCE "H"



2nd FLOOR PLAN - PROVIDENCE "H"

The Providence



Providence Elevation H

Gothic Revival



Providence Elevation K



Providence Elevation J

Queen Anne



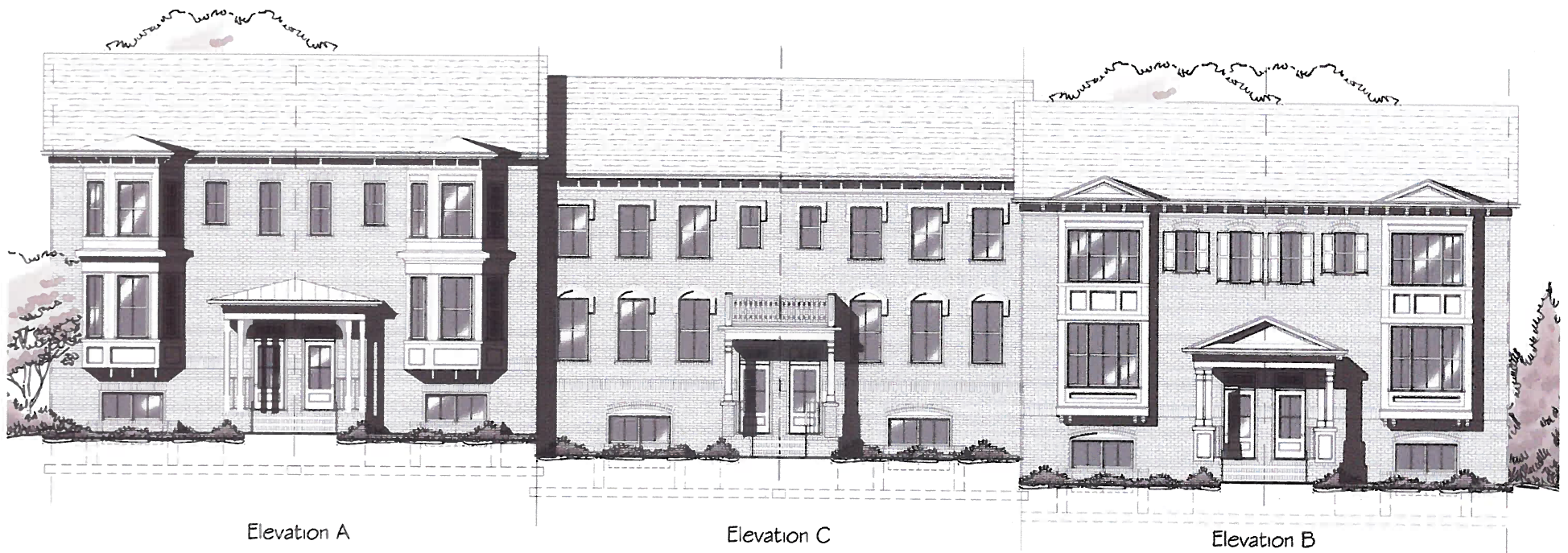
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Front Elevation

Manning Townhomes



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Alpharetta, GA 30022

Italianate Style:

Identifying Features:



Townhome Elevation B

Two to three Stories

Low pitched main roof (5:12)

Wide cornice overhangs with decorative brackets beneath eaves

Narrow windows with 2 over 2 mullions

Bay Windows

Decorative or arched window crowns

Square porch columns with chiseled corners

Brick Veneer w/ rowlock detailing



Townhome Elevation A



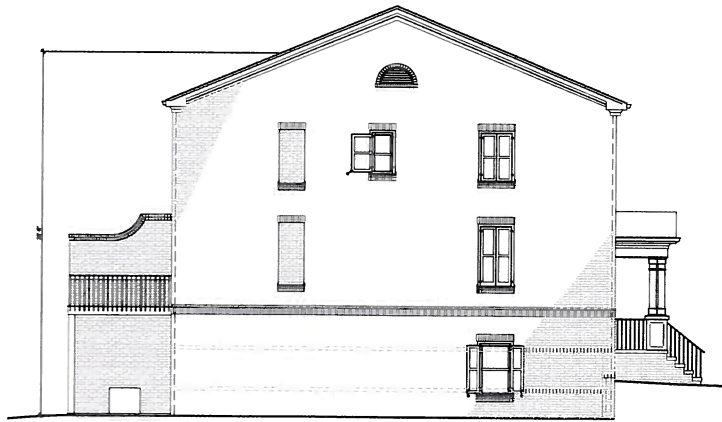
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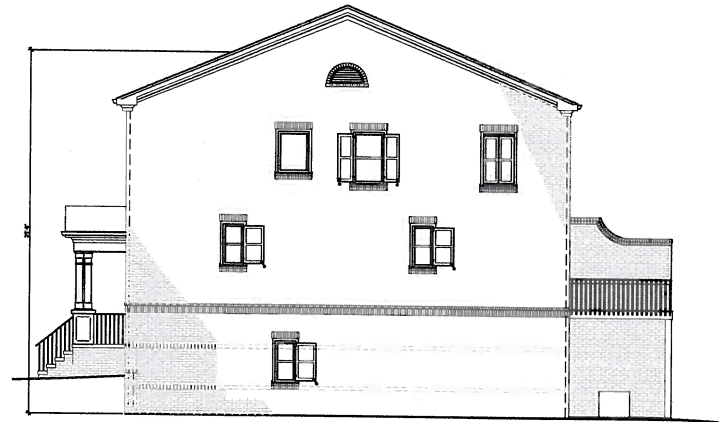
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Left Elevation



Right Elevation



Rear Elevation

Manning Townhomes



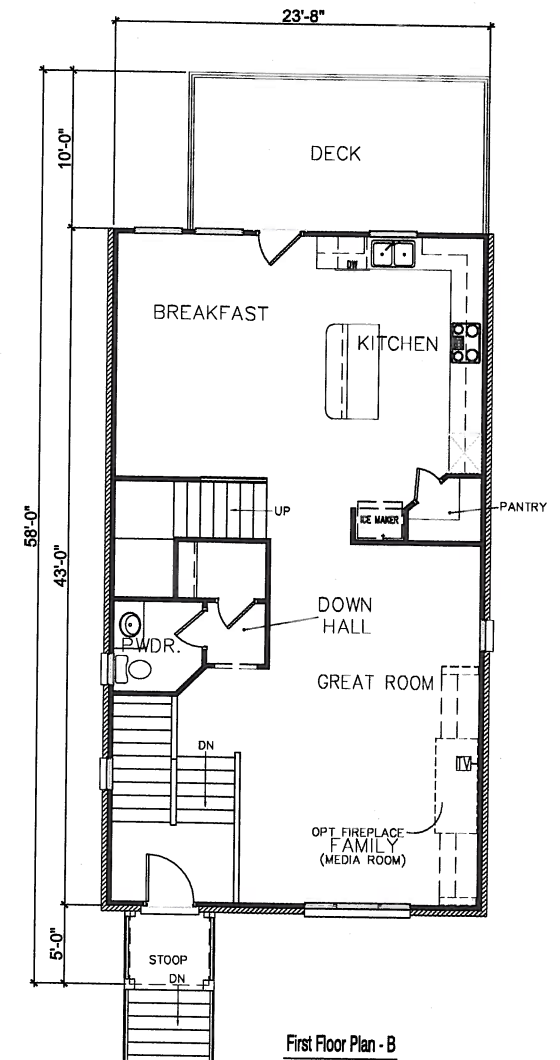
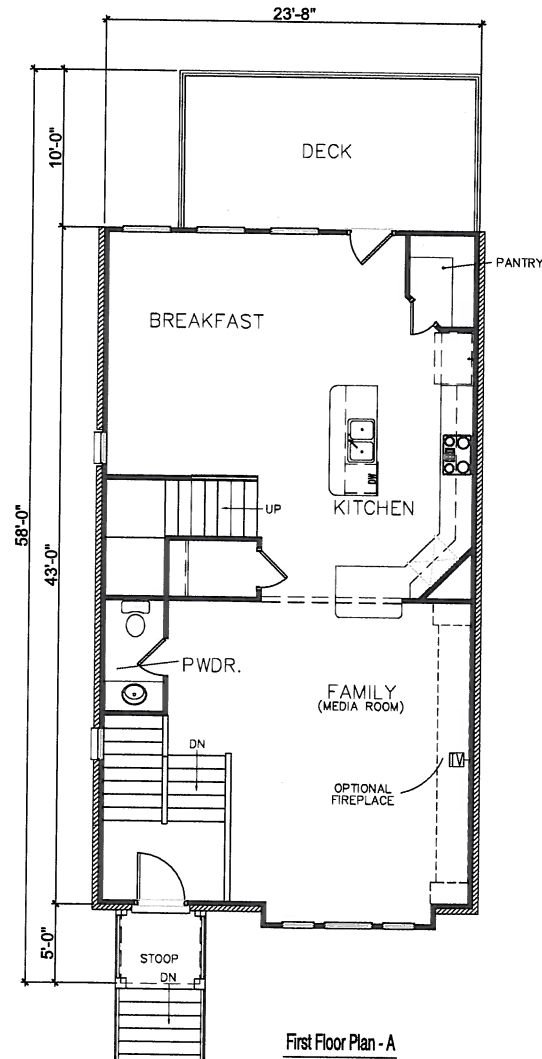
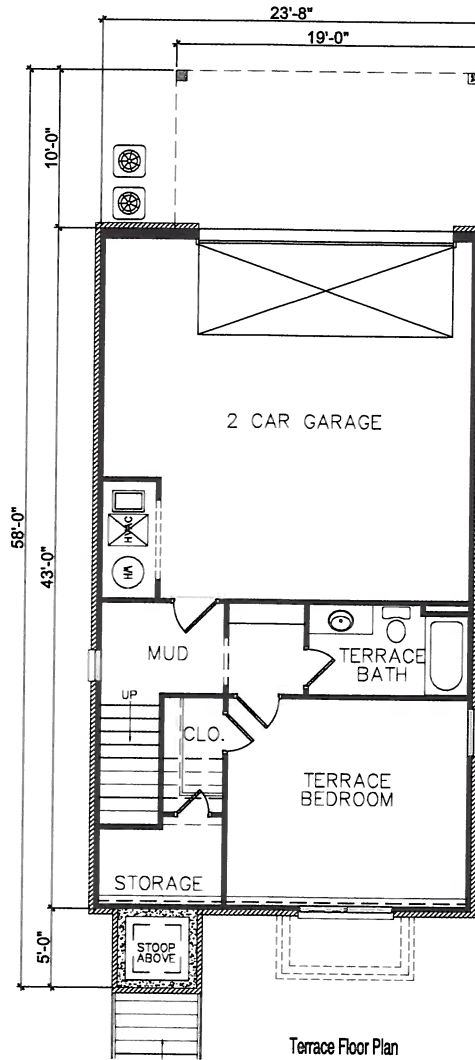
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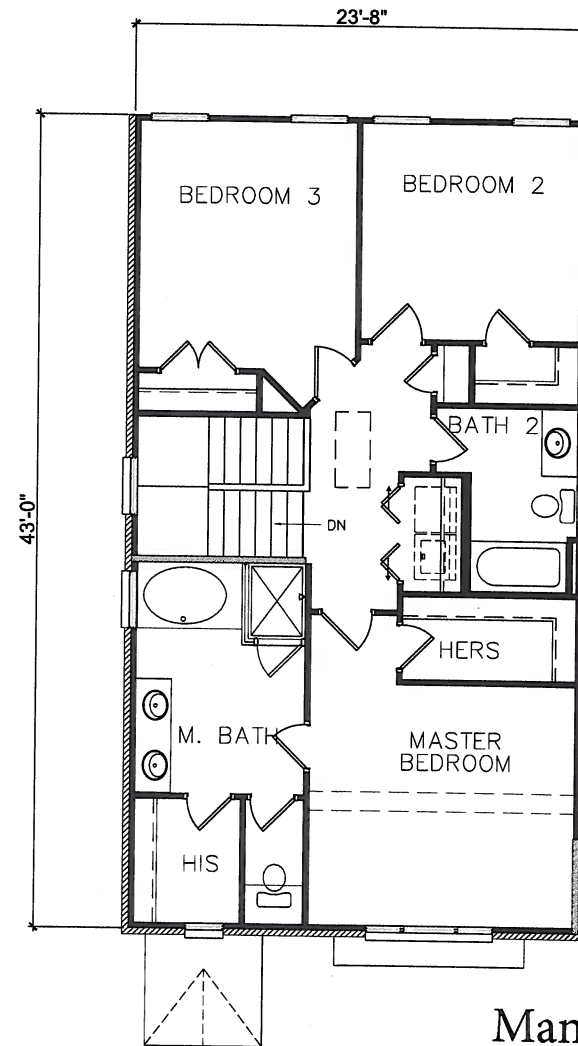
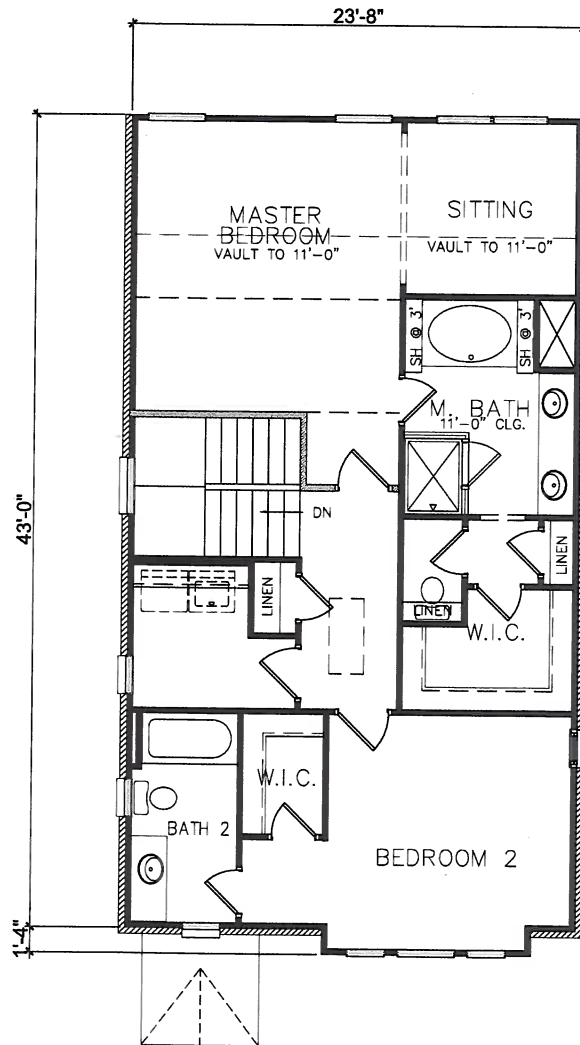
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Date: May 22, 2017

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Manning Townhomes



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Date: May 22, 2017

TaylorMorrison.

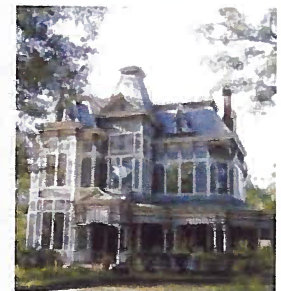
4400 North Point Parkway, Suite 295
Alpharetta, GA 30022

Queen Anne Style:

Queen Anne style became popular by the architect Richard Norman Shaw in the 19th Century. Distinguished by half timber and patterned masonry, ornate spindle-work and intricate detailing. The Lewis-Manning House constructed in 1895 is modeled after the Queen Anne style.



The Lewis - Manning House



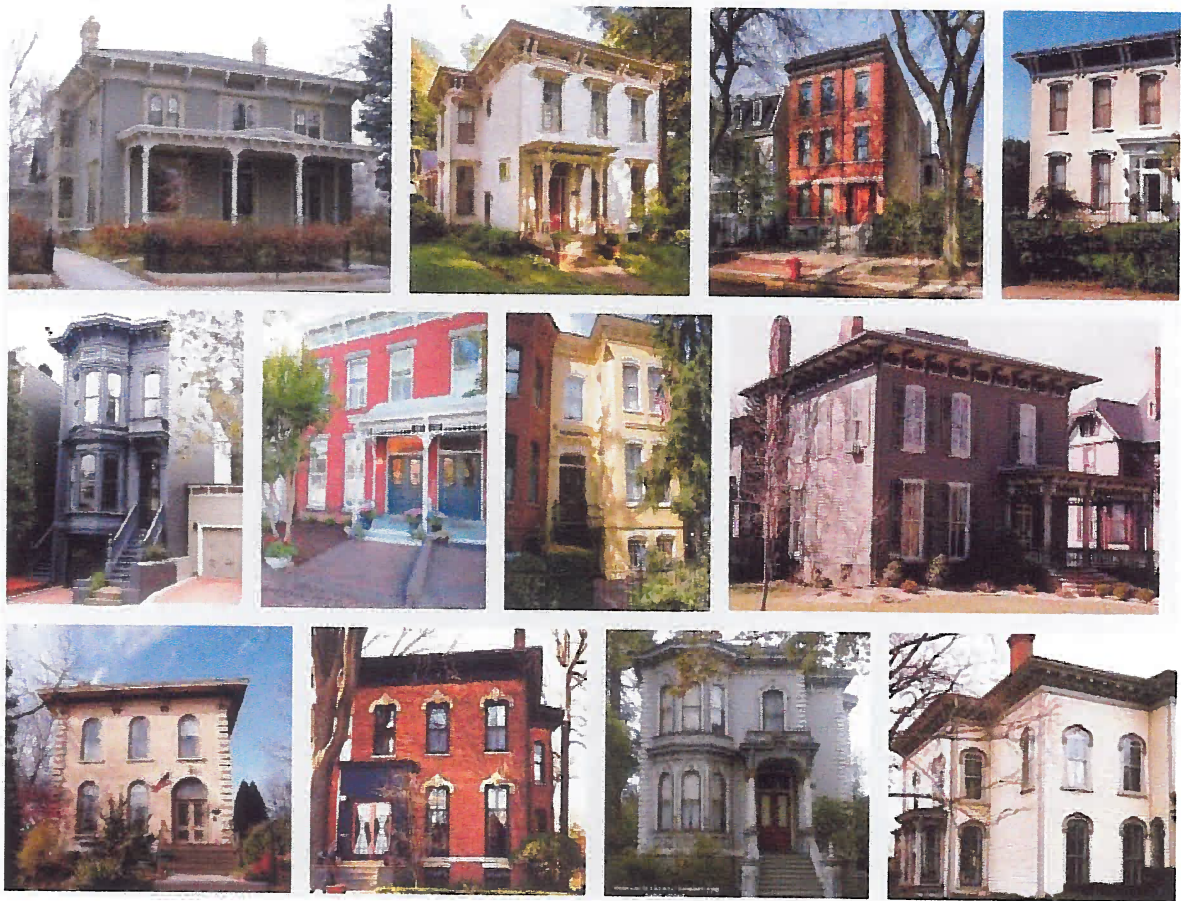
Residential Design by:
Main Street Designs of Georgia, LLC
3050 Royal Blvd. South, Suite 135
Alpharetta, GA 30022

40 Cumming Street / 136 Manning Drive
Alpharetta, Georgia

TaylorMorrison.
4400 North Point Parkway, Suite 295
Alpharetta, GA 30022

Italianate Style:

Italianate styling dominated urban housing in the decades between 1860 and 1880 in the Eastern and Midwest region. Italianate town houses are characterized by wide projecting cornices with brackets, low pitched roofs and decorative window trim.



Residential Design by:
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Alpharetta, GA 30022

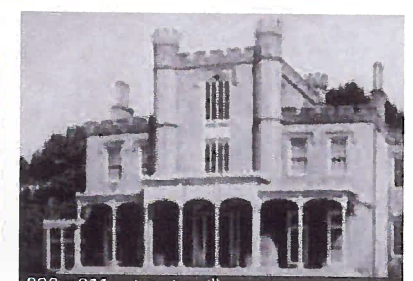
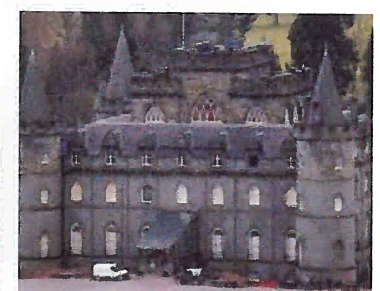
40 Cumming Street / 136 Manning Drive
Alpharetta, Georgia

TaylorMorrison.

4400 North Point Parkway, Suite 295
Alpharetta, GA 30022

Gothic Revival Style:

The Gothic Revival style was more complex and difficult to construct thefore less common. The style grew in popularity in the 1860's in the South. Considered one of the romantic houses using detailing from the European Swiss Chalet. This style became popular by the architect Andrew Jackson Downing's publication in 1842.



320 x 211 - victorianvilla.com



Residential Design by:
Main Street Designs of Georgia, LLC
3050 Royal Blvd. South, Suite 135
Alpharetta, GA 30022

40 Cumming Street / 136 Manning Drive
Alpharetta, Georgia

TaylorMorrison.

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Alpharetta, GA 30022



Traffic Impact Study

Manning Square TIA

City of Alpharetta, Georgia

Report Prepared:

April 2017

Prepared for:

Taylor Morrison of Georgia, LLC

Prepared by:

Kimley»Horn

Kimley-Horn and Associates, Inc.
2 Sun Court, Suite 450
Peachtree Corners, Georgia 30092
Project #017270004

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1.0 INTRODUCTION

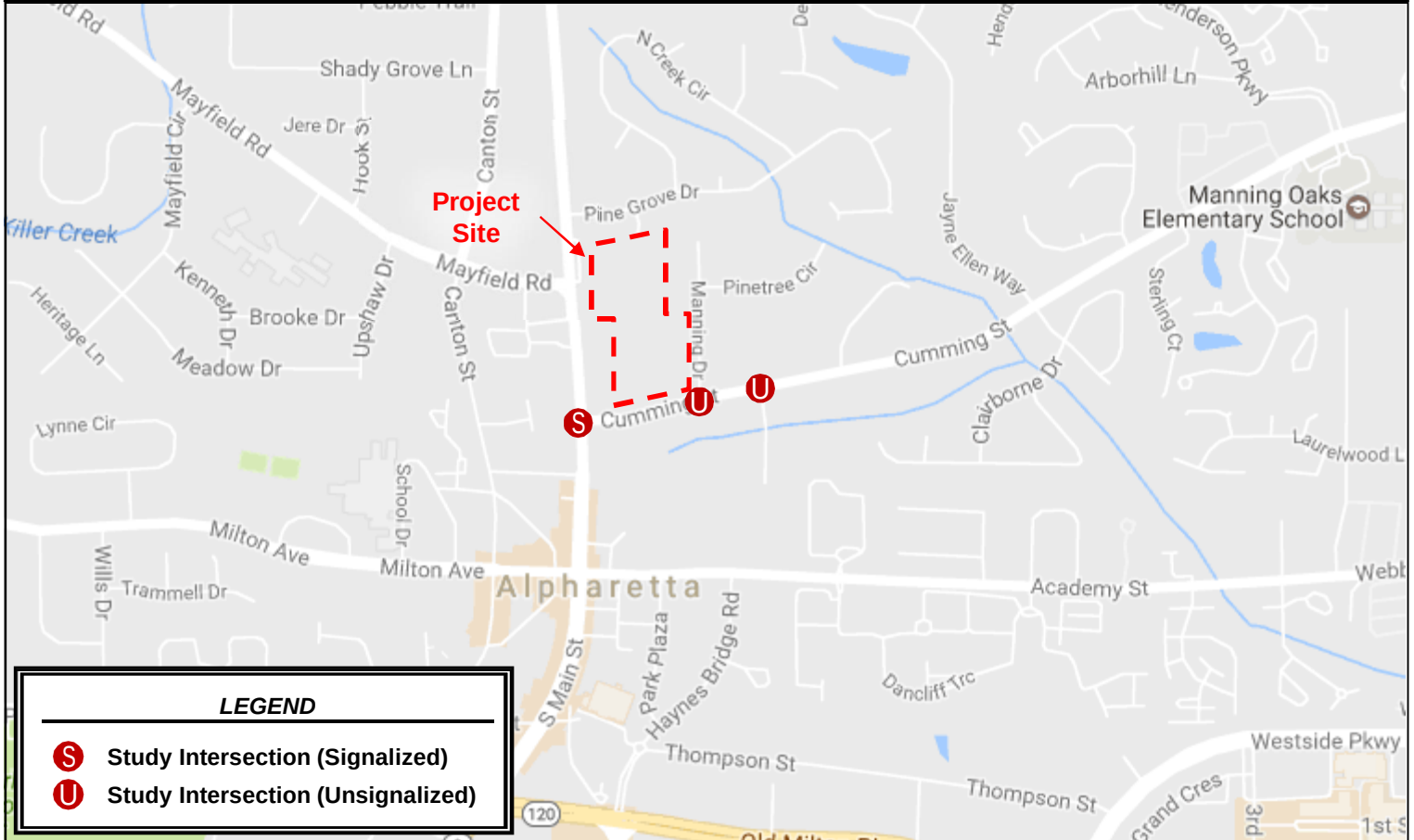
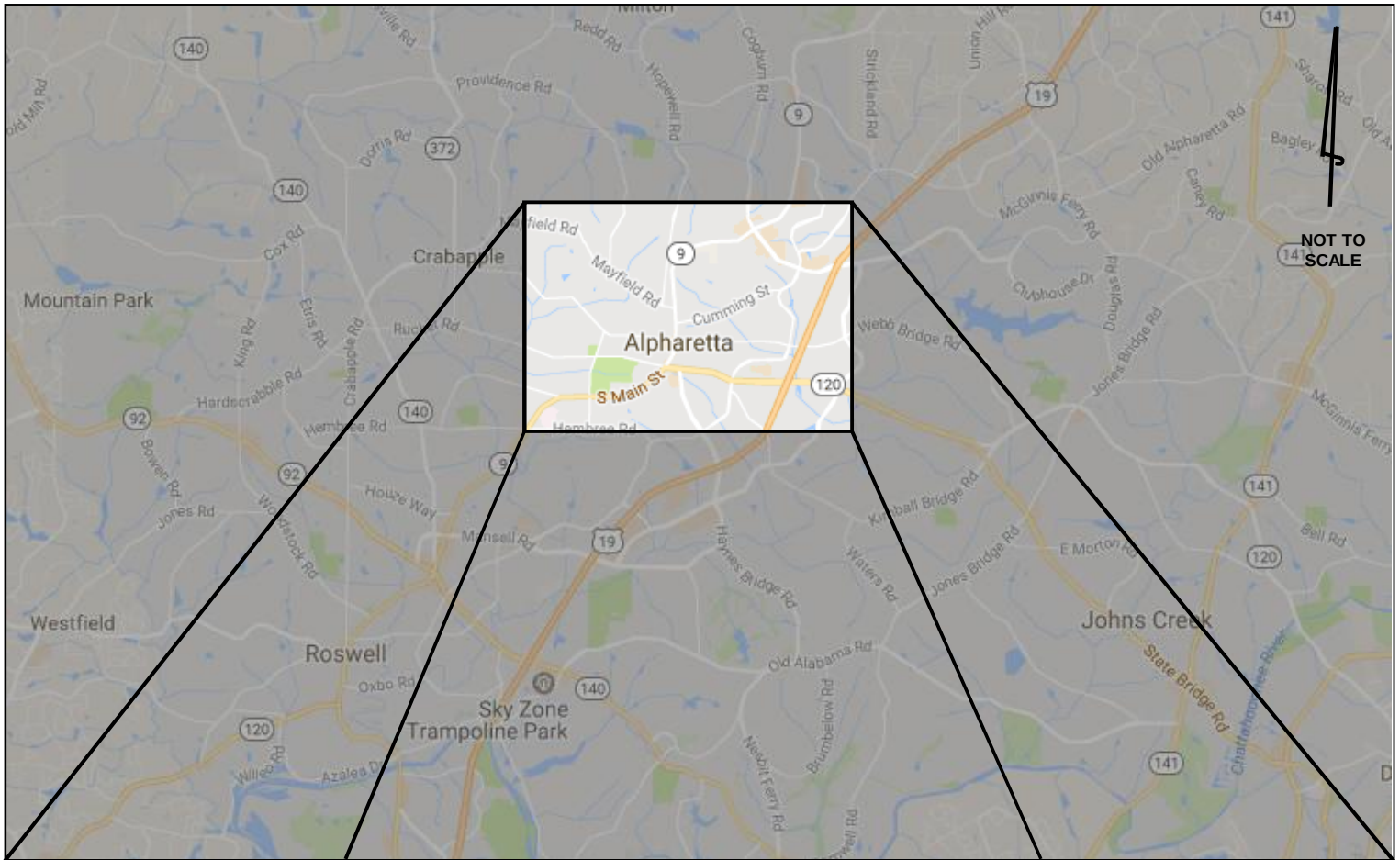
This report presents the analysis of the anticipated traffic impacts associated with the *Manning Square* development, which is expected to be completed in year 2020 (referred to herein as “build-out year”). This study evaluates the impact of constructing 52 dwelling units of residential condominium / townhouse, and 19 dwelling units of single-family detached housing.

The 11.705-acre *Manning Square* site is located northwest of the intersection of Cumming Street at Manning Drive in Alpharetta, Georgia. The proposed site is currently zoned as detached residential (R-15) / neighborhood commercial (C-1). The proposed rezoning is for downtown residential (DT-R). **Figure 1** provides a location map of the project site and the three (3) study intersections. **Figure 2** provides aerials that capture the project site and the study roadway network. Additionally, photographs collected adjacent to the site driveway are provided in **Appendix A**.

2.0 STUDY AREA DETERMINATION

A study area was selected which includes the intersections that will be primarily impacted by the development. The study area consists of the following three (3) existing intersections, one of which will provide access to the site.

1. SR 9 at Cumming Street (Signalized)
2. Cumming Street at Manning Drive (Unsignalized)
3. Cumming Street at Cricket Lane (Unsignalized)





LEGEND

- Proposed Project Site
- Site Driveway to serve Proposed Development

3.0 EXISTING TRAFFIC CONDITIONS

The roadways within the study network have the following characteristics:

SR 9 is a four-lane, undivided roadway south of Cumming Street that transitions to a two-lane, undivided roadway north of Cumming Street. SR 9 has a posted speed limit of 35 MPH in the vicinity of the project site. GDOT counts taken north of Cumming Street indicated an AADT of 25,600 vehicles per day in 2015.

Cumming Street is a two-lane, undivided roadway with a posted speed limit of 35 MPH. GDOT counts taken east of Cricket Lane indicated an AADT of 6,880 vehicles per day in 2015.

Cricket Lane is a two-lane, undivided roadway with a posted speed limit of 25 MPH. GDOT counts are not available along this roadway.

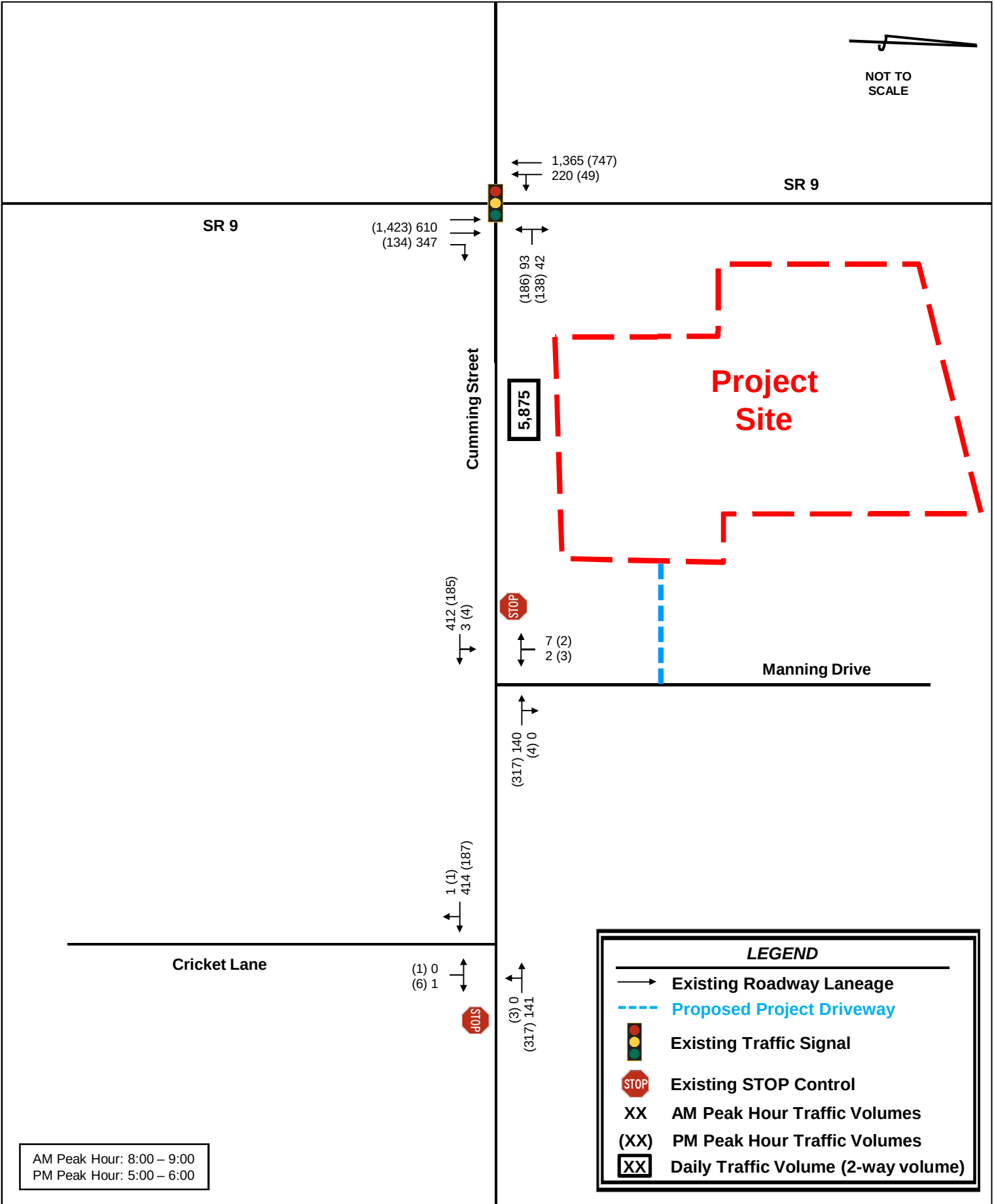
Manning Drive is a two-lane, undivided roadway with a posted speed limit of 25 MPH. GDOT counts are not available along this roadway.

Vehicle peak hour turning movement counts were performed at this following three (3) off-site study intersections:

1. SR 9 at Cumming Street (Signalized)
2. Cumming Street at Manning Drive (Unsignalized)
3. Cumming Street at Cricket Lane (Unsignalized)

The turning movement counts were performed on Tuesday, February 7, 2017. The counts performed determined that the AM peak hour generally occurred from 8:00 AM to 9:00 AM and the PM peak hour generally occurred from 5:00 PM to 6:00 PM. The peak hour traffic counts were used to perform the analysis presented in this report. The complete traffic count data is provided in **Appendix B**.

The study area was observed on February 22, 2017. Site photographs are provided in **Appendix A**. **Figure 3** illustrates the existing 2017 peak hour traffic volumes at the study intersections and existing roadway geometry (intersection layout).



4.0 PROJECTED BACKGROUND (NON-PROJECT) TRAFFIC

Projected background (non-project) traffic is defined as the expected traffic on the roadway network in the future year(s) absent the *Manning Square* development. The existing 2017 peak hour traffic volumes were increased by 2.0% per year for three (3) years to account for the expected background growth in traffic through year 2020, build-out of the project. The projected project trips associated with the build-out of the Academy Street Tract are also included in the Projected 2020 No-Build condition plus the impacts of Cricket Lane extension to Haynes Bridge Road. This accounts for the additional background growth in traffic expected to occur in the vicinity of the site. **Figure 5** illustrates the Projected 2020 No-Build traffic volumes.

4.1 FUTURE ROADWAY / INTERSECTION PROJECTS

The Atlanta Regional Commission's Regional Transportation Improvement Plan Update, the Atlanta Regions Plan, and GDOT Statewide TIP (STIP) were researched for currently programmed transportation projects within the vicinity of the proposed development.

1. **FN-067A:** Project includes widening along SR 9 from Academy Street to Windward Parkway.
2. **FN-067B:** Project includes operational improvements from Hembree Road to Academy Street.
3. **FN-222:** Project include widening along SR 9 from Windward Parkway to Forsyth County Line.

Fact sheets for the above-mentioned projects are included in **Appendix C**.

5.0 PROJECT TRAFFIC

Project traffic used in this analysis is defined as the vehicle trips expected to be generated by the proposed development, and the distribution and assignment of that traffic through the study roadway network. This traffic impact study evaluated the impacts of adding the trips created by the proposed *Manning Square* development containing 52 dwelling units of residential condominium / townhouse, and 19 dwelling units of single-family detached housing.

In addition to the trips generated by the proposed development, a minimal number of trips will re-route throughout the network to use the newly constructed public road connecting Hanes Bridge Road to Cricket Lane, which is associated with the Academy Street Tract development (under construction). These re-routed network trips were documented in the Academy Street Study and added to the trips generated by the proposed *Manning Square* development. **Figure 4** illustrates the projected re-routed trips added to the study intersections based on the Academy Street Tract Traffic Impact Study.

5.1 PROJECT SITE ACCESS

Access to the site will be provided at one site driveway which is shown on the proposed site plan in **Appendix D**. A brief description of the site driveway follows:

- Proposed Site Driveway (located along Manning Drive) – a full-movement driveway located approximately 150' north of Cumming Street. The intersection will operate under side-street stop-control.

The site driveway provides vehicular access to the entire development. Internal, private roadways throughout the site provides access to all buildings and parking facilities. See referenced site plan in **Appendix D** for a visual representation of vehicular access and circulation throughout the proposed development.

5.2 TRIP GENERATION

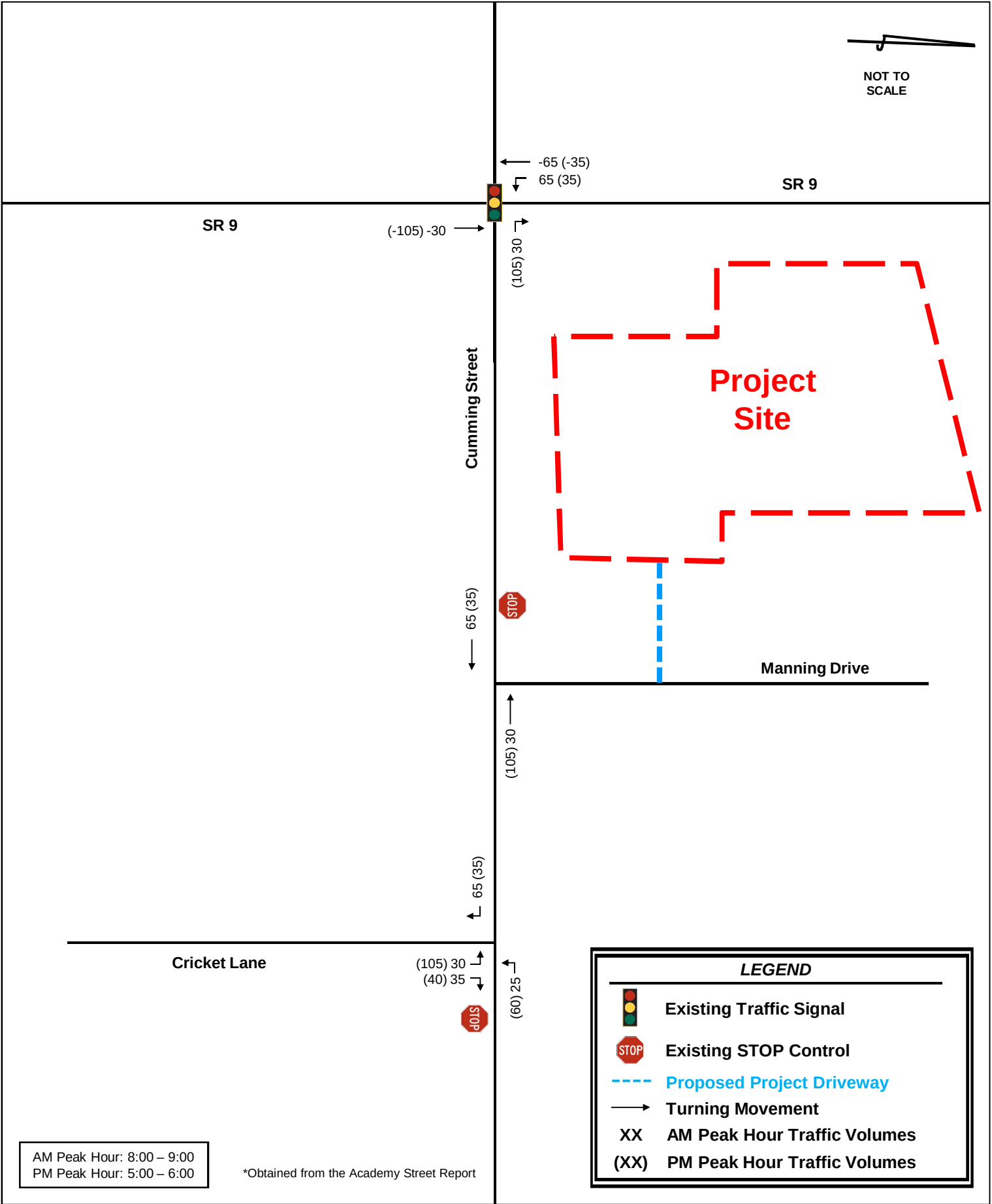
Gross trips associated with the proposed development were estimated using the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Ninth Edition, 2012*, using equations where available. Trip generation for the proposed developments were calculated based upon the following land uses:

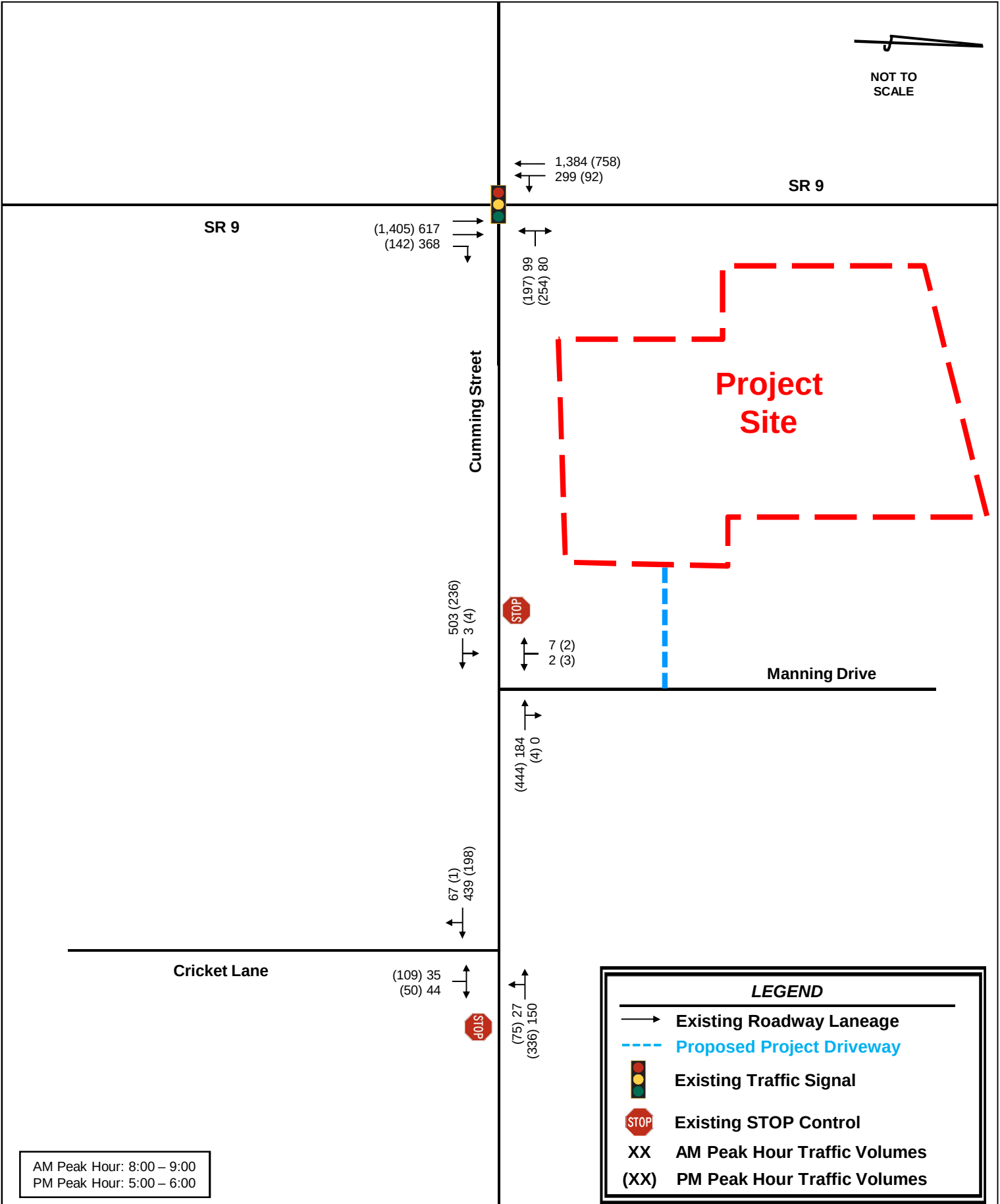
Table 1 summarizes the net trip generation for the proposed developments upon full build-out (2020).

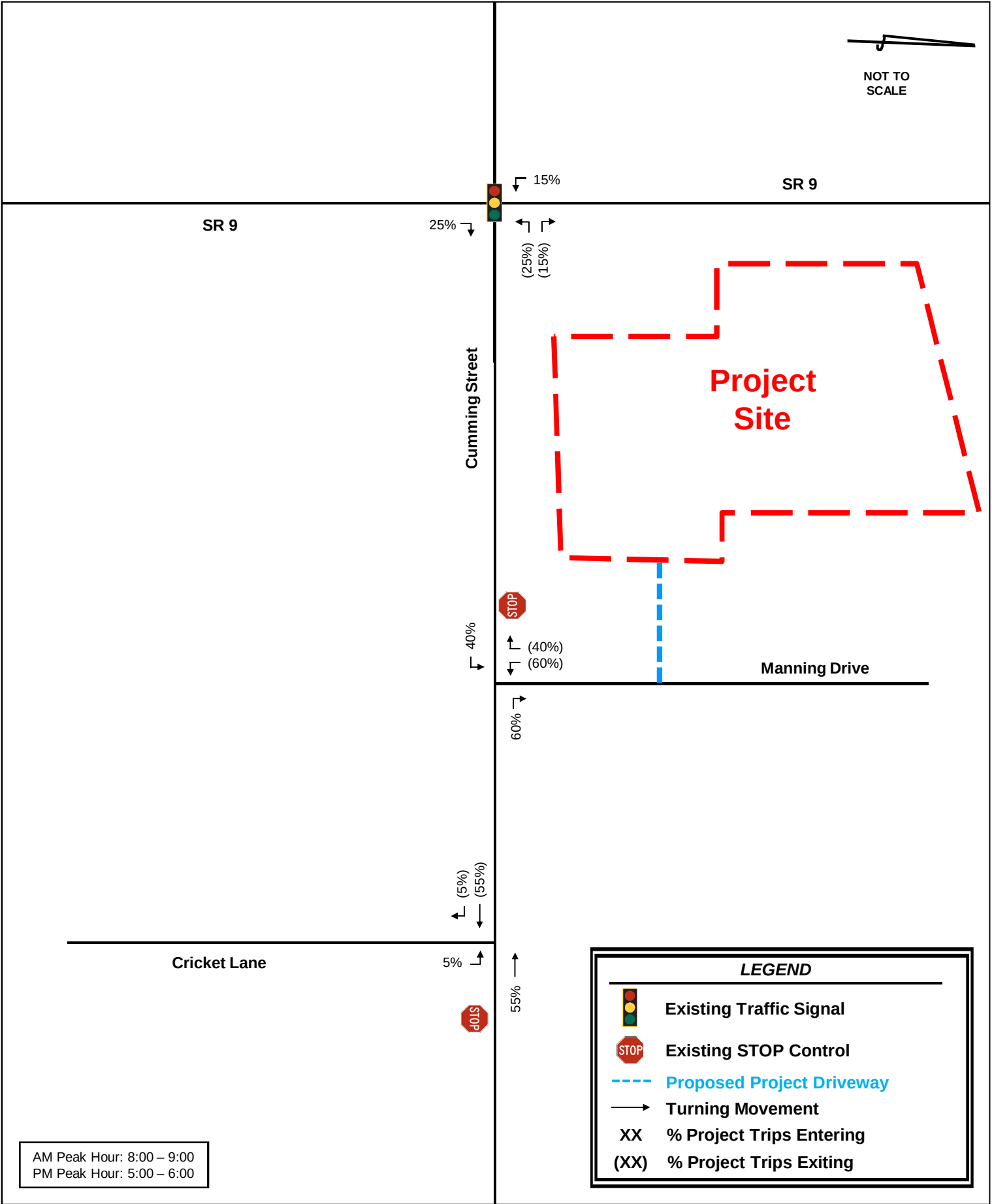
Table 1: Project Trip Generation Summary							
Land Use (Intensity)	ITE Code	Daily Traffic		AM Peak Hour		PM Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
19 units – Single-Family Detached Housing	210	113	113	6	17	15	9
52 units – Residential Condominium / Townhouse	230	182	182	5	26	23	12
Total New Trips		295	295	11	43	38	21

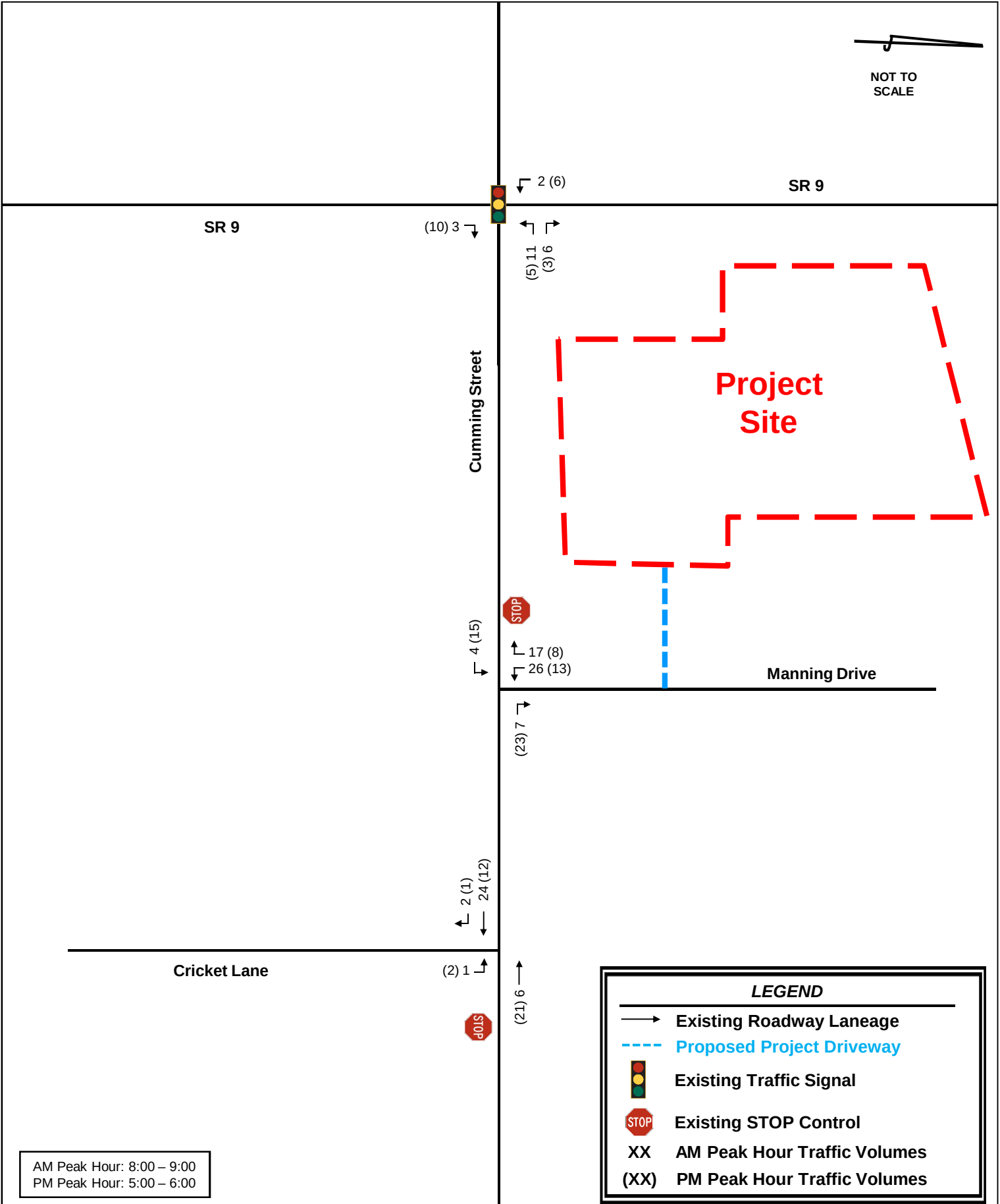
5.3 TRIP DISTRIBUTION AND ASSIGNMENT

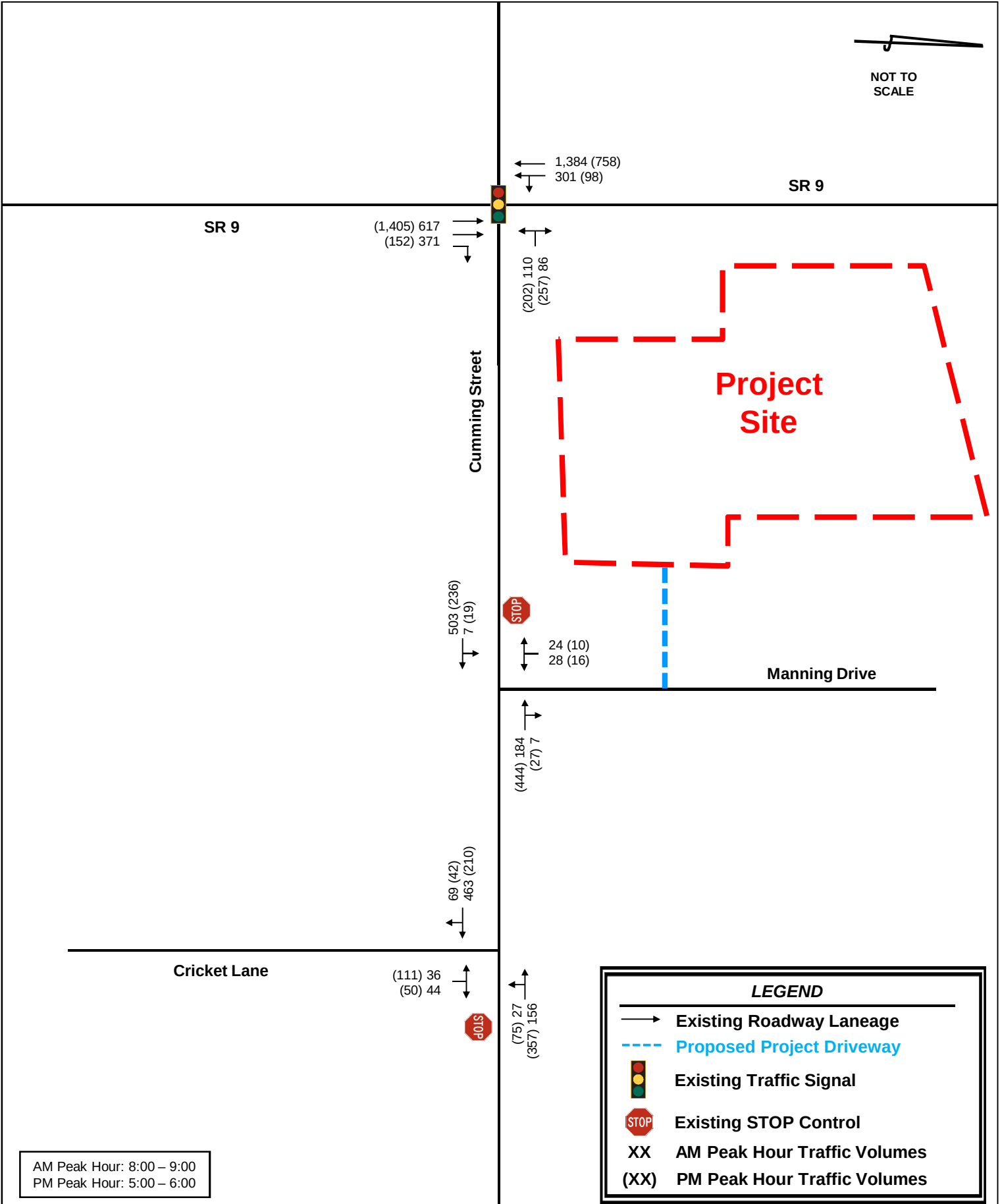
The directional distribution and assignment of adding new trips (project trips) related to the proposed development was based on a review of land uses and population densities in the area, and a review of the existing travel patterns in the area. A detailed trip distribution is illustrated **Figure 6**. **Figure 7** illustrates the net new project trips distributed throughout the study network for Projected 2020 Build conditions. Based on trip generation from **Table 1** and the anticipated trip distribution, net new project trips were assigned to the study roadway network. **Figure 8** illustrates the Projected 2020 Build traffic volumes for the AM and PM peak hours. **Appendix E** provides intersection volume worksheets for all study intersections.











6.0 LEVEL-OF-SERVICE ANALYSIS

Level-of-service determinations were made for the weekday AM and PM peak hours for the study network intersections using *Synchro, Version 9*. The program uses methodologies contained in the 2000 *Highway Capacity Manual* to determine the operating characteristics of an intersection. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a specified period under prevailing roadway, traffic, and control conditions.

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 of a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F the worst.

Levels-of-service for unsignalized intersections, with stop control on the minor street(s) only, are reported for the side-street approaches and major street left-turns. Low and failing levels-of-service for side street approaches are not uncommon, as vehicles may experience significant delay turning onto a major roadway.

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 level-of-service, while the intersection as a whole may operate acceptably. An overall signalized intersection LOS of D or better is generally desirable threshold for operating conditions.

In addition to the existing 2017 traffic conditions, an analysis was performed for the AM and PM peak hours for the Projected 2020 No-Build conditions and Projected 2020 Build conditions. The results of the LOS analysis are summarized for the AM and PM peak hour in **Table 2**. The *Synchro* analysis reports are included in **Appendix F**.

Table 2: Level-of-Service Summary <i>LOS (Delay in Seconds)</i>							
Intersection	Approach/ Movement	Existing 2017		Projected 2020 No-Build		Projected 2020 Build	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
SR 9 at Cumming Street	Overall	11.1 (B)	21.0 (C)	18.7 (B)	33.2 (C)	21.2 (C)	34.4 (C)
Cumming Street at Manning Drive	EB	0.1 (A)	0.2 (A)	0.1 (A)	0.2 (A)	0.2 (A)	0.9 (A)
	SB	B (10.1)	12.2 (B)	10.7 (B)	14.5 (B)	14.5 (B)	15.6 (C)
Cumming Street at Cricket Lane	WB	0 (A)	0.1 (A)	1.7 (A)	2.0 (A)	1.7 (A)	2.0 (A)
	NB	11.5 (B)	9.9 (A)	17.0 (C)	22.4 (C)	18.0 (C)	24.5 (C)

As shown in **Table 2**, the analysis indicates that all study intersections currently operate at an acceptable level-of-service. For both the Projected 2020 No-Build and the Projected 2020 Build, the study intersections are expected to operate at a slightly worse LOS, but still within the acceptable LOS ranges.

7.0 CONCLUSION

This traffic study evaluated the traffic impacts associated with the *Manning Square* development located northwest of the intersection of Cumming Street and Manning Drive in Alpharetta, Georgia. The development, which is approximately 11.705 acres, will include 52 dwelling units of residential condominium / townhouse, and 19 dwelling units of single-family detached housing. The study network, which consisted of three (3) off-site intersections, was analyzed for the weekday AM and PM peak hours under Existing 2017 conditions, Projected 2020 No-Build conditions (three years of background traffic growth), and Projected 2020 Build conditions (three years of background traffic growth plus traffic associated with the proposed development).

The intersections in the study area currently operate at level-of-service C or better and will continue to operate above the acceptable threshold level-of-service during the Projected 2020 Build conditions.

7.1 RECOMMENDATIONS

Based on the results of this traffic impact study, no off-site roadway improvements are recommended.

Site Photographs

Site Name: Manning Square

Photo No. 1



Comments:

Looking east from Manning Drive

Photo No. 2



Comments:

Looking west from Manning Drive

Traffic Count Data

Project ID: 17-9082-001

Location: N Main Street _ SR 9 & Cumming St

City: Cumming

Day: Tuesday

Date: 2/7/2017

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:00 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	N Main Street _ SR 9 Northbound					N Main Street _ SR 9 Southbound					Cumming St Eastbound					Cumming St Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	0	90	33	0	123	17	357	0	0	374	0	0	0	0	0	33	0	4	0	37	534
7:15 AM	0	121	48	0	169	24	352	0	0	376	0	0	0	0	0	52	0	14	0	66	611
7:30 AM	0	149	48	0	197	24	340	0	1	364	0	0	0	0	0	37	0	7	1	44	605
7:45 AM	0	144	65	0	209	27	383	0	0	410	0	0	0	0	0	36	0	4	0	40	659
Total	0	504	194	0	698	92	1432	0	1	1524	0	0	0	0	0	158	0	29	1	187	2409
8:00 AM	0	180	78	0	258	27	331	0	1	358	0	0	0	0	0	15	0	5	0	20	636
8:15 AM	0	137	65	0	202	44	380	0	0	424	0	0	0	0	0	15	0	13	1	28	654
8:30 AM	0	147	73	0	220	67	365	0	0	432	0	0	0	0	0	22	0	4	0	26	678
8:45 AM	0	146	131	0	277	82	289	0	0	371	0	0	0	0	0	41	0	20	0	61	709
Total	0	610	347	0	957	220	1365	0	1	1585	0	0	0	0	0	93	0	42	1	135	2677
BREAK																					
4:00 PM	0	263	28	0	291	12	199	0	0	211	0	0	0	0	0	41	0	31	0	72	574
4:15 PM	0	345	21	0	366	12	220	0	0	232	0	0	0	0	0	34	0	36	0	70	668
4:30 PM	0	331	36	0	367	13	182	0	0	195	0	0	0	0	0	44	0	39	1	83	645
4:45 PM	0	336	25	0	361	11	182	0	1	193	0	0	0	0	0	28	0	28	0	56	610
Total	0	1275	110	0	1385	48	783	0	1	831	0	0	0	0	0	147	0	134	1	281	2497
5:00 PM	0	337	39	0	376	12	185	0	0	197	0	0	0	0	0	55	0	38	0	93	666
5:15 PM	0	357	30	0	387	13	195	0	0	208	0	0	0	0	0	40	0	36	0	76	671
5:30 PM	0	384	35	0	419	9	176	0	0	185	0	0	0	0	0	43	0	36	0	79	683
5:45 PM	0	345	30	0	375	15	191	0	0	206	0	0	0	0	0	48	0	28	0	76	657
Total	0	1423	134	0	1557	49	747	0	0	796	0	0	0	0	0	186	0	138	0	324	2677
Grand Total	0	3812	785	0	4597	409	4327	0	3	4736	0	0	0	0	0	584	0	343	3	927	10260
Apprch %	0.0	82.9	17.1	0.0		8.6	91.4	0.0	0.1		0.0	0.0	0.0	0.0		63.0	0.0	37.0	0.3		
Total %	0.0	37.2	7.7	0.0	44.8	4.0	42.2	0.0	0.0	46.2	0.0	0.0	0.0	0.0	0.0	5.7	0.0	3.3	0.0	9.0	
Cars, PU, Vans	0	3804	784	0	4588	409	4313	0	3	4722	0	0	0	0	0	583	0	342	3	925	10235
% Cars, PU, Vans	0.0	99.8	99.9	0.0	99.8	100.0	99.7	0.0	100.0	99.7	0.0	0.0	0.0	0.0	0.0	99.8	0.0	99.7	100.0	99.8	99.8
Heavy Trucks	0	8	1		9	0	14	0		14	0	0	0		0	1	0	1		2	25
%Heavy Trucks	0.0	0.2	0.1	0.0	0.2	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.0	0.2	0.2

Project ID: 17-9082-002
Location: Manning Dr & Cumming St
City: Cumming

Day: Tuesday
Date: 2/7/2017

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:00 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Manning Dr Northbound					Manning Dr Southbound					Cumming St Eastbound					Cumming St Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	1	0	1	0	2	0	53	0	0	53	0	46	0	0	46	101
7:15 AM	0	0	0	0	0	1	0	1	1	2	0	71	0	0	71	0	54	1	0	55	128
7:30 AM	0	0	0	0	0	1	0	4	0	5	0	67	0	0	67	0	42	1	0	43	115
7:45 AM	0	0	0	0	0	0	0	1	0	1	1	88	0	0	89	0	39	1	0	40	130
Total	0	0	0	0	0	3	0	7	1	10	1	279	0	0	280	0	181	3	0	184	474
8:00 AM	0	0	0	0	0	1	0	2	2	3	1	101	0	0	102	0	20	0	0	20	125
8:15 AM	0	0	0	0	0	0	0	4	1	4	0	90	0	0	90	0	33	0	0	33	127
8:30 AM	0	0	0	0	0	1	0	0	4	1	1	97	0	0	98	0	38	0	0	38	137
8:45 AM	0	0	0	0	0	0	0	1	1	1	1	124	0	0	125	0	49	0	0	49	175
Total	0	0	0	0	0	2	0	7	8	9	3	412	0	0	415	0	140	0	0	140	564
BREAK																					
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	40	0	0	41	0	70	0	0	70	111
4:15 PM	0	0	0	0	0	1	0	1	1	2	3	28	0	0	31	0	68	2	1	70	103
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	44	0	0	46	0	85	1	0	86	132
4:45 PM	0	0	0	0	0	1	0	1	0	2	0	40	0	0	40	0	54	0	0	54	96
Total	0	0	0	0	0	2	0	2	1	4	6	152	0	0	158	0	277	3	1	280	442
5:00 PM	0	0	0	0	0	1	0	1	0	2	0	52	0	0	52	0	99	2	0	101	155
5:15 PM	0	0	0	0	0	1	0	0	0	1	3	42	0	0	45	0	65	0	0	65	111
5:30 PM	0	0	0	0	0	0	0	1	0	1	1	47	0	0	48	0	78	2	0	80	129
5:45 PM	0	0	0	0	0	1	0	0	0	1	0	44	0	0	44	0	75	0	0	75	120
Total	0	0	0	0	0	3	0	2	0	5	4	185	0	0	189	0	317	4	0	321	515
Grand Total	0	0	0	0	0	10	0	18	10	28	14	1028	0	0	1042	0	915	10	1	925	1995
Apprch %	0.0	0.0	0.0	0.0		35.7	0.0	64.3	35.7		1.3	98.7	0.0	0.0		0.0	98.9	1.1	0.1		
Total %	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.9	0.5	1.4	0.7	51.5	0.0	0.0	52.2	0.0	45.9	0.5	0.1	46.4	
Cars, PU, Vans	0	0	0	0	0	10	0	18	10	28	14	1027	0	0	1041	0	913	10	1	923	1992
% Cars, PU, Vans	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	100.0	100.0	100.0	99.9	0.0	0.0	99.9	0.0	99.8	100.0	100.0	99.8	99.8
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	2	0	0	2	3
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.2	0.2

Location: Manning Dr & Cumming St
City: Cumming

PEAK HOURS

Day: Tuesday
Date: 2/7/2017

AM

	Manning Dr Northbound				Manning Dr Southbound				Cumming St Eastbound				Cumming St Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
8:00 AM	0	0	0	0	1	0	2	3	1	101	0	102	0	20	0	20	125
8:15 AM	0	0	0	0	0	0	4	4	0	90	0	90	0	33	0	33	127
8:30 AM	0	0	0	0	1	0	0	1	1	97	0	98	0	38	0	38	137
8:45 AM	0	0	0	0	0	0	1	1	1	124	0	125	0	49	0	49	175
Total Volume	0	0	0	0	2	0	7	9	3	412	0	415	0	140	0	140	564
% App. Total	0.0	0.0	0.0	0	22.2	0.0	77.8	100	0.7	99.3	0.0	100	0.0	100.0	0.0	100	
PHF	0.000				0.563				0.830				0.714				
Cars, PU, Vans	0	0	0	0	2	0	7	9	3	411	0	414	0	140	0	140	563
% Cars, PU, Vans	0.0	0.0	0.0	0.0	100.0	0.0	100.0	100.0	100.0	99.8	0.0	99.8	0.0	100.0	0.0	100.0	99.8
Heavy Trucks	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.2

PM

[illegible]

Project ID: 17-9082-003
Location: Cricket Ln & Cumming St
City: Cumming

Day: Tuesday
Date: 2/7/2017

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:00 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Cricket Ln Northbound					Cricket Ln Southbound					Cumming St Eastbound					Cumming St Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	53	0	0	53	0	46	0	0	46	99
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	71	0	0	71	0	55	0	0	55	126
7:30 AM	1	0	0	0	1	0	0	0	0	0	0	67	0	0	67	0	44	0	0	44	112
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	87	0	0	87	0	39	0	0	39	126
Total	1	0	0	0	1	0	0	0	1	0	0	278	0	0	278	0	184	0	0	184	463
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	103	0	0	103	0	20	0	0	20	123
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	90	0	0	90	0	33	0	0	33	123
8:30 AM	0	0	0	0	0	0	0	0	4	0	0	96	0	0	96	0	38	0	0	38	134
8:45 AM	0	0	1	0	1	0	0	0	1	0	0	125	1	0	126	0	50	0	0	50	177
Total	0	0	1	0	1	0	0	0	7	0	0	414	1	0	415	0	141	0	0	141	557
BREAK																					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	40	1	0	41	0	70	0	0	70	111
4:15 PM	0	0	1	0	1	0	0	0	1	0	0	28	1	0	29	0	70	0	0	70	100
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	41	1	0	42	0	86	0	0	86	128
4:45 PM	1	0	1	0	2	0	0	0	0	0	0	42	1	0	43	0	55	0	0	55	100
Total	1	0	2	0	3	0	0	0	1	0	0	151	4	0	155	0	281	0	0	281	439
5:00 PM	1	0	0	0	1	1	0	1	0	2	0	52	0	0	52	0	97	0	0	97	152
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	43	1	0	44	2	66	0	0	68	112
5:30 PM	0	0	3	0	3	0	0	0	0	0	0	47	0	0	47	1	80	0	0	81	131
5:45 PM	0	0	3	0	3	0	0	0	0	0	0	45	0	0	45	0	74	0	0	74	122
Total	1	0	6	0	7	1	0	1	0	2	0	187	1	0	188	3	317	0	0	320	517
Grand Total	3	0	9	0	12	1	0	1	9	2	0	1030	6	0	1036	3	923	0	0	926	1976
Apprch %	25.0	0.0	75.0	0.0		50.0	0.0	50.0	450.0		0.0	99.4	0.6	0.0		0.3	99.7	0.0	0.0		
Total %	0.2	0.0	0.5	0.0	0.6	0.1	0.0	0.1	0.5	0.1	0.0	52.1	0.3	0.0	52.4	0.2	46.7	0.0	0.0	46.9	
Cars, PU, Vans	3	0	9	0	12	1	0	1	9	2	0	1030	6	0	1036	3	921	0	0	924	1974
% Cars, PU, Vans	100.0	0.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	99.8	0.0	0.0	99.8	99.9
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.1

VOLUME

Cumming St Bet. N Main Street & Manning Dr

Day: Tuesday
Date: 2/7/2017

City: Cumming
Project #: GA17_9083_001

DAILY TOTALS					NB	SB	EB					WB					Total	
					0	0											3,330	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL						
0:00			3	3	6		12:00			45	37	82						
0:15			3	4	7		12:15			51	40	91						
0:30			5	6	11		12:30			72	38	110						
0:45			2	13	2	15	12:45			117	285	42	157	159	442			
1:00			1	1	2		13:00			60	55	115						
1:15			4	1	5		13:15			34	34	68						
1:30			1	2	3		13:30			36	35	71						
1:45			1	7	0	4	13:45			41	171	30	154	71	325			
2:00			1	1	2		14:00			45	50	95						
2:15			1	0	1		14:15			41	31	72						
2:30			0	0	0		14:30			50	59	109						
2:45			1	3	0	1	14:45			29	165	34	174	63	339			
3:00			0	1	1		15:00			43	35	78						
3:15			0	0	0		15:15			31	41	72						
3:30			1	0	1		15:30			36	42	78						
3:45			2	3	0	1	15:45			43	153	46	164	89	317			
4:00			1	4	5		16:00			41	68	109						
4:15			0	1	1		16:15			32	69	101						
4:30			2	2	4		16:30			46	86	132						
4:45			4	7	7	17	16:45			37	156	54	277	91	433			
5:00			10	1	11		17:00			50	94	144						
5:15			4	6	10		17:15			46	69	115						
5:30			6	4	10		17:30			49	79	128						
5:45			10	30	23	54	17:45			42	187	75	317	117	504			
6:00			14	11	25		18:00			48	63	111						
6:15			22	9	31		18:15			47	55	102						
6:30			37	20	57		18:30			47	54	101						
6:45			58	131	78	191	18:45			39	181	55	227	94	408			
7:00			52	47	99		19:00			39	31	70						
7:15			72	55	127		19:15			32	28	60						
7:30			74	45	119		19:30			31	28	59						
7:45			90	288	130	475	19:45			20	122	18	105	38	227			
8:00			106	21	127		20:00			22	29	51						
8:15			110	34	144		20:15			26	29	55						
8:30			134	28	162		20:30			25	16	41						
8:45			208	558	255	688	20:45			29	102	16	90	45	192			
9:00			155	46	201		21:00			20	12	32						
9:15			99	32	131		21:15			15	17	32						
9:30			73	30	103		21:30			23	18	41						
9:45			42	369	64	499	21:45			14	72	8	55	22	127			
10:00			37	15	52		22:00			13	10	23						
10:15			36	25	61		22:15			12	7	19						
10:30			32	24	56		22:30			1	6	7						
10:45			34	139	65	234	22:45			5	31	5	28	10	59			
11:00			23	30	53		23:00			1	4	5						
11:15			36	20	56		23:15			2	1	3						
11:30			40	26	66		23:30			6	5	11						
11:45			45	144	89	264	23:45			4	13	3	13	7	26			
TOTALS	1692				777	2469	TOTALS	1638				1761	3399					
SPLIT %	68.5%				31.5%	42.1%	SPLIT %	48.2%				51.8%	57.9%					

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						3,330	2,538						5,868
AM Peak Hour			8:15	7:00	8:15		PM Peak Hour			12:15	17:00	17:00							
AM Pk Volume			607	187	762		PM Pk Volume			300	317	504							
Pk Hr Factor			0.730	0.850	0.747		Pk Hr Factor			0.641	0.843	0.875							
7 - 9 Volume	0	0	846	317	1163		4 - 6 Volume	0	0	343	594	937							
7 - 9 Peak Hour			8:00	7:00	8:00		4 - 6 Peak Hour			17:00	17:00	17:00							
7 - 9 Pk Volume	0	0	558	187	688		4 - 6 Pk Volume	0	0	187	317	504							
Pk Hr Factor	0.000	0.000	0.671	0.850	0.675		Pk Hr Factor	0.000	0.000	0.935	0.843	0.875							

Future Roadway / Intersection Projects

**The Atlanta Region's Plan
FY 2016-2021 Transportation Improvement Program - Sorted by ARC Project Number**

FA-356	FAYETTE COUNTY MASTER PATH PLAN	Jurisdiction	Fayette County	Existing	Planned	Length (mi.)	Network Year
0015075		Sponsor	Fayette County	N/A	N/A	N/A	TBD
Completed		Service Type	Other / Planning	Analysis Exempt from Air Quality Analysis (40 CFR 93)			LCI ☐ Flex ☐

Status	Year	Fund Type	Federal	State	Local	Bonds	Total		
SCP	AUTH	2017	Transportation Alternatives (Section 133(h)) - Urban (>200K) (ARC)		\$144,000	\$0,000	\$36,000	\$0,000	\$180,000
			\$144,000	\$0,000	\$36,000	\$0,000	\$180,000		

FN-067A	SR 9 (NORTH MAIN STREET / CUMMING HIGHWAY) WIDENING	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
721780-	FROM ACADEMY STREET TO WINDWARD PARKWAY	Sponsor	GDOT	2	4	2.0	2024
Programmed		Service Type	Roadway / General Purpose Capacity	Analysis In the Region's Air Quality Conformity Analysis			LCI ☐ Flex ☐

Status	Year	Fund Type	Federal	State	Local	Bonds	Total		
PE	AUTH	1993	STP - Statewide Flexible (GDOT)		\$816,000	\$204,000	\$500,000	\$0,000	\$1,520,000
PE	AUTH	2007	STP - Urban (>200K) (ARC)		\$740,064	\$185,016	\$500,000	\$0,000	\$1,425,080
PE	AUTH	2013	STP - Statewide Flexible (GDOT)		\$1,600,000	\$400,000	\$0,000	\$0,000	\$2,000,000
ROW	AUTH	2016	State of Georgia		\$0,000	\$23,330,000	\$0,000	\$0,000	\$23,330,000
UTL		2020	Surface Transportation Block Grant (STBG) Program Flex (GDOT)		\$318,863	\$79,716	\$0,000	\$0,000	\$398,579
CST		2020	Surface Transportation Block Grant (STBG) Program Flex (GDOT)		\$12,808,731	\$3,202,183	\$0,000	\$0,000	\$16,010,914
			\$16,283,658	\$27,400,915	\$1,000,000	\$0,000	\$44,684,573		

**The Atlanta Region's Plan
FY 2016-2021 Transportation Improvement Program - Sorted by ARC Project Number**

FN-067B	SR 9 (ALPHARETTA HIGHWAY / MAIN STREET) OPERATIONAL IMPROVEMENTS	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
721790	FROM UPPER HEMBREE ROAD TO ACADEMY STREET	Sponsor	GDOT	4	4	1.7	TBD
Programmed		Service Type	Roadway / Operations & Safety	Analysis		LCI ☐	
				Exempt from Air Quality Analysis (40 CFR 93)		Flex ☐	

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2007	STP - Urban (>200K) (ARC)	\$740,064	\$185,016	\$500,000	\$0,000	\$1,425,080
PE	AUTH	2013	STP - Statewide Flexible (GDOT)	\$1,600,000	\$400,000	\$0,000	\$0,000	\$2,000,000
ROW	AUTH	2017	State of Georgia	\$0,000	\$15,860,000	\$0,000	\$0,000	\$15,860,000
UTL		2021	Surface Transportation Block Grant (STBG) Program Flex (GDOT)	\$488,881	\$122,220	\$0,000	\$0,000	\$611,101
CST		2021	Surface Transportation Block Grant (STBG) Program Flex (GDOT)	\$8,321,742	\$2,080,435	\$0,000	\$0,000	\$10,402,177
				\$11,150,687	\$18,647,671	\$500,000	\$0,000	\$30,298,358

FN-192H	HARDSCRABBLE ROAD COMPLETE STREET	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0000265	FROM KING ROAD TO ETRIS ROAD	Sponsor	City of Roswell	N/A	N/A	1.3	TBD
Programmed		Service Type	Last Mile Connectivity / Sidepaths and Trails	Analysis		LCI ☐	
				Exempt from Air Quality Analysis (40 CFR 93)		Flex ☐	

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2009	High Priority Projects from TEA-21	\$51,200	\$0,000	\$12,800	\$0,000	\$64,000
PE	AUTH	2014	STP - Statewide Flexible (GDOT)	\$40,000	\$0,000	\$10,000	\$0,000	\$50,000
ROW	AUTH	2014	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$1,200,000	\$0,000	\$1,200,000
UTL		2017	Surface Transportation Block Grant (STBG) Program - Urban (>200K) (ARC)	\$600,000	\$0,000	\$150,000	\$0,000	\$750,000
CST		2017	High Priority Projects from TEA-21	\$2,415,535	\$0,000	\$1,224,388	\$0,000	\$3,639,923
				\$3,106,735	\$0,000	\$2,597,188	\$0,000	\$5,703,923

**The Atlanta Region's Plan
FY 2016-2021 Transportation Improvement Program - Sorted by ARC Project Number**

FN-221	JOHNSON FERRY ROAD AND MOUNT VERNON HIGHWAY ONE-WAY PAIR IMPROVEMENT PROJECT	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
751420-	FROM US 19 (ROSWELL ROAD) TO HUNTING CREEK ROAD	Sponsor	City of Sandy Springs	2	2	TBD	TBD
Programmed		Service Type	Roadway / Operations & Safety	Analysis Exempt from Air Quality Analysis (40 CFR 93)			LCI ☐ Flex ☐

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2007	High Priority Projects from TEA-21	\$500,000	\$125,000	\$0,000	\$0,000	\$625,000
PE	AUTH	2007	Federal Earmark Funding	\$689,193	\$172,298	\$0,000	\$0,000	\$861,491
ROW		2018	Federal Earmark Funding	\$117,980	\$29,495	\$0,000	\$0,000	\$147,475
ROW		2018	Surface Transportation Block Grant (STBG) Program - Urban (>200K) (ARC)	\$6,315,250	\$789,407	\$8,277,868	\$0,000	\$15,382,525
UTL		2020	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$1,168,000	\$0,000	\$1,168,000
CST		2020	Federal Earmark Funding	\$944,200	\$236,050	\$0,000	\$0,000	\$1,180,250
CST		2020	Federal Earmark Funding	\$1,799,800	\$449,950	\$0,000	\$0,000	\$2,249,750
CST		2020	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$371,972	\$0,000	\$371,972
				\$10,366,423	\$1,802,200	\$9,817,840	\$0,000	\$21,986,463

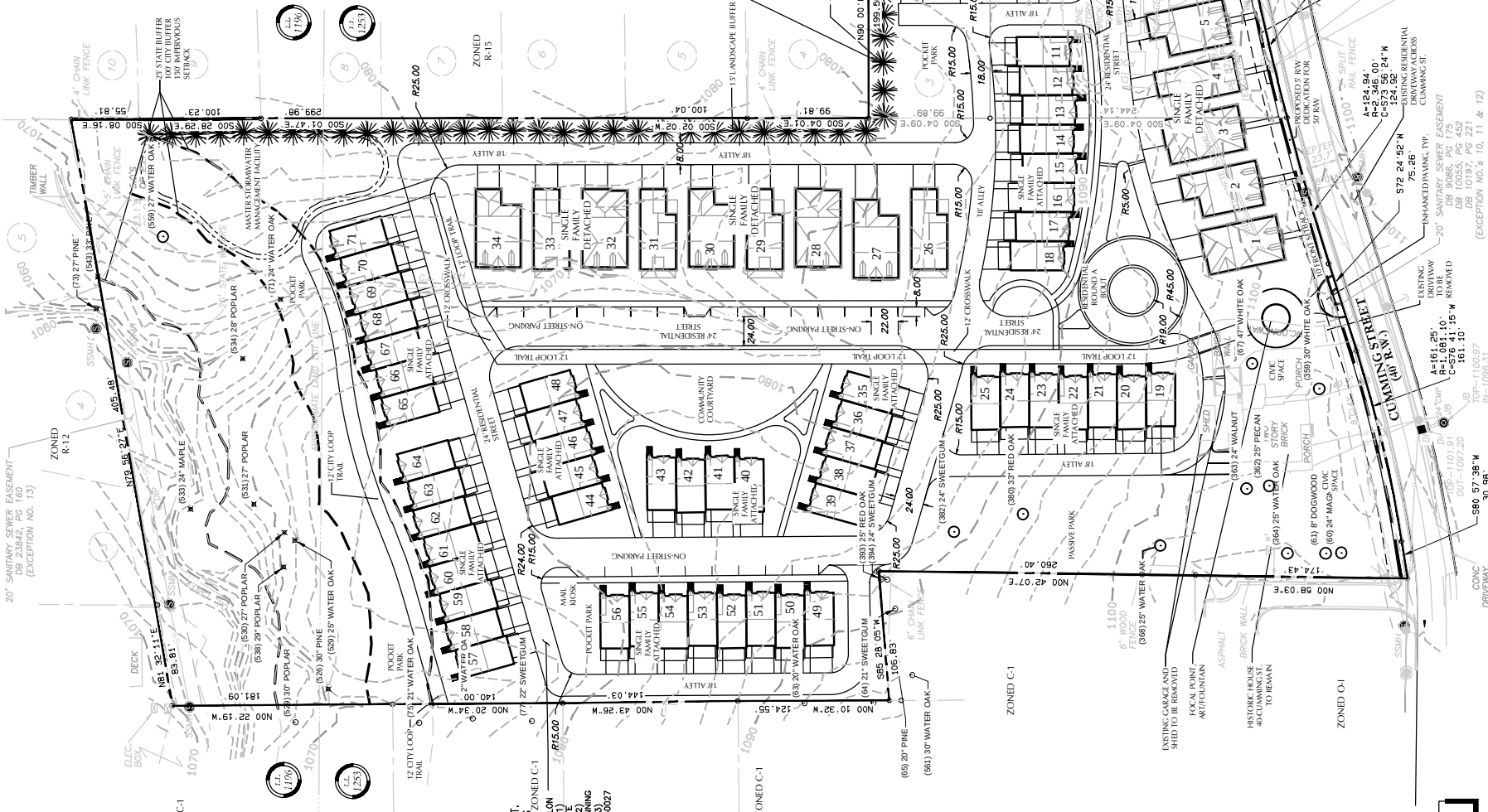
FN-222	SR 9 (CUMMING HIGHWAY) WIDENING	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0007838	FROM WINDWARD PARKWAY TO FORSYTH COUNTY LINE	Sponsor	GDOT	2	4	3.0	2030
Programmed		Service Type	Roadway / General Purpose Capacity	Analysis In the Region's Air Quality Conformity Analysis			LCI ☐ Flex ☐

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2013	STP - Statewide Flexible (GDOT)	\$1,689,882	\$422,471	\$0,000	\$0,000	\$2,112,353
ROW		2018	Surface Transportation Block Grant (STBG) Program Flex (GDOT)	\$6,686,313	\$1,671,578	\$0,000	\$0,000	\$8,357,891
UTL		LR 2022-2030	General Federal Aid 2022-2040	\$5,970,538	\$1,492,634	\$0,000	\$0,000	\$7,463,172
CST		LR 2022-2030	General Federal Aid 2022-2040	\$17,223,181	\$4,305,795	\$0,000	\$0,000	\$21,528,976
				\$31,569,914	\$7,892,478	\$0,000	\$0,000	\$39,462,392

Proposed Site Plan

SITE DATA:	
TOTAL SITE AREA	11.705 ACRES
ZONING	
CURRENT ZONING	R-15 / C-1
PROPOSED ZONING	DT-R
ZONING JURISDICTION	CITY OF ALPHARETTA
.....	COUNTY OF FULTON
DENSITY	
TOTAL RESIDENTIAL UNITS	71 HOMES
SF ATTACHED HOMES	52 UNITS
SF DETACHED HOMES	19 UNITS
MAX. DENSITY ALLOWED	8 UNITS/ACRE
DENSITY PROPOSED	6.06 UNITS/ACRE
BUILDING SETBACK SUMMARY	
FRONT/AGE PROPERTY SETBACK	10 FEET MAX.
SIDE YARD SETBACK	3.5 FEET
REAR YARD SETBACK	5 FEET
TRANSITIONAL BUFFER ZONE	N/A
(PROPERTY IS PROPOSED AS RESIDENTIAL AGAINST RESIDENTIAL/COM.)	
PARKING SUMMARY	
RESIDENTIAL TOTAL HOMES	71 HOMES
RESIDENTIAL PARKING REQUIRED	2sp. / HOME
.....	142 SPACES
GUEST PARKING REQUIRED	11 Sp. (0.15)
TOTAL PARKING REQUIRED	153 SPACES
RESIDENTIAL PARKING	308 SPACES
(2 GARAGE SPACES & 2 DRIVEWAY SPACES PER UNIT + 24 GUEST SPACES)	
CIVIC & AMENITY SPACE SUMMARY	
TOTAL OPEN SPACE REQUIRED	10% OF SITE
OPEN SPACE REQUIREMENTS ARE SATISFIED IN TOTAL BASED ON THE	
PRESERVATION OF 40 CUMMING STREET HOUSE ON THE SITE PER SEC. 3.2-4-1	
OPEN SPACE ON SITE	3.53 ACRES
(30.2% OF TOTAL SITE AREA)	

24 HOUR CONTACT:
JONATHAN JONES
jojones@taylormorrison.com



40 CUMMING STREET, 136 MANNING DRIVE
FOR
A MASTER PLANNED RESIDENTIAL COMMUNITY
TAYLOR MORRISON
4400 NORTH POINT PARKWAY
SUITE 295
ALPHARETTA, GA 30009
JOINES@TAYLORMORRISON.COM

[illegible]

This drawing is the property of P
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TECHNICAL SITE PLAN

SCALE: 1" = 6'
DATE: JANU
PROJECT: 16334

THIS SEAL IS ONLY VALID IF
AND DATED WITH AN ORIGINAL



Intersection Volume Worksheets

Trip Generation Analysis (9th Ed.) Manning Square Proposed Plan (Proposed Zoning: DT-R) City/County, State								
Land Use	Intensity	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Proposed Site Traffic								
210 Single-Family Detached Housing	19 d.u.	226	23	6	17	24	15	9
230 Residential Condominium/Townhouse	52 d.u.	364	31	5	26	35	23	12
Gross Trips		590	54	11	43	59	38	21

k:\atl_tpto\017270004_manning square, alpharetta, january 2017\analysis\[2017-02-17_manningsquare_analysis.xls]trip generation

INTERSECTION VOLUME DEVELOPMENT

SR 9 at Cumming Street AM PEAK HOUR

Description	SR 9 Northbound			SR 9 Southbound			Cumming Street Eastbound			Cumming Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2017 Traffic Volumes	0	610	347	220	1,365	0	0	0	0	93	0	42
Pedestrians	0			3			0			2		
Conflicting Pedestrians	0		2	2		0	3		0	0		3
Heavy Vehicles	0	5	1	0	5	0	0	0	0	0	0	0
Heavy Vehicle %	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.86			0.92			0.00			0.55		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
New Road Adjustment		-30		65	-65							30
Other Proposed Developments				1								5
2020 Background Traffic	0	617	368	299	1,384	0	0	0	0	99	0	80
Project Trips												
Trip Distribution IN			25%	15%								
Trip Distribution OUT										25%		15%
Residential Trips	0	0	3	2	0	0	0	0	0	11	0	6
Total Project Trips	0	0	3	2	0	0	0	0	0	11	0	6
2020 Buildout Total	0	617	371	301	1,384	0	0	0	0	110	0	86

PM PEAK HOUR

Description	SR 9 Northbound			SR 9 Southbound			Cumming Street Eastbound			Cumming Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2017 Traffic Volumes	0	1,423	134	49	747	0	0	0	0	186	0	138
Pedestrians				1						1		
Conflicting Pedestrians	0		1	1		0	1		0	0		1
Heavy Vehicles	0	1	0	0	1	0	0	3	0	0	2	0
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.93			0.96			0.00			0.87		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
New Road Adjustment		-105		35	-35							105
Other Proposed Developments				5								3
2020 Background Traffic	0	1,405	142	92	758	0	0	0	0	197	0	254
Project Trips												
Trip Distribution IN			25%	15%								
Trip Distribution OUT										25%		15%
Residential Trips	0	0	10	6	0	0	0	0	0	5	0	3
Total Project Trips	0	0	10	6	0	0	0	0	0	5	0	3
2020 Buildout Total	0	1,405	152	98	758	0	0	0	0	202	0	257

INTERSECTION VOLUME DEVELOPMENT

Cumming Street at Manning Square AM PEAK HOUR

Description	Manning Square Northbound			Manning Square Southbound			Cumming Street Eastbound			Cumming Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2017 Traffic Volumes	0	0	0	2	0	7	3	412	0	0	140	0
Pedestrians				9								
Conflicting Pedestrians	0		0	0		0	9		0	0		9
Heavy Vehicles	0	0	0	0	0	0	0	1	0	0	0	0
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.00			0.56			0.83			0.71		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
New Road Adjustment								65			30	
Other Proposed Developments								1			5	
2020 Background Traffic	0	0	0	2	0	7	3	503	0	0	184	0
Project Trips												
Trip Distribution IN							40%					60%
Trip Distribution OUT				60%		40%						
Residential Trips	0	0	0	26	0	17	4	0	0	0	0	7
Total Project Trips	0	0	0	26	0	17	4	0	0	0	0	7
2020 Buildout Total	0	0	0	28	0	24	7	503	0	0	184	7

PM PEAK HOUR

Description	Manning Square Northbound			Manning Square Southbound			Cumming Street Eastbound			Cumming Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2017 Traffic Volumes	0	0	0	3	0	2	4	185	0	0	317	4
Pedestrians				1						1		
Conflicting Pedestrians	0		1	1		0	1		0	0		1
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.00			0.63			0.91			0.80		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
New Road Adjustment								35			105	
Other Proposed Developments								5			3	
2020 Background Traffic	0	0	0	3	0	2	4	236	0	0	444	4
Project Trips												
Trip Distribution IN							40%					60%
Trip Distribution OUT				60%		40%						
Residential Trips	0	0	0	13	0	8	15	0	0	0	0	23
Total Project Trips	0	0	0	13	0	8	15	0	0	0	0	23
2020 Buildout Total	0	0	0	16	0	10	19	236	0	0	444	27

INTERSECTION VOLUME DEVELOPMENT

Cumming Street at Cricket Lane AM PEAK HOUR

Description	Cricket Lane <u>Northbound</u>			Cricket Lane <u>Southbound</u>			Cumming Street <u>Eastbound</u>			Cumming Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2017 Traffic Volumes	0	0	1	0	0	0	0	414	1	0	141	0
Pedestrians	0			8			0			2		
Conflicting Pedestrians	0		2	2		0	8		0	0		8
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.25			0.00			0.82			0.71		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
New Road Adjustment	30		35						65	25		
Other Proposed Developments	5		8						1	2		
2020 Background Traffic	35	0	44	0	0	0	0	439	67	27	150	0
Project Trips												
Trip Distribution IN	5%										55%	
Trip Distribution OUT								55%	5%			
Residential Trips	1	0	0	0	0	0	0	24	2	0	6	0
Total Project Trips	1	0	0	0	0	0	0	24	2	0	6	0
2020 Buildout Total	36	0	44	0	0	0	0	463	69	27	156	0

PM PEAK HOUR

Description	Cricket Lane <u>Northbound</u>			Cricket Lane <u>Southbound</u>			Cumming Street <u>Eastbound</u>			Cumming Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2017 Traffic Volumes	1	0	6	0	0	0	0	187	1	3	317	0
Pedestrians	0			1			0			0		
Conflicting Pedestrians	0		0	0		0	1		0	0		1
Heavy Vehicles	0	1	0	0	0	0	0	3	0	0	2	0
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	1%	0%
Peak Hour Factor	0.58			0.25			0.90			0.83		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
New Road Adjustment	105		40						35	65		
Other Proposed Developments	3		4						5	7		
2020 Background Traffic	109	0	50	0	0	0	0	198	41	75	336	0
Project Trips												
Trip Distribution IN	5%										55%	
Trip Distribution OUT								55%	5%			
Residential Trips	2	0	0	0	0	0	0	12	1	0	21	0
Total Project Trips	2	0	0	0	0	0	0	12	1	0	21	0
2020 Buildout Total	111	0	50	0	0	0	0	210	42	75	357	0

Synchro Analysis Reports

Manning Square TIA
1: SR 9 & Cumming St

Existing 2017 AM Conditions

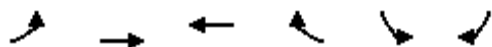
02/22/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	93	42	610	347	220	1365
Future Volume (vph)	93	42	610	347	220	1365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4		5.7	5.7		5.7
Lane Util. Factor	1.00		0.95	1.00		0.95
Frpb, ped/bikes	0.99		1.00	0.98		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.96		1.00	0.85		1.00
Flt Protected	0.97		1.00	1.00		0.99
Satd. Flow (prot)	1714		3539	1550		3515
Flt Permitted	0.97		1.00	1.00		0.72
Satd. Flow (perm)	1714		3539	1550		2553
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	99	45	649	369	234	1452
RTOR Reduction (vph)	12	0	0	35	0	0
Lane Group Flow (vph)	132	0	649	334	0	1686
Confl. Peds. (#/hr)		3		2	2	
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	17.6		131.3	131.3		131.3
Effective Green, g (s)	17.6		131.3	131.3		131.3
Actuated g/C Ratio	0.11		0.82	0.82		0.82
Clearance Time (s)	5.4		5.7	5.7		5.7
Vehicle Extension (s)	3.0		5.0	5.0		5.0
Lane Grp Cap (vph)	188		2904	1271		2095
v/s Ratio Prot	c0.08		0.18			
v/s Ratio Perm				0.22		c0.66
v/c Ratio	0.70		0.22	0.26		0.80
Uniform Delay, d1	68.7		3.2	3.3		7.6
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	10.8		0.2	0.5		2.3
Delay (s)	79.5		3.3	3.8		9.9
Level of Service	E		A	A		A
Approach Delay (s)	79.5		3.5			9.9
Approach LOS	E		A			A
Intersection Summary						
HCM 2000 Control Delay			11.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			160.0		Sum of lost time (s)	17.7
Intersection Capacity Utilization			82.8%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Manning Square TIA
2: Cumming St & Manning Drive

Existing 2017 AM Conditions

02/22/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	412	140	0	2	7
Future Volume (Veh/h)	3	412	140	0	2	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	4	509	173	0	2	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		842				
pX, platoon unblocked						
vC, conflicting volume	173				690	173
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	173				690	173
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1404				410	871
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	513	173	11			
Volume Left	4	0	2			
Volume Right	0	0	9			
cSH	1404	1700	723			
Volume to Capacity	0.00	0.10	0.02			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.1	0.0	10.1			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		34.1%		ICU Level of Service		A
Analysis Period (min)		15				

Manning Square TIA
3: Cricket Lane & Cumming St

Existing 2017 AM Conditions

02/22/2017

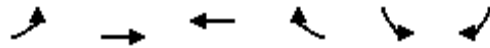
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	414	1	0	141	0	1
Future Volume (Veh/h)	414	1	0	141	0	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	524	1	0	178	0	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1281					
pX, platoon unblocked						
vC, conflicting volume			525		702	524
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			525		702	524
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1042		404	553
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	525	178	1			
Volume Left	0	0	0			
Volume Right	1	0	1			
cSH	1700	1042	553			
Volume to Capacity	0.31	0.00	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	11.5			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.5			
Approach LOS			B			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			31.9%	ICU Level of Service	A	
Analysis Period (min)			15			

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	186	138	1423	134	49	747
Future Volume (vph)	186	138	1423	134	49	747
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4		5.7	5.7		5.7
Lane Util. Factor	1.00		0.95	1.00		0.95
Frpb, ped/bikes	0.99		1.00	0.98		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.94		1.00	0.85		1.00
Flt Protected	0.97		1.00	1.00		1.00
Satd. Flow (prot)	1695		3539	1550		3528
Flt Permitted	0.97		1.00	1.00		0.69
Satd. Flow (perm)	1695		3539	1550		2427
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	190	141	1452	137	50	762
RTOR Reduction (vph)	16	0	0	10	0	0
Lane Group Flow (vph)	315	0	1452	127	0	812
Confl. Peds. (#/hr)		3		2	2	
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	37.6		131.3	131.3		131.3
Effective Green, g (s)	37.6		131.3	131.3		131.3
Actuated g/C Ratio	0.21		0.73	0.73		0.73
Clearance Time (s)	5.4		5.7	5.7		5.7
Vehicle Extension (s)	3.0		5.0	5.0		5.0
Lane Grp Cap (vph)	354		2581	1130		1770
v/s Ratio Prot	c0.19		c0.41			
v/s Ratio Perm				0.08		0.33
v/c Ratio	0.89		0.56	0.11		0.46
Uniform Delay, d1	69.2		11.2	7.2		9.9
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	23.2		0.9	0.2		0.2
Delay (s)	92.3		12.1	7.4		10.1
Level of Service	F		B	A		B
Approach Delay (s)	92.3		11.7			10.1
Approach LOS	F		B			B
Intersection Summary						
HCM 2000 Control Delay			21.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			180.0		Sum of lost time (s)	17.7
Intersection Capacity Utilization			85.7%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Manning Square TIA
2: Cumming St & Manning Drive

Existing 2017 PM Conditions

02/22/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	185	317	4	3	2
Future Volume (Veh/h)	4	185	317	4	3	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	5	223	382	5	4	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		842				
pX, platoon unblocked						
vC, conflicting volume	387				618	384
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	387				618	384
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1171				451	663
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	228	387	6			
Volume Left	5	0	4			
Volume Right	0	5	2			
cSH	1171	1700	505			
Volume to Capacity	0.00	0.23	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.2	0.0	12.2			
Lane LOS	A		B			
Approach Delay (s)	0.2	0.0	12.2			
Approach LOS			B			
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		26.9%		ICU Level of Service		A
Analysis Period (min)		15				

Manning Square TIA
3: Cricket Lane & Cumming St

Existing 2017 PM Conditions

02/22/2017

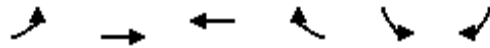
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	187	1	3	317	1	6
Future Volume (Veh/h)	187	1	3	317	1	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	220	1	4	373	1	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1281					
pX, platoon unblocked						
vC, conflicting volume			221		602	220
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			221		602	220
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1348		462	819
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	221	377	8			
Volume Left	0	4	1			
Volume Right	1	0	7			
cSH	1700	1348	747			
Volume to Capacity	0.13	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.1	9.9			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.1	9.9			
Approach LOS			A			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			29.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Volume (vph)	99	80	617	368	299	1384
Future Volume (vph)	99	80	617	368	299	1384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4		5.7	5.7		5.7
Lane Util. Factor	1.00		0.95	1.00		0.95
Frpb, ped/bikes	0.99		1.00	0.98		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.94		1.00	0.85		1.00
Flt Protected	0.97		1.00	1.00		0.99
Satd. Flow (prot)	1689		3539	1550		3508
Flt Permitted	0.97		1.00	1.00		0.69
Satd. Flow (perm)	1689		3539	1550		2430
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	105	85	656	391	318	1472
RTOR Reduction (vph)	22	0	0	41	0	0
Lane Group Flow (vph)	168	0	656	350	0	1790
Confl. Peds. (#/hr)		3		2	2	
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	21.3		127.6	127.6		127.6
Effective Green, g (s)	21.3		127.6	127.6		127.6
Actuated g/C Ratio	0.13		0.80	0.80		0.80
Clearance Time (s)	5.4		5.7	5.7		5.7
Vehicle Extension (s)	3.0		5.0	5.0		5.0
Lane Grp Cap (vph)	224		2822	1236		1937
v/s Ratio Prot	c0.10		0.19			
v/s Ratio Perm				0.23		c0.74
v/c Ratio	0.75		0.23	0.28		0.92
Uniform Delay, d1	66.8		4.0	4.2		12.5
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	13.3		0.2	0.6		8.0
Delay (s)	80.1		4.2	4.8		20.5
Level of Service	F		A	A		C
Approach Delay (s)	80.1		4.4			20.5
Approach LOS	F		A			C
Intersection Summary						
HCM 2000 Control Delay			18.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.94			
Actuated Cycle Length (s)			160.0		Sum of lost time (s)	17.7
Intersection Capacity Utilization			88.5%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Manning Square TIA
2: Cumming St & Manning Drive

Projected 2020 No-Build AM Conditions

02/22/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	↩
Traffic Volume (veh/h)	3	503	184	0	2	7
Future Volume (Veh/h)	3	503	184	0	2	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	4	621	227	0	2	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		842				
pX, platoon unblocked						
vC, conflicting volume	227				856	227
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	227				856	227
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1341				327	812
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	625	227	11			
Volume Left	4	0	2			
Volume Right	0	0	9			
cSH	1341	1700	640			
Volume to Capacity	0.00	0.13	0.02			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.1	0.0	10.7			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.7			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			38.9%	ICU Level of Service		A
Analysis Period (min)			15			

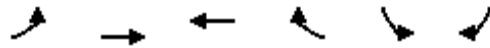
	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Volume (veh/h)	439	67	27	150	35	44
Future Volume (Veh/h)	439	67	27	150	35	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	556	85	34	190	44	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1281					
pX, platoon unblocked						
vC, conflicting volume			641		856	598
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			641		856	598
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		86	89
cM capacity (veh/h)			943		316	502
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	641	224	100			
Volume Left	0	34	44			
Volume Right	85	0	56			
cSH	1700	943	399			
Volume to Capacity	0.38	0.04	0.25			
Queue Length 95th (ft)	0	3	24			
Control Delay (s)	0.0	1.7	17.0			
Lane LOS		A	C			
Approach Delay (s)	0.0	1.7	17.0			
Approach LOS			C			
Intersection Summary						
Average Delay		2.2				
Intersection Capacity Utilization		42.2%		ICU Level of Service		A
Analysis Period (min)		15				

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	197	254	1405	142	92	758
Future Volume (vph)	197	254	1405	142	92	758
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4		5.7	5.7		5.7
Lane Util. Factor	1.00		0.95	1.00		0.95
Frpb, ped/bikes	0.99		1.00	0.98		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.92		1.00	0.85		1.00
Flt Protected	0.98		1.00	1.00		0.99
Satd. Flow (prot)	1670		3539	1549		3520
Flt Permitted	0.98		1.00	1.00		0.54
Satd. Flow (perm)	1670		3539	1549		1926
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	201	259	1434	145	94	773
RTOR Reduction (vph)	26	0	0	12	0	0
Lane Group Flow (vph)	434	0	1434	133	0	867
Confl. Peds. (#/hr)		3		2	2	
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	44.6		124.3	124.3		124.3
Effective Green, g (s)	44.6		124.3	124.3		124.3
Actuated g/C Ratio	0.25		0.69	0.69		0.69
Clearance Time (s)	5.4		5.7	5.7		5.7
Vehicle Extension (s)	3.0		5.0	5.0		5.0
Lane Grp Cap (vph)	413		2443	1069		1330
v/s Ratio Prot	c0.26		0.41			
v/s Ratio Perm				0.09		c0.45
v/c Ratio	1.05		0.59	0.12		0.65
Uniform Delay, d1	67.7		14.5	9.4		15.7
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	58.6		1.0	0.2		1.2
Delay (s)	126.3		15.5	9.7		16.8
Level of Service	F		B	A		B
Approach Delay (s)	126.3		15.0			16.8
Approach LOS	F		B			B
Intersection Summary						
HCM 2000 Control Delay			33.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			180.0		Sum of lost time (s)	17.7
Intersection Capacity Utilization			103.2%		ICU Level of Service	G
Analysis Period (min)			15			
c Critical Lane Group						

Manning Square TIA
2: Cumming St & Manning Drive

Projected 2020 No-Build PM Conditions

02/22/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	236	444	4	3	2
Future Volume (Veh/h)	4	236	444	4	3	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	5	284	535	5	4	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		842				
pX, platoon unblocked						
vC, conflicting volume	540				832	538
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540				832	538
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1028				338	544
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	289	540	6			
Volume Left	5	0	4			
Volume Right	0	5	2			
cSH	1028	1700	386			
Volume to Capacity	0.00	0.32	0.02			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.2	0.0	14.5			
Lane LOS	A		B			
Approach Delay (s)	0.2	0.0	14.5			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			33.6%	ICU Level of Service		A
Analysis Period (min)			15			

Manning Square TIA
3: Cricket Lane & Cumming St

Projected 2020 No-Build PM Conditions

02/22/2017

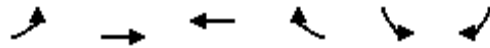
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations					 	
Traffic Volume (veh/h)	198	41	75	336	109	50
Future Volume (Veh/h)	198	41	75	336	109	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	233	48	88	395	128	59
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1281					
pX, platoon unblocked						
vC, conflicting volume			281		828	257
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			281		828	257
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		60	92
cM capacity (veh/h)			1282		318	782
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	281	483	187			
Volume Left	0	88	128			
Volume Right	48	0	59			
cSH	1700	1282	391			
Volume to Capacity	0.17	0.07	0.48			
Queue Length 95th (ft)	0	6	63			
Control Delay (s)	0.0	2.0	22.4			
Lane LOS		A	C			
Approach Delay (s)	0.0	2.0	22.4			
Approach LOS			C			
Intersection Summary						
Average Delay		5.4				
Intersection Capacity Utilization		53.8%		ICU Level of Service		A
Analysis Period (min)		15				

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	86	617	371	301	1384
Future Volume (vph)	110	86	617	371	301	1384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4		5.7	5.7		5.7
Lane Util. Factor	1.00		0.95	1.00		0.95
Frpb, ped/bikes	0.99		1.00	0.98		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.94		1.00	0.85		1.00
Flt Protected	0.97		1.00	1.00		0.99
Satd. Flow (prot)	1691		3539	1550		3508
Flt Permitted	0.97		1.00	1.00		0.68
Satd. Flow (perm)	1691		3539	1550		2424
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	117	91	656	395	320	1472
RTOR Reduction (vph)	21	0	0	44	0	0
Lane Group Flow (vph)	187	0	656	351	0	1792
Confl. Peds. (#/hr)		3		2	2	
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	23.1		125.8	125.8		125.8
Effective Green, g (s)	23.1		125.8	125.8		125.8
Actuated g/C Ratio	0.14		0.79	0.79		0.79
Clearance Time (s)	5.4		5.7	5.7		5.7
Vehicle Extension (s)	3.0		5.0	5.0		5.0
Lane Grp Cap (vph)	244		2782	1218		1905
v/s Ratio Prot	c0.11		0.19			
v/s Ratio Perm				0.23		c0.74
v/c Ratio	0.77		0.24	0.29		0.94
Uniform Delay, d1	65.9		4.5	4.7		14.0
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	13.5		0.2	0.6		9.9
Delay (s)	79.4		4.7	5.3		23.9
Level of Service	E		A	A		C
Approach Delay (s)	79.4		4.9			23.9
Approach LOS	E		A			C
Intersection Summary						
HCM 2000 Control Delay			21.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.96			
Actuated Cycle Length (s)			160.0		Sum of lost time (s)	17.7
Intersection Capacity Utilization			89.6%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Manning Square TIA
2: Cumming St & Manning Drive

Projected 2020 Build AM Conditions

02/22/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	503	184	7	28	24
Future Volume (Veh/h)	7	503	184	7	28	24
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	9	621	227	9	35	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		842				
pX, platoon unblocked						
vC, conflicting volume	236				870	232
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	236				870	232
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				89	96
cM capacity (veh/h)	1331				320	808
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	630	236	65			
Volume Left	9	0	35			
Volume Right	0	9	30			
cSH	1331	1700	443			
Volume to Capacity	0.01	0.14	0.15			
Queue Length 95th (ft)	1	0	13			
Control Delay (s)	0.2	0.0	14.5			
Lane LOS	A		B			
Approach Delay (s)	0.2	0.0	14.5			
Approach LOS			B			
Intersection Summary						
Average Delay		1.1				
Intersection Capacity Utilization		42.1%		ICU Level of Service		A
Analysis Period (min)		15				

Manning Square TIA
3: Cricket Lane & Cumming St

Projected 2020 Build AM Conditions

02/22/2017

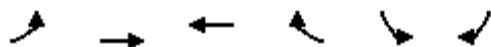
	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	
Traffic Volume (veh/h)	463	69	27	156	36	44
Future Volume (Veh/h)	463	69	27	156	36	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	586	87	34	197	46	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1281					
pX, platoon unblocked						
vC, conflicting volume			673		894	630
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			673		894	630
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		85	88
cM capacity (veh/h)			918		300	482
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	673	231	102			
Volume Left	0	34	46			
Volume Right	87	0	56			
cSH	1700	918	378			
Volume to Capacity	0.40	0.04	0.27			
Queue Length 95th (ft)	0	3	27			
Control Delay (s)	0.0	1.7	18.0			
Lane LOS		A	C			
Approach Delay (s)	0.0	1.7	18.0			
Approach LOS			C			
Intersection Summary						
Average Delay		2.2				
Intersection Capacity Utilization		42.5%	ICU Level of Service	A		
Analysis Period (min)		15				

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	202	257	1405	152	98	758
Future Volume (vph)	202	257	1405	152	98	758
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4		5.7	5.7		5.7
Lane Util. Factor	1.00		0.95	1.00		0.95
Frpb, ped/bikes	0.99		1.00	0.98		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.92		1.00	0.85		1.00
Flt Protected	0.98		1.00	1.00		0.99
Satd. Flow (prot)	1670		3539	1549		3519
Flt Permitted	0.98		1.00	1.00		0.53
Satd. Flow (perm)	1670		3539	1549		1893
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	206	262	1434	155	100	773
RTOR Reduction (vph)	26	0	0	13	0	0
Lane Group Flow (vph)	442	0	1434	142	0	873
Confl. Peds. (#/hr)		3		2	2	
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	44.6		124.3	124.3		124.3
Effective Green, g (s)	44.6		124.3	124.3		124.3
Actuated g/C Ratio	0.25		0.69	0.69		0.69
Clearance Time (s)	5.4		5.7	5.7		5.7
Vehicle Extension (s)	3.0		5.0	5.0		5.0
Lane Grp Cap (vph)	413		2443	1069		1307
v/s Ratio Prot	c0.26		0.41			
v/s Ratio Perm				0.09		c0.46
v/c Ratio	1.07		0.59	0.13		0.67
Uniform Delay, d1	67.7		14.5	9.5		16.0
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	64.6		1.0	0.3		1.3
Delay (s)	132.3		15.5	9.7		17.3
Level of Service	F		B	A		B
Approach Delay (s)	132.3		15.0			17.3
Approach LOS	F		B			B
Intersection Summary						
HCM 2000 Control Delay			34.4		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.81			
Actuated Cycle Length (s)			180.0		Sum of lost time (s)	17.7
Intersection Capacity Utilization			103.8%		ICU Level of Service	G
Analysis Period (min)			15			
c Critical Lane Group						

Manning Square TIA
2: Cumming St & Manning Drive

Projected 2020 Build PM Conditions

02/22/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Traffic Volume (veh/h)	19	236	444	27	16	10
Future Volume (Veh/h)	19	236	444	27	16	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	23	284	535	33	19	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		842				
pX, platoon unblocked						
vC, conflicting volume	568				882	552
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	568				882	552
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				94	98
cM capacity (veh/h)	1004				310	534
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	307	568	31			
Volume Left	23	0	19			
Volume Right	0	33	12			
cSH	1004	1700	370			
Volume to Capacity	0.02	0.33	0.08			
Queue Length 95th (ft)	2	0	7			
Control Delay (s)	0.9	0.0	15.6			
Lane LOS	A		C			
Approach Delay (s)	0.9	0.0	15.6			
Approach LOS			C			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization		38.1%		ICU Level of Service		A
Analysis Period (min)		15				

Manning Square TIA
3: Cricket Lane & Cumming St

Projected 2020 Build PM Conditions

02/22/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (veh/h)	210	42	75	357	111	50
Future Volume (Veh/h)	210	42	75	357	111	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	247	49	88	420	131	59
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1281					
pX, platoon unblocked						
vC, conflicting volume			296		868	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			296		868	272
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		56	92
cM capacity (veh/h)			1265		301	767
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	296	508	190			
Volume Left	0	88	131			
Volume Right	49	0	59			
cSH	1700	1265	371			
Volume to Capacity	0.17	0.07	0.51			
Queue Length 95th (ft)	0	6	70			
Control Delay (s)	0.0	2.0	24.5			
Lane LOS		A	C			
Approach Delay (s)	0.0	2.0	24.5			
Approach LOS			C			
Intersection Summary						
Average Delay		5.7				
Intersection Capacity Utilization		55.7%	ICU Level of Service		B	
Analysis Period (min)		15				

Supply & Demand Analysis: Alpharetta Current & Future Supply

As part of our analysis, we looked at current and future supplies for single-family detached homes and townhomes in the City of Alpharetta and within a 2-mile radius of the Subject (Downtown Alpharetta). We then compared recent new home closings to both current and future supply levels within each geography. A “healthy” current supply level is typically seen as 2 years, with levels significantly below 2 years considered “under-supplied” and levels significantly above 2 years as “over-supplied”. As the chart to the lower left highlights, both the City of Alpharetta and the Subject’s 2-mile ring are both “healthy” (orange) to “under-supplied” (green). For future supply, normal market “health” is typically 5 years of future supply. Again, in both cases the future supplies within both geographies are considered “under-supplied” to “healthy”.

As a second measure of supply/demand, we also compared the projected household growth over the next 5 years (using ESRI projections) as compared to the future supply for each geography (charted to the lower right below). Based on the projected household growth for the City of Alpharetta, the future housing supply will not adequately meet the projected increase in demand. Within the Subject’s 2-mile ring, there is a slight under-supply projected for the next 5 years.

	City of Alpharetta		Cumming St 2-Mile Ring	
	Single-Family	Townhomes	Single-Family	Townhomes
Closings Last12Mo.	174	246	68	94
Current Supply	157	548	150	79
Supply Remaining	0yr11mo	2yr2mo	2yr2mo	0yr10mo
Future Supply	381	650	286	411
Future Remaining	2yr2mo	2yr8mo	4yr3mo	4yr4mo



	City of Alpharetta	Cumming St. 2-Mile Ring
2016 Households	23,145	9,519
2021 Households	24,697	10,230
Net Gain (2016-2021)	1,552	711
Less Future Supply (SF&MF)	1,031	697
Under/Over Supply	521	14



Supply & Demand Analysis: Current Supply

Below is a list of the single-family and townhome projects within a 2-mile ring of the Subject with current lot supplies (developed lots able to be built on today) that were included in this analysis.

Subdivision	Product	Builder/Developer	Current Supply
Avalon	SF	Monte Hewett	11
Cogburn Parc	SF	Providence Group	3
East of Main	SF	Providence Group	36
Harris Walk	SF	Waterford Homes	13
Hearthstone	SF	Sharp Residential	10
Hopewell Plantation	SF	Mark Anthony	2
Kensley	SF	John Wieland	24
Mayfield Walk	SF	Scott Johnson	1
Rumson Point	SF	Pinnacle Homes	16
Twelve on Canton	SF	Talon Homes	12
Voysey	SF	Hedgewood	17
Wills Park/Enclave	SF	Taylor Morrison	5
Total			150

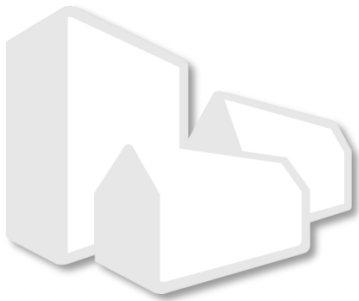
Subdivision	Product	Builder/Developer	Current Supply
Avalon	TH	Monte Hewett	4
East of Main	TH	Providence Group	27
Sonoma	TH	Taylor Morrison	25
Windsong	TH	Talon Homes	23
Total			79

Supply & Demand Analysis: Future Projects

Below is a list of the single-family and townhome projects within a 2-mile ring of the Subject with future lots that were included in this analysis.

Subdivision	Product	Builder/Developer	Future Lots
Braeden	SF	John Wieland	74
Canton St.	SF	Peachtree Residential	21
Downtown Main	SF	Duke Land Group	6
Foundry	SF	John Wieland	25
Hearthstone	SF	Sharp Residential	33
Kensley	SF	John Wieland	45
Milton Place	SF	Fuqua & Associates	11
Stonewalk	SF	Stonewalk Mayfield Corners LLC	3
Thompson Street	SF	Aycock	7
Thompson Street	SF	Hedgewood	3
Voysey	SF	Hedgewood	22
Westside Parkway	SF	Ashton Woods	36
Total			286

Subdivision	Product	Builder/Developer	Future Lots
Appen	TH	Ray Appen	17
Walk at Braeden	TH	Pulte Group	56
Canton St. Common	TH	Peachtree Residential	9
Chelsea Walk	TH	Providence Group	49
Downtown Main	TH	Duke Land Group	55
Foundry	TH	John Wieland	88
Innovation	TH	MetLife	25
Newvale	TH	D & G Development	23
Stonewalk	TH	Stonewalk Mayfield Corners LLC	16
Thompson Street	TH	Edward Andrews	40
Westside Parkway	TH	Ashton Woods	33
Total			411



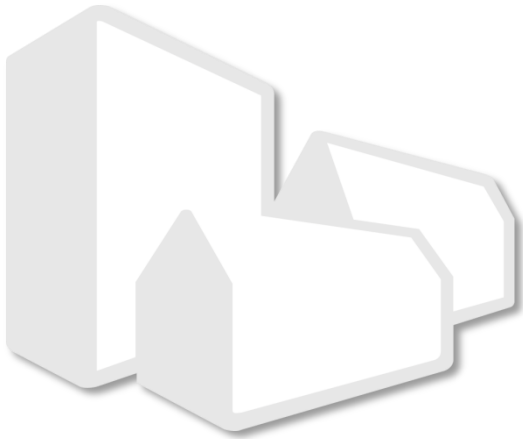
Taylor Morrison Homes

Cumming Street Walkable Community - Alpharetta, GA Market Opportunity Assessment

May, 2017

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Background and Objectives

Background

John Burns Real Estate Consulting, LLC (“JBREC”) was retained to provide Taylor Morrison Homes (“Taylor Morrison” or “Client”) with an independent third-party evaluation of the location, product, pricing and sales potential for a single-family detached and townhome community on Cumming Street (“Subject”) in Alpharetta, Georgia. The Subject is located within walking distance to Downtown Alpharetta, which is home to popular new restaurants, Saturday Farmers Market, Thursday Night Food Truck Alley, and a host of popular events including concerts, festivals, food tastings, and annual Christmas tree lighting.

Objective

The objective of this assignment is to compile and evaluate pertinent new home and resale market information in order to provide recommendations relative to the pricing and absorption of the Subject single-family detached and townhomes to be offered including: base prices, average lot premiums, average option and upgrade revenues, incentives, and absorption and price appreciation projections given the Client’s current plans. Additionally, JBREC will provide a broader perspective on the overall Atlanta and local Alpharetta economies and housing markets.

Key Assumptions

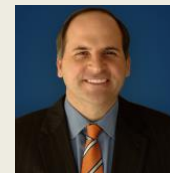
The pricing and absorption recommendations in this report assume that the Builder will provide excellent execution of the following: 1) offer floor plan sizes, types, and amenity levels as proposed and recommended, 2) the development will be completed in a quality “market appropriate” manner with a community entrance, entry monumentation, landscaping, amenities, spec levels, and unit finishes in-line with market expectations, 3) provide sufficient advertising and marketing efforts to generate shopper traffic commensurate with market comps achieving comparable home sales rates and prices, 4) have an on-site sales office open seven days per week, 5) have fully decorated model homes, and 6) have experienced, professionally trained sales agents familiar with the local market.

Contact Information

This analysis was prepared by John Burns Real Estate Consulting, LLC. David Kalosis, Principal, served as Project Manager. Follow-up questions should be directed to us at:

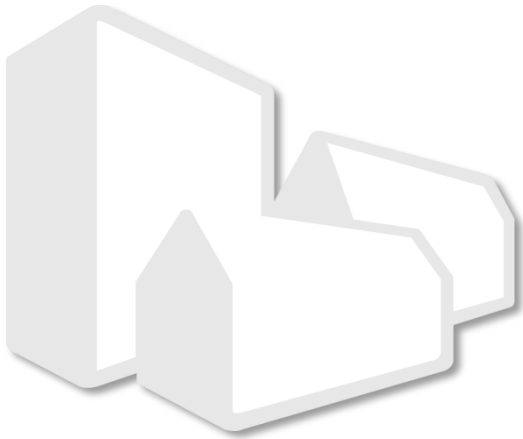
12600 Deerfield Parkway, Suite 200
Alpharetta, GA 30004
(770) 286-3493
dkalosis@realestateconsulting.com

Market Expert:



David Kalosis
Consulting

dkalosis@realestateconsulting.com



Executive Summary

Below is a summary of JBREC's market-guided recommendations for both the townhome and single-family detached product series planned for the Cumming Street community in Downtown Alpharetta. For each of these series, we assumed the Builder's unit counts and base plan ranges, which are consistent with market expectations.

Summary of Cumming Street Product and Pricing Recommendations

	Cumming Street - JBREC Recommendations	
	Townhomes	Single-Family Detached
Unit Count	40	30
Avg Plan Size	2,500	2,859
Average Base Price	\$399,900	\$555,900
Average Incentive	(\$6,000)	(\$15,000)
Average Options and Upgrades	\$25,000	\$40,000
Average Lot Premium (inc End Unit)	\$10,000	\$4,000
Average Total Net Home Price (base+premiums+options–incentives)	\$428,900	\$584,900
Total Revenue	\$17,156,000	\$17,547,000
Monthly HOA Fees	\$250	\$200
Sales Rate	2.0/month	2.0/month
Sales Cycle	1yr8mo	1yr3mo
Sales Start	Mar-18	Mar-18
Avg Annual Price Appreciation 2017-2020	2.8%	2.8%

- **Location:** The Subject will be truly walkable to Downtown Alpharetta, which is becoming a popular destination for families and empty nesters alike given the new retail, restaurants and entertainment venues that continue to place Alpharetta among the top cities in the country and rank among the fastest growing suburbs. The Alpharetta Farmer's Market, Foody Truck Alley, concerts and events, the new City Hall and the Alpharetta Library are all within an easy stroll down Main Street.
- **Accessibility:** In a city plagued with traffic headaches, Alpharetta provides historic charm couples with modern conveniences and access to major employment nearby. Residents are within 10 minutes of anywhere within the Alpharetta Tech Hub, a major employment hub in North Atlanta. Retail shopping centers (including popular Avalon Mall), restaurants, grocery stores (including Whole Foods and Publix), daily conveniences and entertainment are all less than one mile away. Local churches and regional hospitals are also right nearby.
- **Public Schools:** The Alpharetta area of North Fulton County is well regarded for its excellent public schools, which is a major driver for families. The local public school assignments all perform extremely well.
- **Strong 55+ Demand:** North Fulton County (and Alpharetta in particular) has a large and growing 55+ population that are buying homes here today. Our proprietary 55+ demand analysis identifies Alpharetta as a target area for empty nester buyers in North Atlanta based on criteria that includes current 55+ population, growth projections, and housing demand today.
- **Townhome Buyers:** Empty Nesters are gravitating toward new Surban™ (urbanized areas within suburban locations) developments that provide lifestyle conveniences of low maintenance products with walkability to retail and restaurants. New townhome communities in the area have also become a destination for young ethnic families (as well as mature single-parent households) that work in the Alpharetta Tech Hub and desire Alpharetta's local public schools, with a low maintenance home and yard for their busy lifestyles.
- **Single-Family Detached Buyers:** Many Young Families and Empty Nesters alike are trading square footage and large lots for low maintenance and easy access. They're downsizing their homes and maintenance responsibilities and engaging more in their lifestyle.
- **Products:** The townhome product series is consistent with what the Builder is already producing at Sonoma THs less than 1 mile to the north, with the Subject offering true walkability to Downtown Alpharetta that will command a significant premium over the current pricing at Sonoma. Likewise, many families and empty nesters alike will trade the Enclave at Wills Park setting for walkability to Downtown Alpharetta. Given the strong empty nester population buying in the area, the Builder will need to include master-on-main and full bedroom suites on the main level plans within the single-family detached series. From our experience with townhomes in other Surban™ locations throughout North Atlanta, empty nesters will accept stairs in locations that offer a walkable lifestyle.
- **Pricing:** JBREC's market-guided pricing recommendations are based on the product offerings, location, desirability, and competitive performance in the submarket.
- **Standard Features:** The Builder should offer standard features that are commensurate with our higher price recommendations including 10ft ceilings on main, 8ft doors, granite countertops, tile backsplash, hardwood floors on main, 2" cabinets and lawn maintenance..
- **Absorptions:** JBREC supports an average monthly sales rate of 2.0 per month per product series at the Subject from grand opening through sell out given the Builder's planned product offerings and our recommended pricing strategy.

S

Strengths

- Desirable submarket location with growing demand.
- Multiple product/buyer targets that fit the local demographic demand profile.
- Proximity and accessibility to major employment centers nearby.
- Walkable to retail shopping and restaurants.
- North Fulton County public schools.
- Proven products within the market.
- Marketing window should drive strong traffic volume to the site.

W

Weaknesses

- Traffic along Hwy-9/North Main Street may be a deterrent for some shoppers.
- No gated access.
- No community amenities.

O

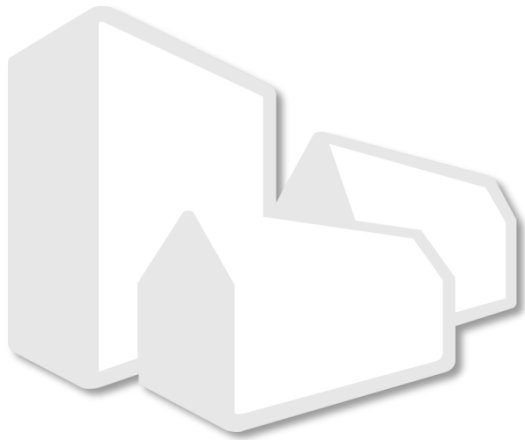
Opportunities

- Excellent housing market fundamentals including strong demand, low supply and relative affordability today.
- Lack of affordability in North Fulton driving demand for low maintenance lifestyle products.
- Projected growth among key demographics supports strong demand locally.
- Alpharetta Loop Trail could further improve the desirability/walkability.

T

Threats

- Increasing competition throughout North Atlanta for mature buyers and townhome market.
- Economic shifts, including potential tech bubble and rising interest rates, would impact local buyers.
- National immigration policies could have direct impact on ethnic buyer demand.

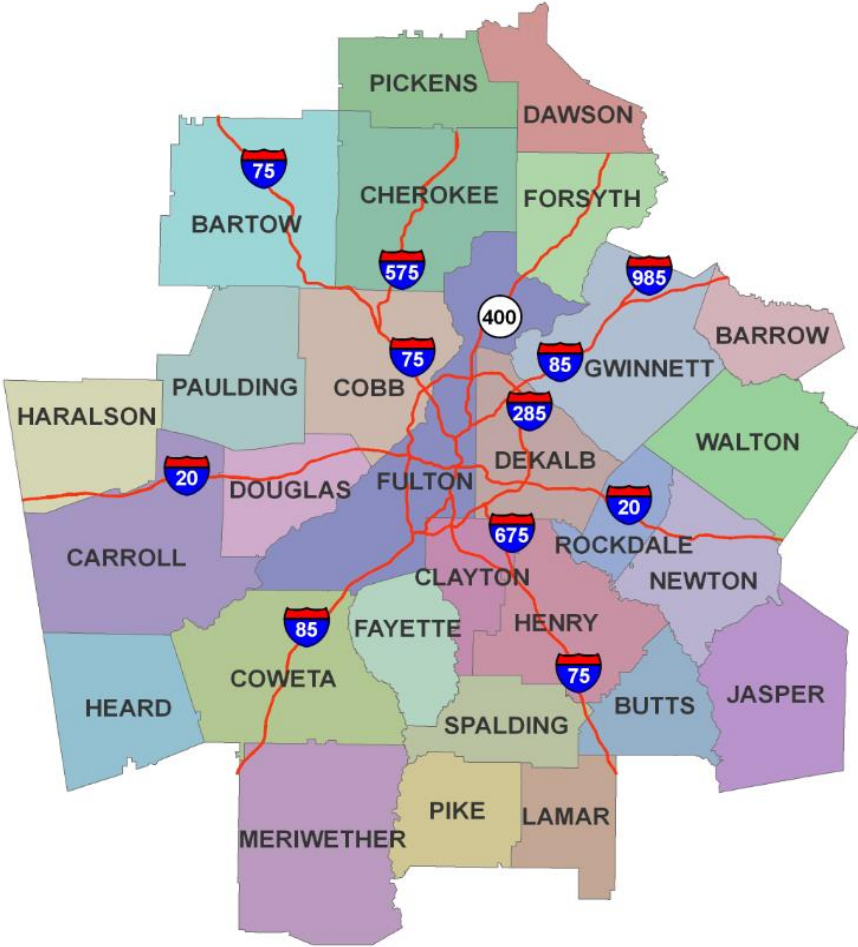


Location Analysis

There are 29 counties included in the Atlanta, GA MSA; the core population centers, which account for nearly 60% of all metro area households today, are concentrated in Fulton, Cobb, DeKalb and Gwinnett Counties. North Fulton County is the region's center of economic growth, yet has managed to maintain much of its original identity. Area residents enjoy a rich and diverse cultural scene, wide-ranging recreational activities, world-class educational and medical facilities, and numerous retail and dining experiences.

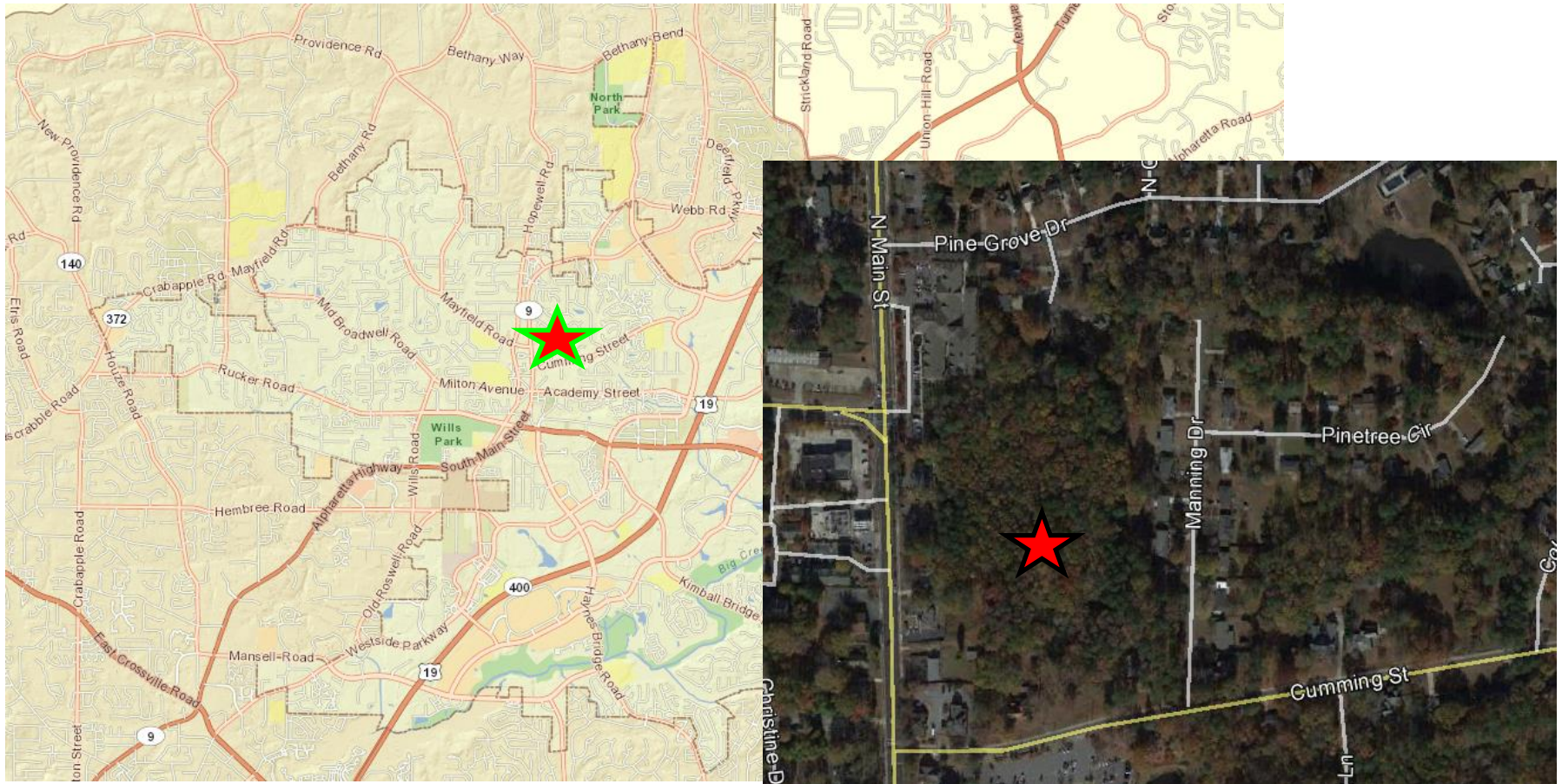
Atlanta MSA	
Population	5,870,000
Population Growth	1.9%
Employment Growth	3.6%
Unemployment Rate	4.9%
New Home Sales Volume	19,428
New Home Sales Growth	16.5%
New Home Sales \$	\$295,200
Existing Home Sales Volume	104,946
Existing Home Sales Growth	10.0%
Existing Home Sales \$	\$189,100
Total Permits	35,565
Total Permit Growth	7.7%

Rolling 12mos ending March 2017



Location Analysis – Cumming Street Site

The Subject is located within the City of Alpharetta, which is home to over 62,000 people making up 23,000 households. It is one of the fastest growing cities in America and home to major employment, residential and retail developments that make Alpharetta a true live-work-play lifestyle destination community. More specifically, the Subject is located along Cumming Street, across from the Alpharetta First United Methodist Church, near the intersection with Hwy-9/North Main Street. This central location is truly walkable to Downtown Alpharetta, which will have strong appeal to families and empty nesters alike who enjoy all the arts, culture, restaurants, and activities that go on every day in Downtown Alpharetta. The Subject is also within easy access to Avalon Mall, GA-400, regional hospitals, and the Alpharetta Tech Hub, which has become a major employment center within North Atlanta.



Location Analysis – **Subject Preliminary Site Plan**

The Cumming Street site is approximately 11.7 acres located along Cumming Street, just west of Hwy-9/North Main Street. The site is located across the street from Alpharetta First United Methodist Church and within a one block walk south to Downtown Alpharetta. The Client is considering developing this site to include 30 single-family lots that will be alley-loaded and 40 townhomes. The site will also include neighborhood parks/open space, as well as civic space dedicated along its northern boundary. An additional benefit of the site will be its location along the planned Alpharetta Loop Trail, which will provide safe walking, jogging and biking connectivity throughout much of Alpharetta.



Location Analysis – Downtown Alpharetta

The Cumming Street site is only one block to Downtown Alpharetta, where a leisurely stroll through the welcoming downtown district offers restaurants, retail shopping and weekly events that draw in couples, families, and even their furry friends. The historic downtown showcases work from local artists and craftsmen during the Main Street Market events held monthly between March and November including a Farmers Market held most Saturday mornings and Food Truck Alley is held on Thursday evenings. City Hall is also located downtown, as well as the library and a number of popular churches.



Location Analysis – Downtown Alpharetta & Avalon

While all the activities of Downtown Alpharetta are within walking distance, other modern conveniences are also within a short drive including Avalon, a sustainably designed, 86-acre development with more than 500,000 square feet of retail, a 12-screen all premium theater, a full-service hotel, Class A office, single-family residences and luxury rental homes within a walkable, connected community of shopping, dining, entertainment, living and working. There's also grocery shopping, pharmacies, and other daily conveniences right nearby. There are more than 600 technology companies concentrated within the nearby Alpharetta Tech Hub and GA-400 is only 1.5 miles away, providing easy access to the rest of Atlanta.



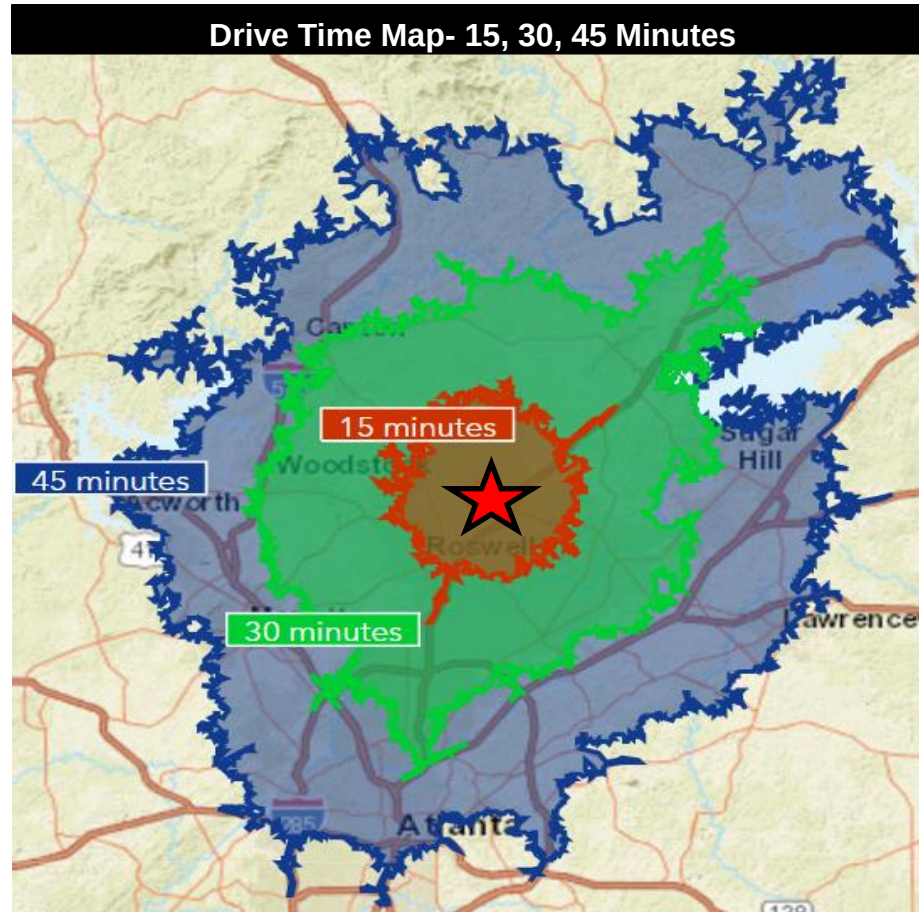
Alpharetta has been a popular destination for decades, particularly among move-up and upscale families given the strength of the local schools, but also among empty nesters that are either downsizing in place or following their grandchildren to the area. Alpharetta is regularly named among the top cities in the country and continues to rank among the fastest growing suburbs.

Awards

1. Named one of the Best Suburbs To Live In Georgia by Niche.com – 2017
2. Named one of the 30 best neighborhoods in America – 2017
3. Named one of the 50 safest cities in Georgia – 2017
4. Named 25 best places to visit in Georgia by Vacationidea.com – 2016
5. Named best cities for Tech (Outside California and New York) by Datafox – 2016
6. Named #1 place where business is thriving by Entrepreneur – 2015
7. Named one of the 10 best Atlanta suburbs by Movoto – 2015
8. Named one of the best places to start a business in Georgia by Nerdwallet – 2015
9. Named one of the best cities to start a restaurant by Nerdwallet – 2015
10. Named one of the best cities for Women Entrepreneur by Goodcall – 2015
11. Named best small city in Georgia by WalletHub – 2015
12. Alpharetta is the 6th fastest growing city according to U.S. Census Bureau – 2013
13. Named 7th friendliest city in the nation by Forbes – 2012
14. Alpharetta listed as the top place to move by Forbes – 2009

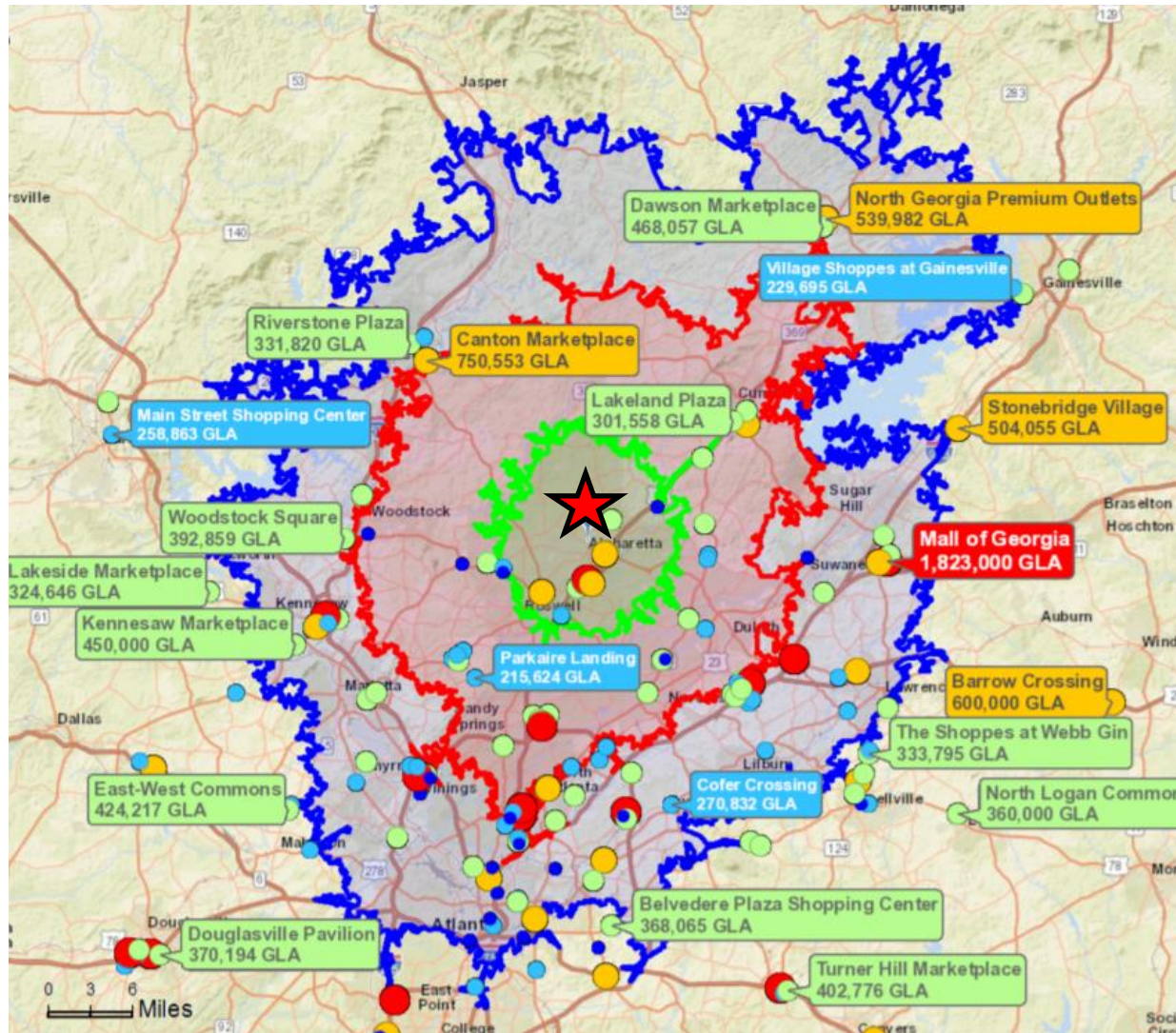
Source: Alpharetta Convention & Visitors Bureau

The Cumming Street site is near GA-400 supporting wide ranging accessibility to most areas in the MSA within a 45 minute drive. All daily conveniences are within fifteen minutes of the site.



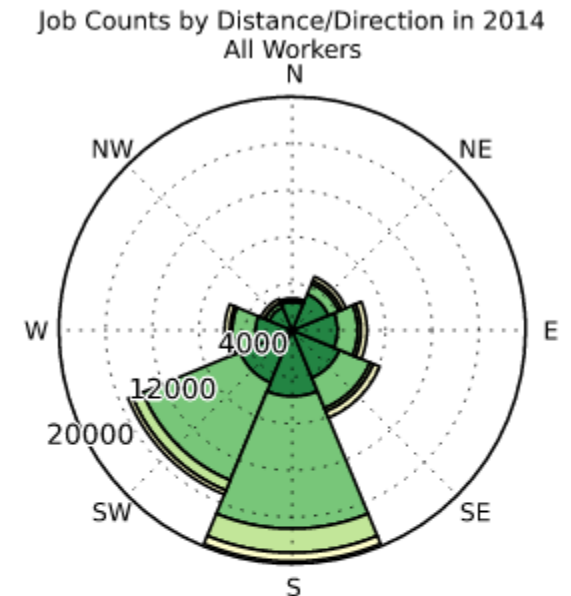
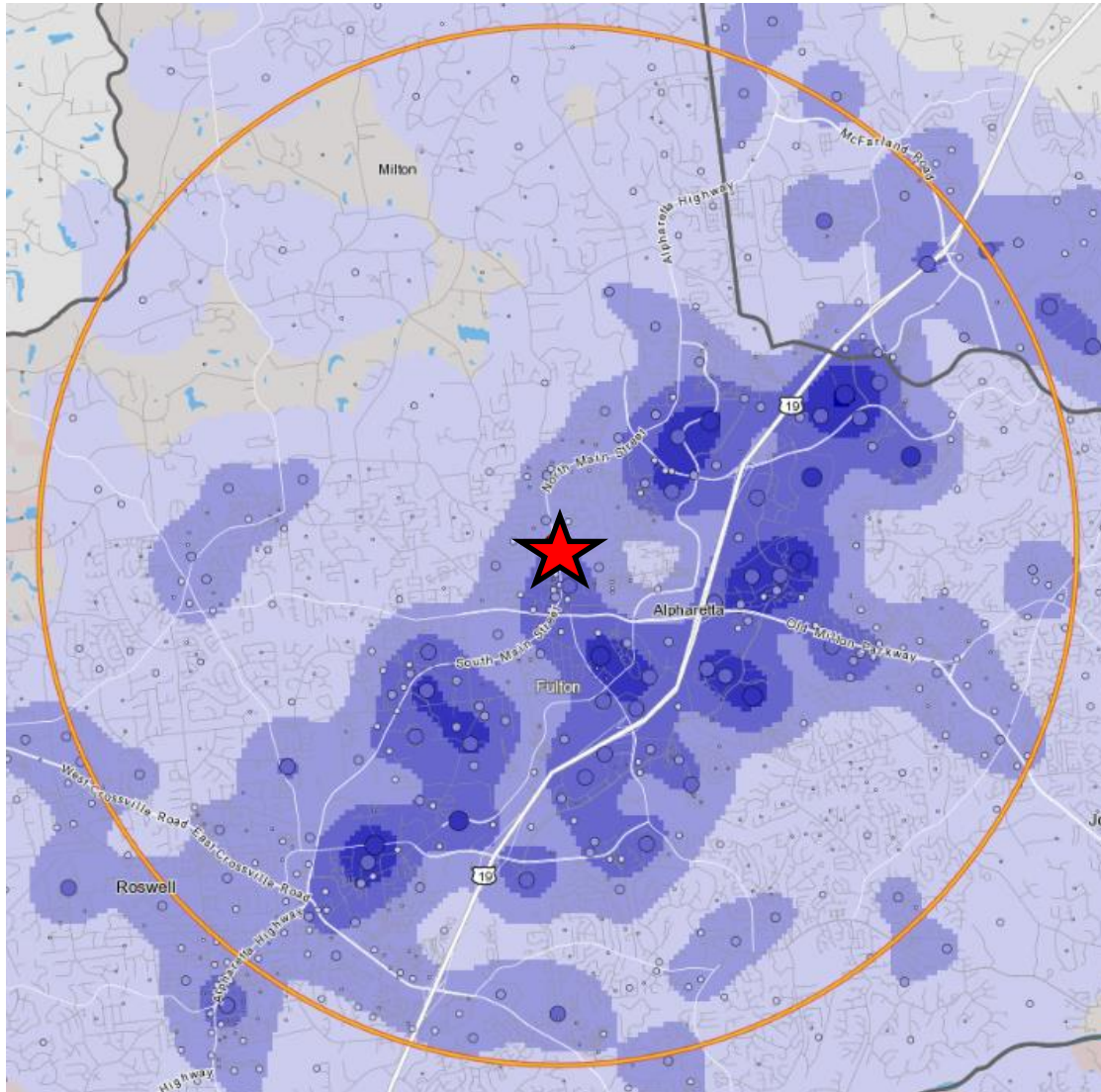
Location Analysis – Shopping & Entertainment Map

There are a variety of shopping, dining and entertainment options within fifteen minutes of the Cumming Street site; including the North Point and Avalon malls. The site is within walking distance of Downtown Alpharetta, home to unique shops, restaurants and boutiques.



Location Analysis – Proximity to Employment

Residents within five miles of the Subject site primarily commute south between Alpharetta and Roswell for employment; most commute less than ten miles. Alpharetta is home to multiple major employers; during the workday nearly 75,000 non-resident workers enter the city, increasing the daytime population to greater than 100,000.

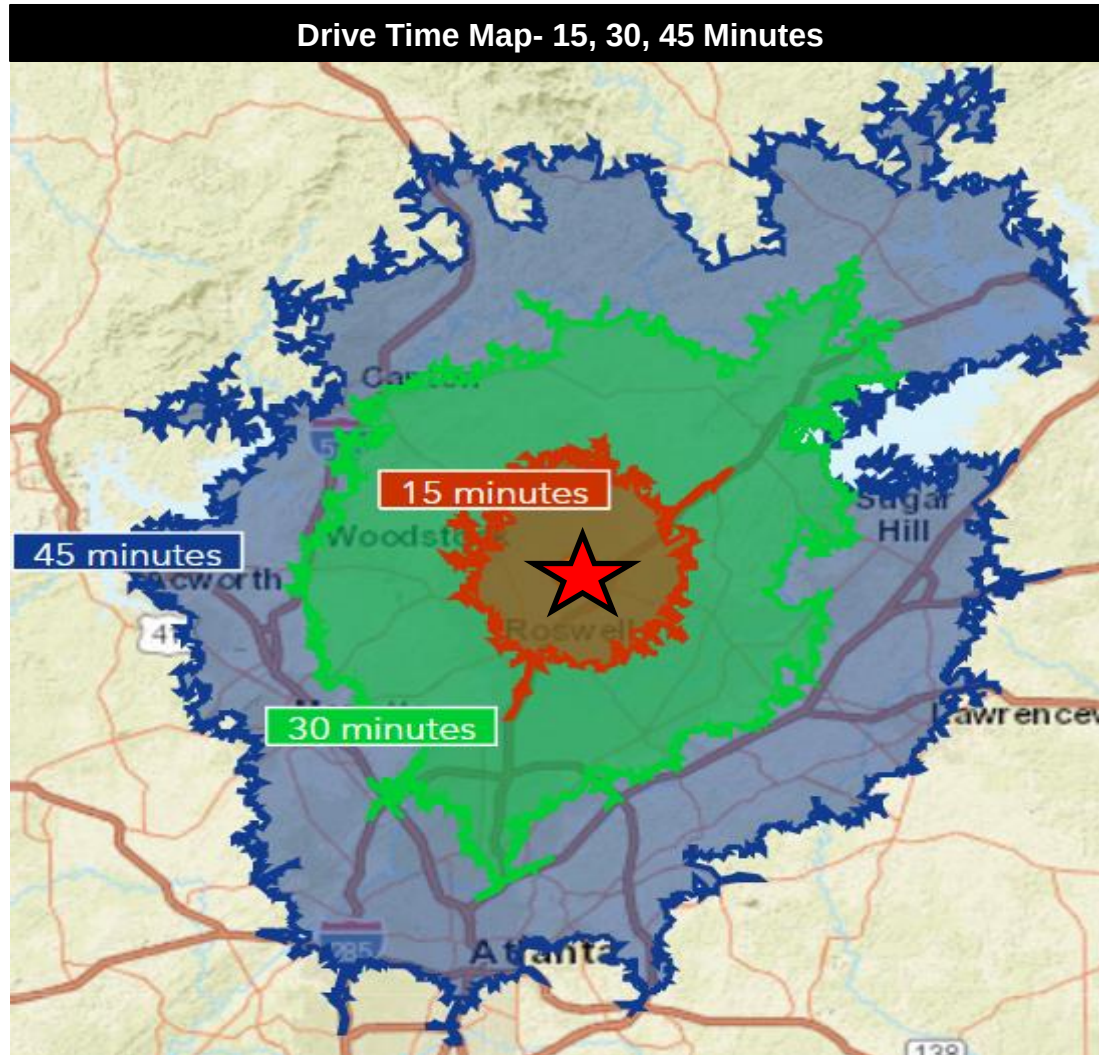


View as **Radar Chart**

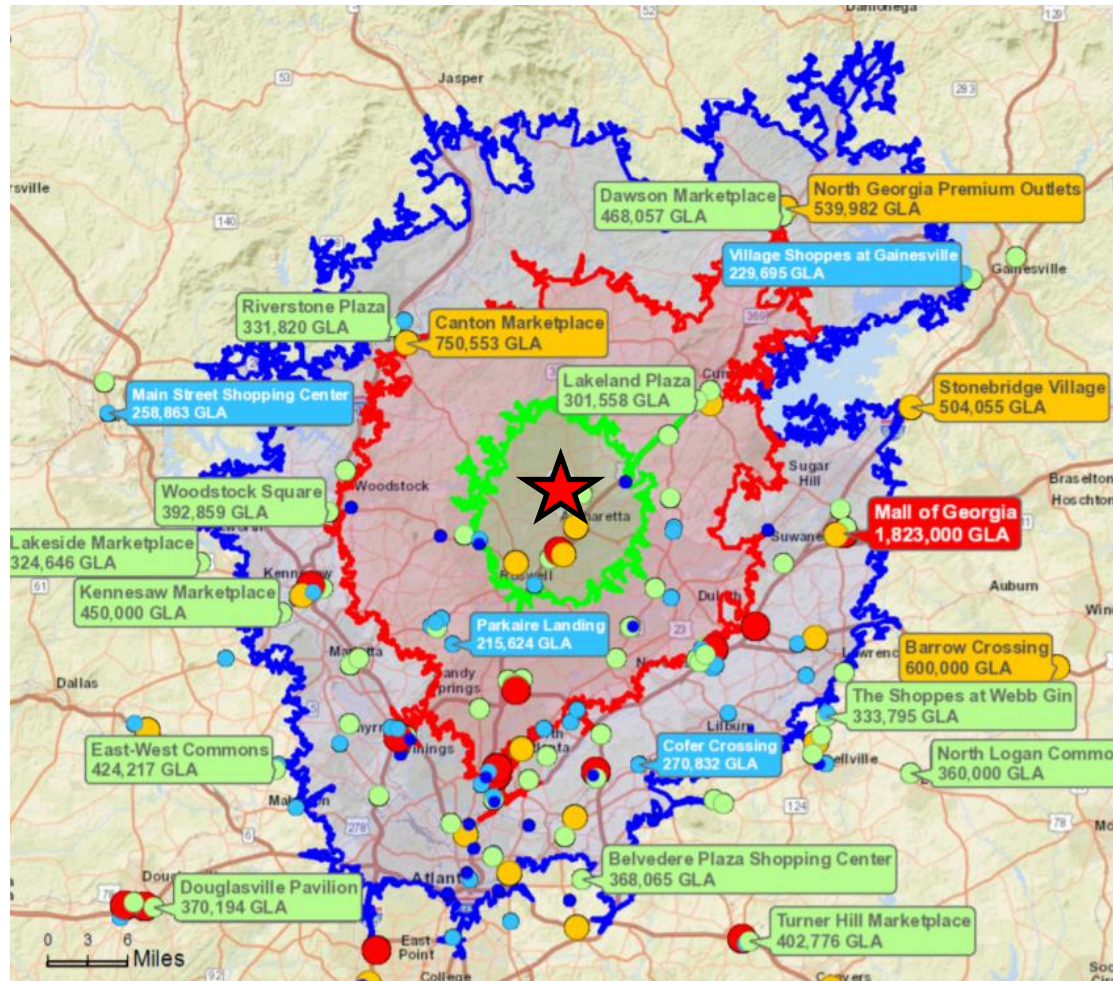
Jobs by Distance - Home Census Block to Work Census Block

	2014	
	Count	Share
Total Primary Jobs	65,952	100.0%
Less than 10 miles	29,861	45.3%
10 to 24 miles	28,374	43.0%
25 to 50 miles	4,255	6.5%
Greater than 50 miles	3,462	5.2%

The Cumming Street site is near GA-400 supporting wide ranging accessibility to most areas in the MSA within a 45 minute drive. All daily conveniences are within fifteen minutes of the site.

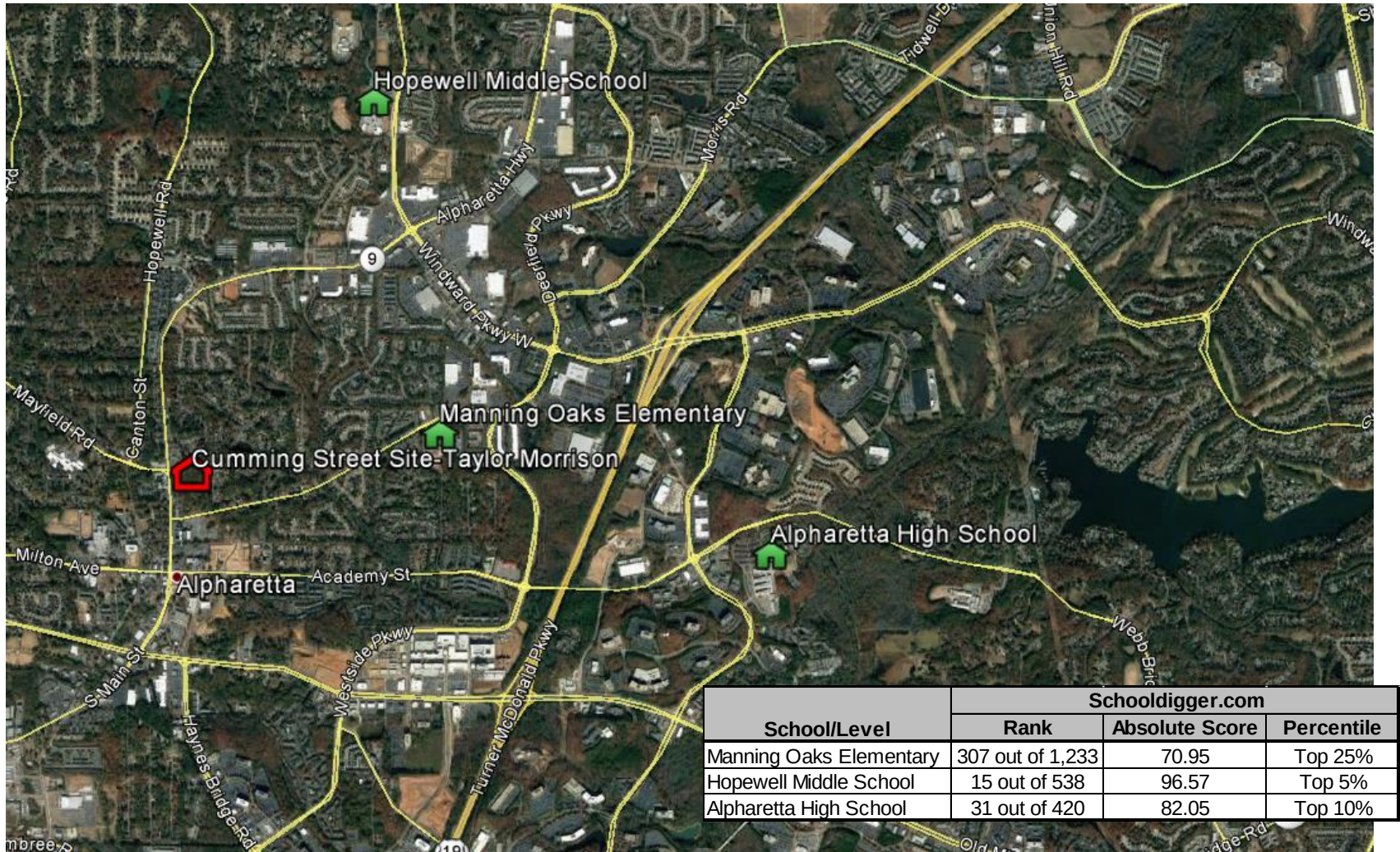


- Avalon, a popular new mixed-use development south of the Subject along Old Milton Parkway, includes popular boutique shops, restaurants, Whole Foods, a movie theater, outdoor events, and a mix of for sale residential, apartments and hotels.
- Big box retailers, restaurants and grocery stores are all located along Windward Parkway to the north of the site, as well as North Point Mall to the southeast, providing everything residents here need for their daily living.



Location Analysis – School Assignments and Performance

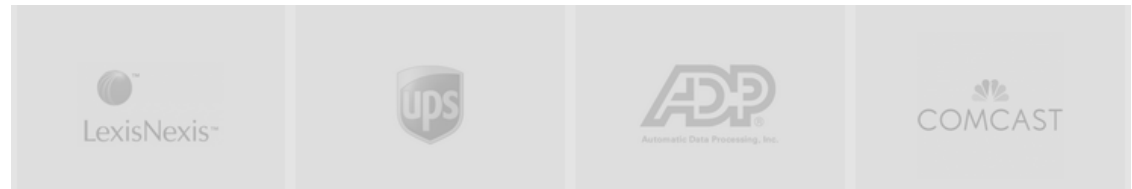
The Cumming Street site is within the Fulton County school district. Local school assignments include strong performing Manning Oaks Elementary and Hopewell Middle School, as well as Alpharetta High School. While the local school assignments perform exceptionally, we believe that these low-maintenance products and higher price points will primarily target Empty Nesters (55-64 year olds) looking to downsize, but not downgrade, their lifestyle within a community that's easily walkable to Downtown Alpharetta.



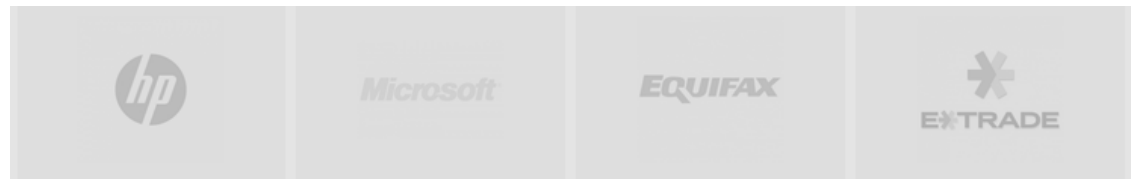
Alpharetta is home to more than 600 technology-centric companies and a 20 million square foot office market. Its major employers include the “who’s-who” of technology companies. The following list includes the 25 top employers in Alpharetta, as well as the top companies by sector/specialty.

RANK	COMPANY
1	ADP, INC.
2	MCKESSON INFORMATION SOLUTIONS
3	LEXIS NEXIS RISK SOLUTIONS
4	VERIZON BUSINESS NETWORK SERVICES
5	COMCAST
6	UPS SUPPLY CHAIN SOLUTIONS GENERAL SVCS
7	HEWLETT-PACKARD
8	EQUIFAX INFORMATION SERVICES
9	E TRADEFINANCIAL CORPORATION
10	CHARTIS INSURANCE (AIG)
11	GE CONSUMER FINANCE-AMERICA
12	RADIANT SYSTEMS
13	COCA-COLA REFRESHMENTS
14	RYDER TRUCK RENTAL INC
15	MARKETSOURCE, INC.
16	ALCATEL-LUCENT USA, INC.
17	MACY’S RETAIL HOLDINGS
18	VERINT AMERICAS
19	LEASE PLAN USA
20	NDC HEALTH CORPORATION
21	THE CLOROX SALES COMPANY
22	AMDOCS
23	PRIORITY PAYMENT SYSTEMS, LLC
24	COLONIAL PIPELINE COMPANY
25	TOTAL SYSTEM SERVICES

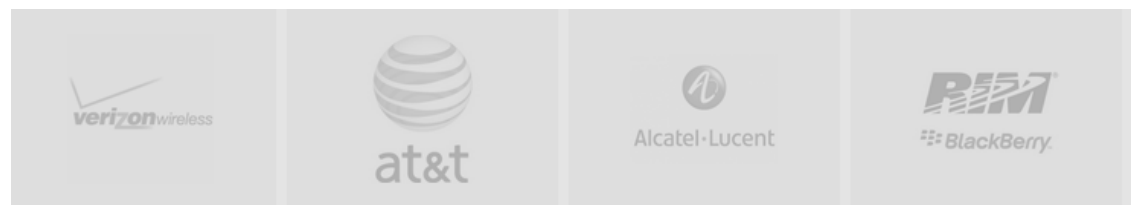
Corporate and Regional Headquarters



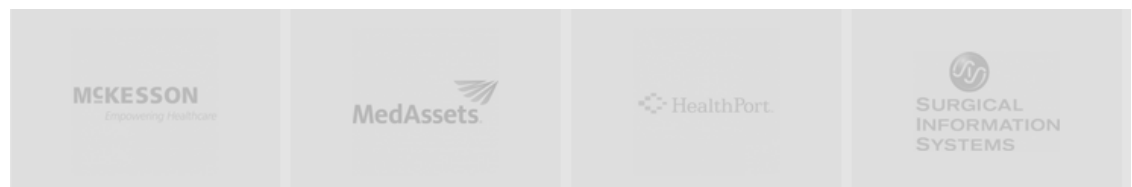
Information Services



Telecommunications

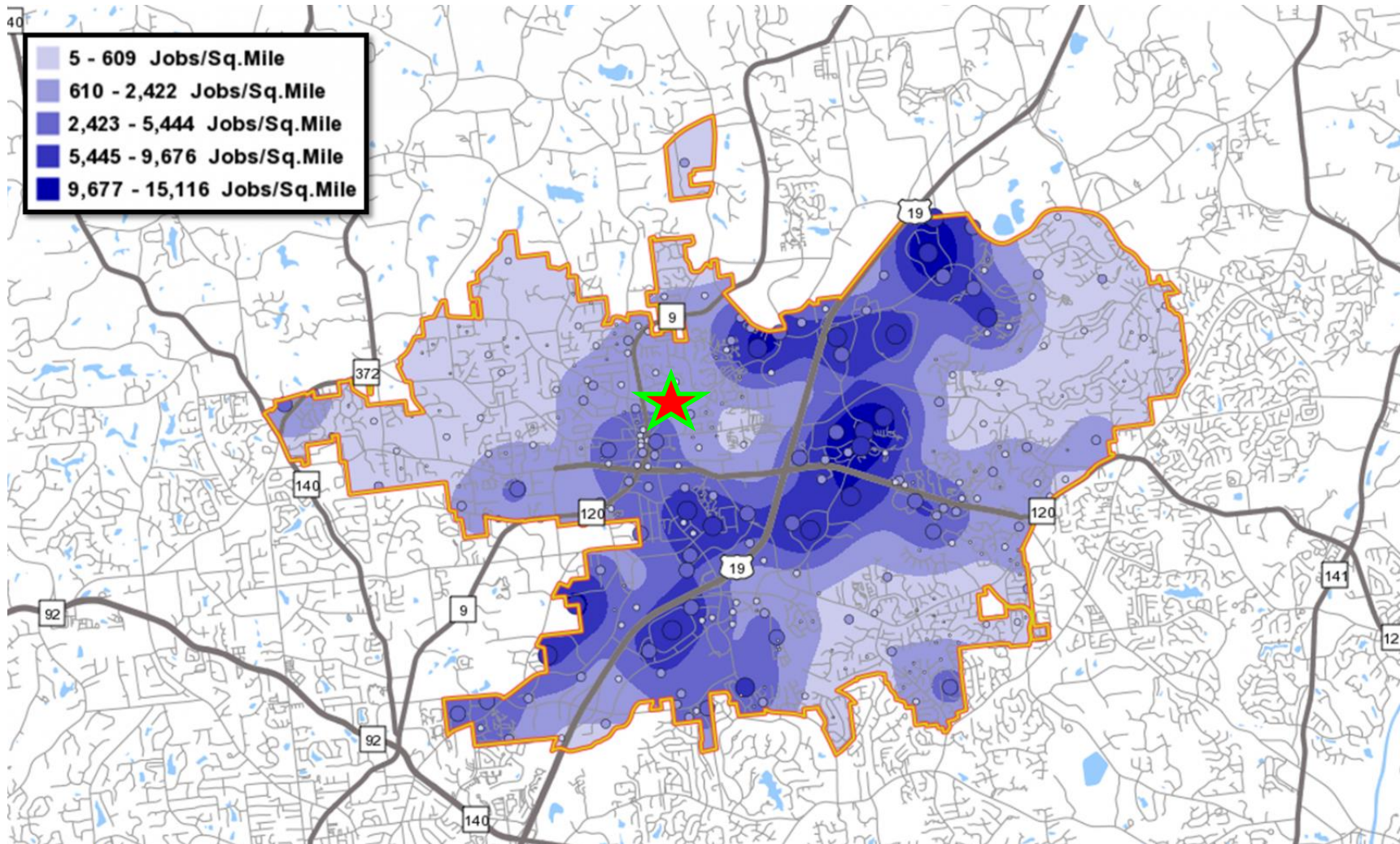


Health IT



Location Analysis – At the Heart of a Major Employment Hub

The Cumming Street site is within easy access to major employment concentrations throughout the Alpharetta area, including the Alpharetta Tech Hub, which spans basically from exits 8-11 along GA-400. Alpharetta is home to a daytime population of more than 100,000 people and over 9,000 companies, with ¼ of all Atlanta's top 25 technology companies located here. Residents living at the Cumming Street community will be within a 10-minute commute to one of Atlanta's largest employment concentrations.

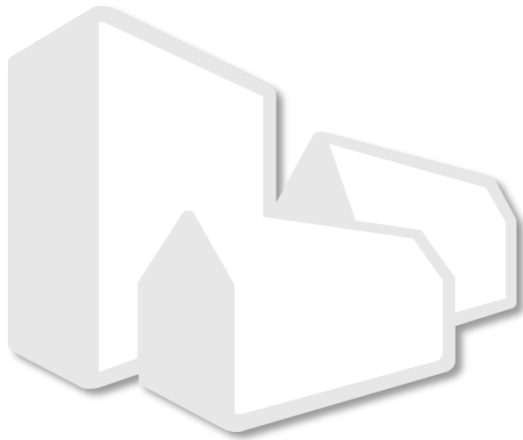


Location Analysis – Competitive Local Housing Market

As the corporate landscape is re-shaping the demographic complexion of the local market in Alpharetta, their expectations of housing products are changing as well. This area had previously been an outer suburban location with a residential base of predominantly single-family detached homes in amenitized communities. Limited land availability and increased home prices are driving higher density projects to maintain reasonable affordability that is in line with the local workforce income levels. However, most of these high-density new townhome and condo communities don't offer any significant neighborhood amenities package other than their location.

The majority of recently approved townhome projects are concentrated within the Avalon-Downtown area of Alpharetta, which accounts for a full $\frac{3}{4}$ of approved multi-family developments. The map below identifies the active and approved multi-family (in blue) and single-family detached (in green) new home communities in Alpharetta today. There are 10 multi-family (condo or townhome) subdivisions and 4 single-family detached that offer true walkability to either Downtown Alpharetta or Avalon. These are the most sought after locations, particularly among upscale empty nesters, where both pricing and demand will be the greatest.





Competitive New Townhome Analysis

Townhome Series: JBREC Pricing & Absorption Recommendation

The chart below provides our recommended base pricing and total (sales) price estimates for the townhome series at the Cumming Street site assuming the Builder's product plans. These recommendations are based on our independent evaluation of the performance of actively selling and recently closed out new townhome communities in the area, coupled with our understanding of the relative strengths of this location.

								JBREC Recommendations									
				MIX	Sq. Ft.	Tax Rate	HOA	Base Price	Total / All Incentives O/U+CC+\$	Net Base Price (All Incentives)	Net Base Price/ Sq. Ft.	Average Options	Average Lot & End Premiums	Total Price/ Sq. Ft.	80% 4.25% Net Pmt.	31% Income to Qualify*	
CUMMING STREET THS																	
Cumming Street THs		JBREC Recommend		1	2,400	1.50%	\$250	\$389,900	(\$6,000)	\$383,900	\$160	\$ 25,000	\$10,000	\$418,900	\$175	\$2,422	\$94,000
Product: Townhomes		Total Units: 40		1	2,600	1.50%	\$250	\$409,900	(\$6,000)	\$403,900	\$155	\$ 25,000	\$10,000	\$438,900	\$169	\$2,526	\$98,000
% Remaining: 100%		Units Sold: 0															
% Remaining: 100%		Units Remaining: 40															
Sales Open Date: Mar-18		Proj Sales Rate: 2.0															
Totals/Averages:					2,500			\$399,900	(\$6,000)	\$393,900	\$158	\$25,000	\$10,000	\$428,900	\$172	\$2,474	\$96,000

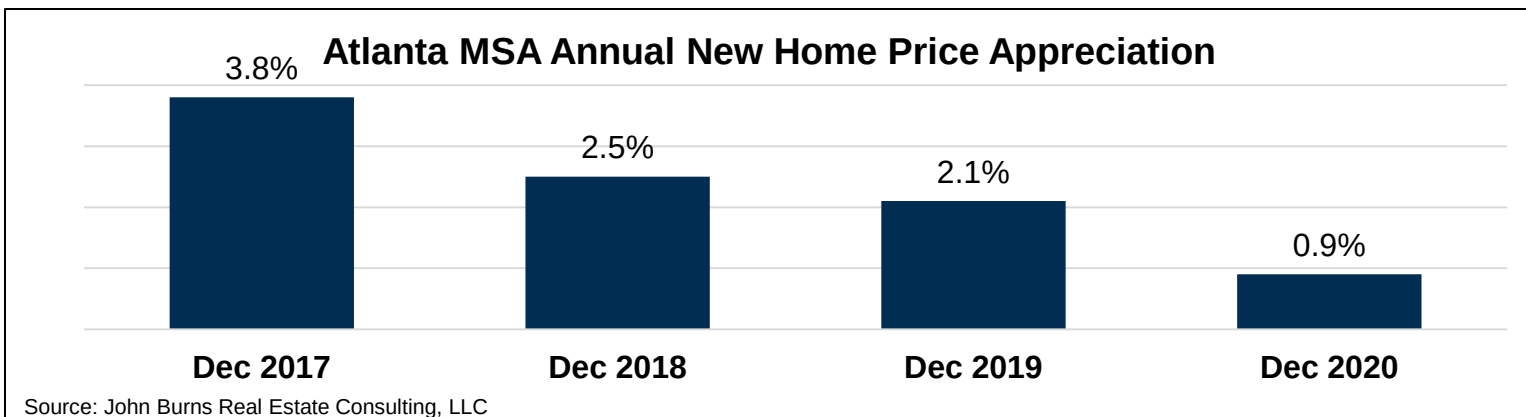
Townhome Series: Appreciation & Build Out Assumptions

The following chart provides JBREC's recommended sales price and build out scenario for the townhome series at Cumming Street given JBREC's new home price appreciation forecasts and estimated sales rates. For 2017-2020, we see annual new home price appreciation rates for the Atlanta market that tail off over time. JBREC's market-guided price and pace recommendations would generate an average sales price of \$456,000 over life of project.

Price Appreciation				3.8%	2.5%	2.1%	0.9%
Community	Source	Units	JBREC ASP	Dec-17	Dec-18	Dec-19	Dec-20
Cumming Street THs	JBREC Recommend	40	\$428,900	\$445,198	\$456,328	\$465,911	\$470,104

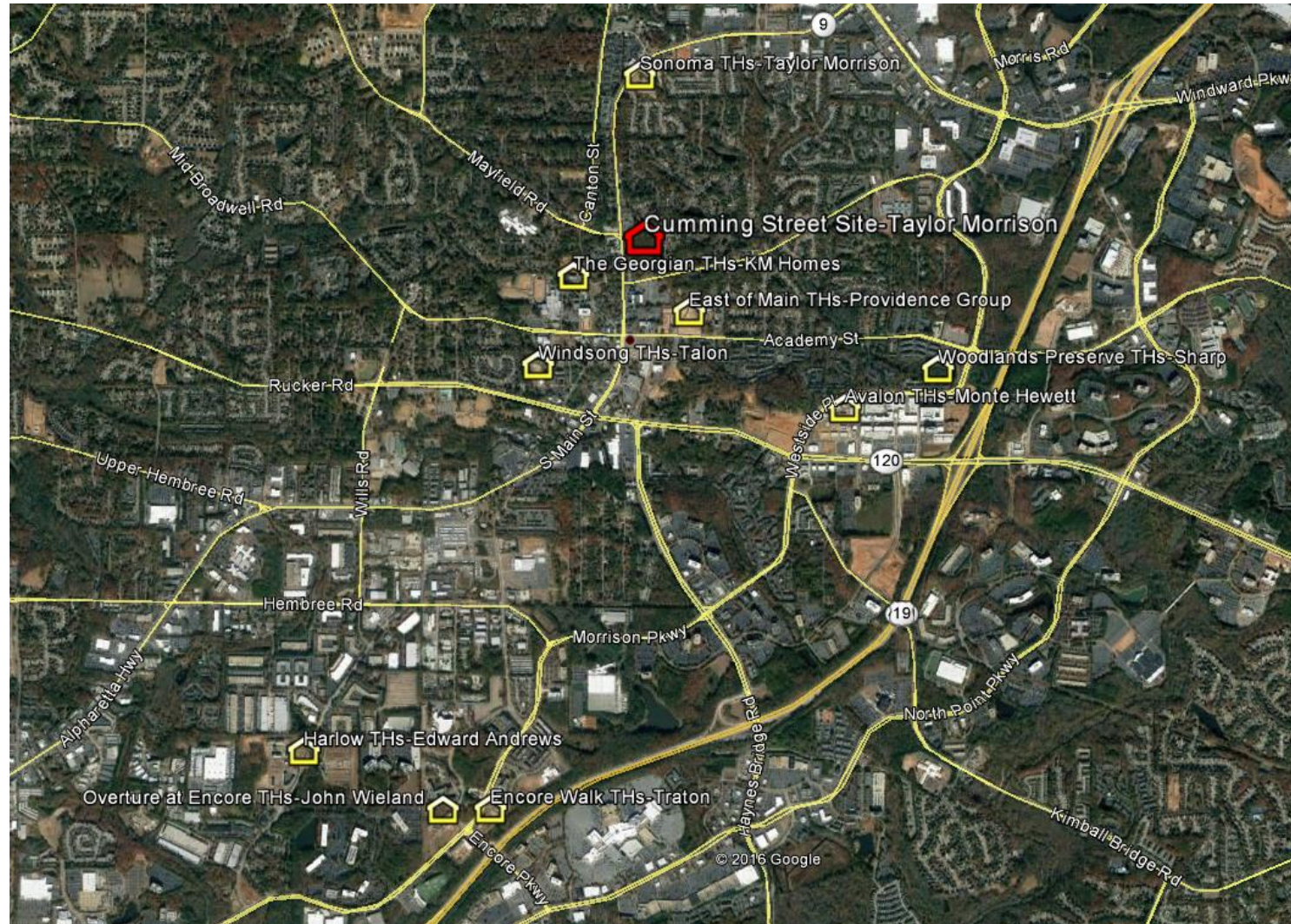
Absorption Appreciation				0%	0%	0%	0%
Community	Source	Units	JBREC Abs.	Dec-17	Dec-18	Dec-19	Dec-20
Cumming Street THs	JBREC Recommend	40	2.0	2.0	2.0	2.0	2.0

Potential Buildout			Annual Sales Per Year			
Community	Source	Units	2017	2018	2019	2020
Cumming Street THs	JBREC Recommend	40	0	20	20	0



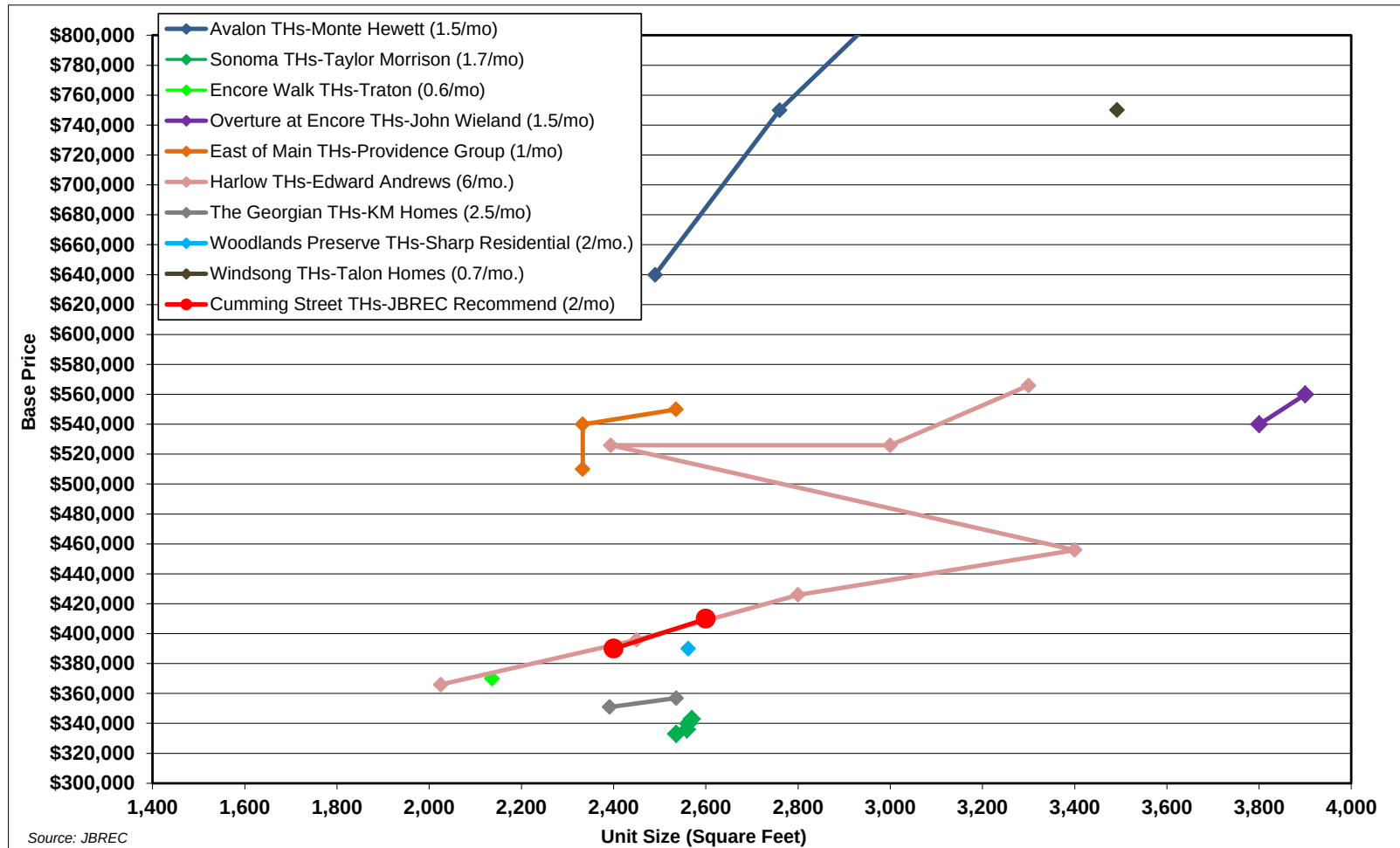
Townhome Series: Comparable Communities

For our competitive analysis, JBREC selected only those actively selling and recently sold out townhome communities located west of GA-400 and within the City of Alpharetta. There were a total of 9 competitive townhome communities selected for this analysis, with the most direct competitors being Taylor Morrison's own Sonoma THs, as well as Providence Group's East of Main THs and Sharp's Woodlands Preserve TH communities.



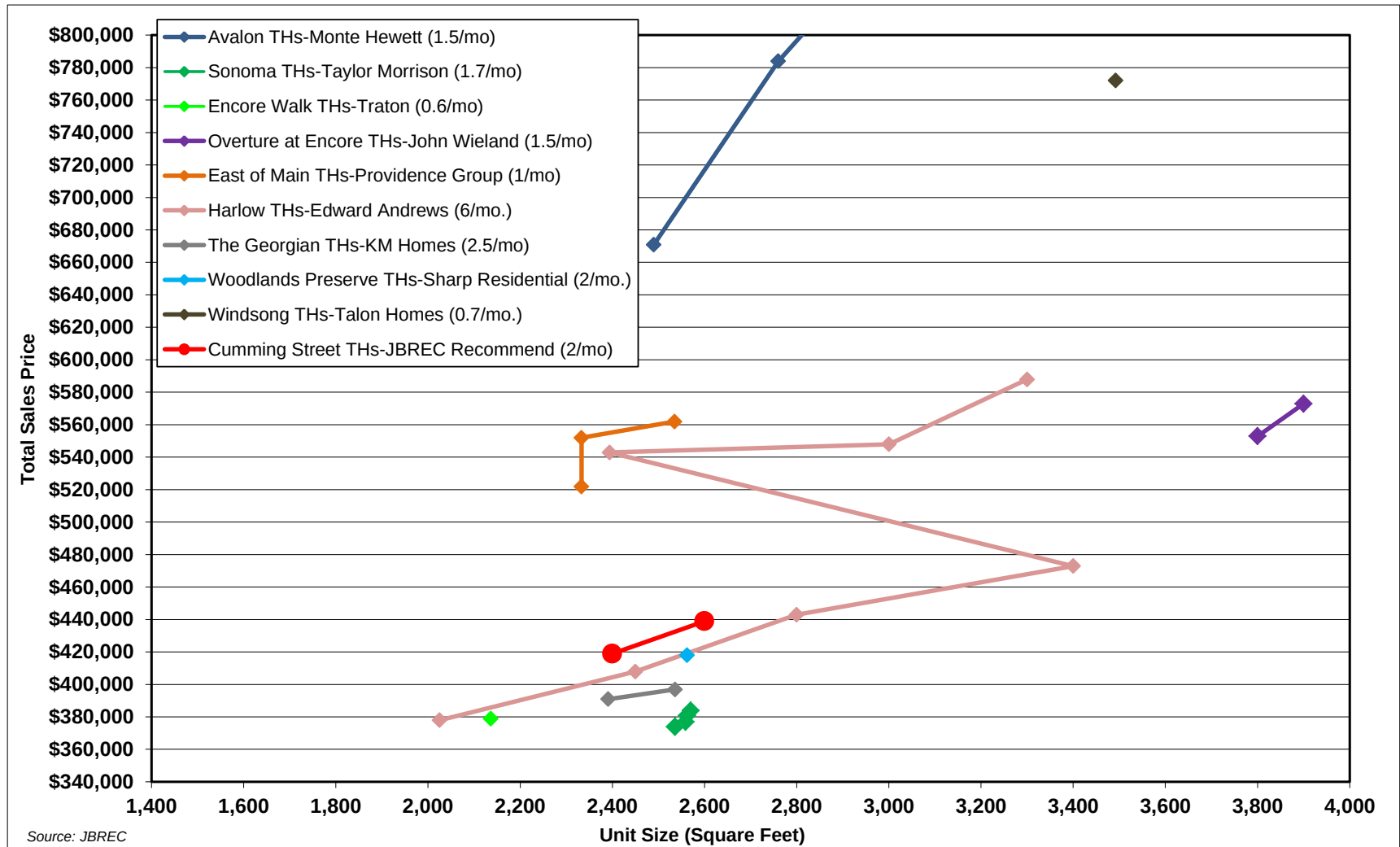
Townhome Series: Net Base Price Positioning

Below are the base price positioning of the competitive set, coupled with JBREC's pricing recommendations. Given the community's location advantage, we believe the Subject should be positioned between Providence Group's East of Main THs, which benefit from even more direct access to Downtown Alpharetta and a generally more appealing community design, and Taylor Morrison's current products/sales at Sonoma THs, which are one mile north of Downtown Alpharetta. The community should also be positioned at a slight premium to Harlow THs' less accessible location and Sharp's Woodlands Preserve which, while located across the street from Avalon, was part of an existing townhome community. The Subject should also be positioned above The Georgian THs, which offered easier walkability, but closed out a full year ago with considerably older contract dates.



Townhome Series: Total Price Positioning

On a total price basis (which includes options and lot premiums, less incentives), our pricing recommendation continues to position the Subject at a premium to Sonoma THs, The Georgian THs, Woodlands Preserve THs, and recent sales at Harlow THs, with the Subject having location and/or community advantages over each of these competitors. The Subject continues to remain a real competitive value to East of Main THs, offering a \$120K average sales price discount for residents willing to walk the extra block.



Townhome Series: Comparables Summary

Based on the strengths of the Subject's location and community design, we have base price positioned it at a premium to the more value-centered townhome communities in the market, yet still at a considerable discount to the competitive median. Based on this relative value, our recommended incentives are slightly lower than the competitive average. Options are slightly lower than the competitive median, yet consistent with their base price ratios. Our premium recommendations are higher, as they include end unit premiums to be consistent with how we reported the same for Taylor Morrison's Sonoma TH community. Even with the community's strengths, our recommended sales prices continue to remain a real considerable value relative to the competitive set, which should drive consistent absorptions of 2.0 per month (which is higher than the competitive median sales pace).

COMPETITORS	BUILDER	STATUS	BASE PRICE RANGE	ABSORPTION		AVERAGE SUMMARY OF COMPETITORS						
				OVERALL	3 MOS RATE	BASE PRICE	INCENTIVES	OPTIONS	PREMIUMS	TOTAL PRICE	UNIT SIZE (SF)	TOTAL \$/SQ. FT.
Encore Walk THs	Traton	Active	\$370K - \$370K	0.6	0.7	\$369,900	(\$5,000)	\$10,000	\$4,000	\$378,900	2,136	\$177
Avalon THs	Monte Hewett	Active	\$640K - \$870K	1.5	1.7	\$753,233	(\$10,000)	\$41,667	\$4,000	\$788,900	2,804	\$281
East of Main THs	Providence Group	New	\$510K - \$550K	1.0	1.0	\$533,233	(\$10,000)	\$20,000	\$2,000	\$545,233	2,400	\$227
Overture at Encore THs	John Wieland	Active	\$540K - \$560K	1.5	1.5	\$549,900	(\$10,000)	\$20,000	\$3,000	\$562,900	3,850	\$227
Harlow THs	Edward Andrews	Active	\$366K - \$566K	4.9	6.0	\$465,900	(\$10,000)	\$25,000	\$2,000	\$482,900	2,767	\$175
Sonoma THs	Taylor Morrison	Active	\$333K - \$343K	1.7	2.0	\$336,900	(\$4,000)	\$30,000	\$15,000	\$377,900	2,553	\$148
The Georgian THs	KM Homes	Sold Out	\$351K - \$357K	2.5	--	\$353,900	(\$5,000)	\$40,000	\$5,000	\$393,900	2,464	\$160
Woodlands Preserve THs	Sharp Residential	Sold Out	\$390K - \$390K	2.0	2.0	\$389,900	(\$15,000)	\$40,000	\$3,000	\$417,900	2,562	\$163
Windsong THs	Talon Homes	New	\$750K - \$750K	0.7	0.7	\$750,000	(\$10,000)	\$30,000	\$2,000	\$772,000	3,492	\$221
			AVERAGE	1.8	2.0	\$500,319	(\$8,778)	\$28,519	\$4,444	\$524,504	2,781	\$198
			MEDIAN	1.5	1.6	\$465,900	(\$10,000)	\$30,000	\$3,000	\$482,900	2,562	\$177

SUBJECT RECOMMENDATIONS	BUILDER	STATUS	BASE PRICE RANGE	ABSORPTION		AVERAGE SUMMARY OF COMPETITORS						
				PROJ	3 MOS RATE	BASE PRICE	INCENTIVES	OPTIONS	PREMIUMS	TOTAL PRICE	UNIT SIZE (SF)	TOTAL \$/SQ. FT.
Cumming Street THs	JBREC Recommend	Future	\$390K - \$410K	2.0	--	\$399,900	(\$6,000)	\$25,000	\$10,000	\$428,900	2,500	\$172

Sources: Community sales offices, John Burns Real Estate Consulting, LLC

Townhome Series: Competitive Details

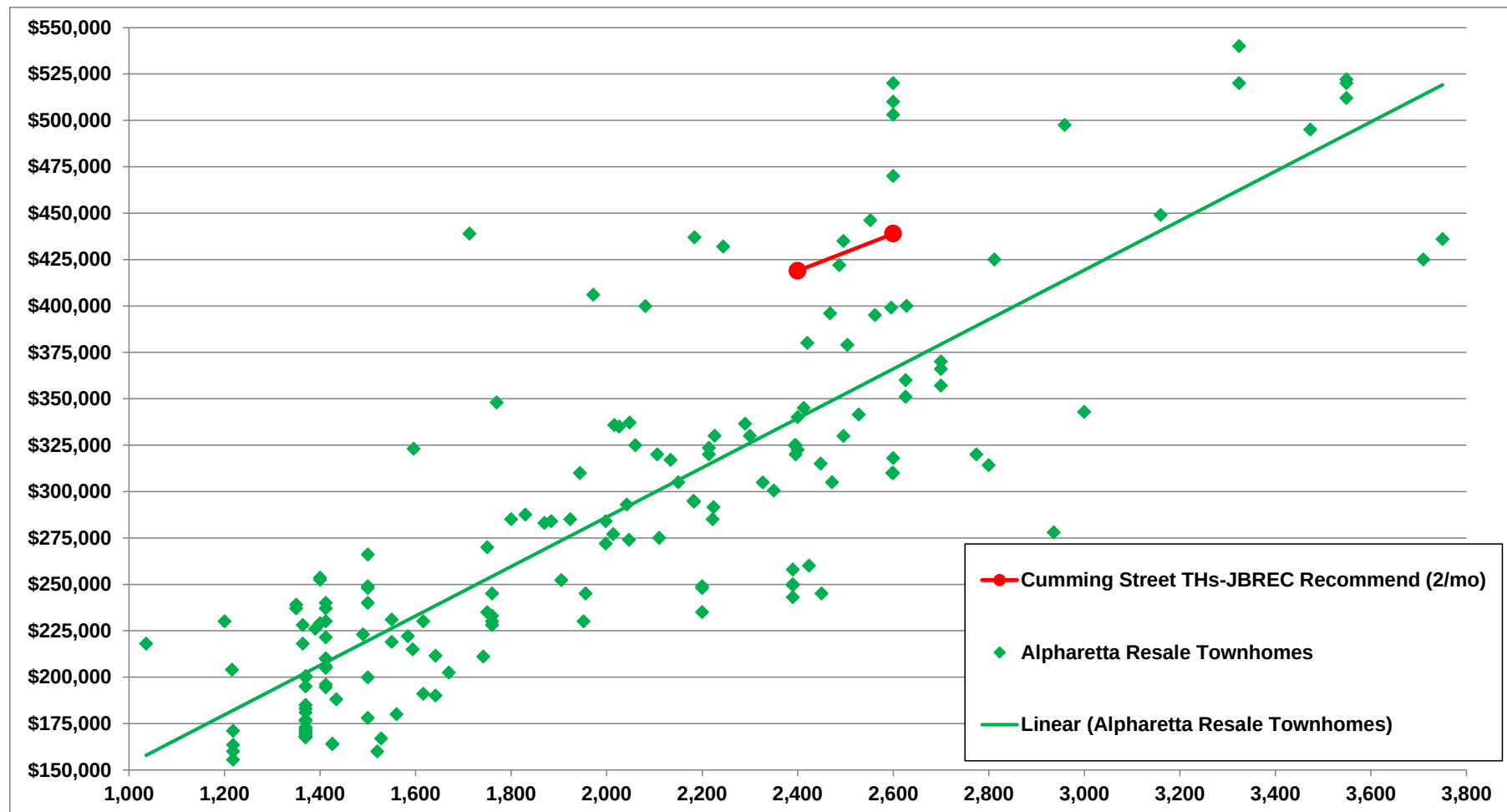
				MIX	PRODUCT						TAX & HOA																
					Sq.	Plan Configuration				Tax	HOA	Base		Net Base Price (All	Net Base Price/	Average	Average Lot/View	Total	Total Price/	80% 4.25%	31% Income						
Project Name	Builder	Ft.	Bed	Bath		Level	Pkg	Rate														Price	Incentives	Incentives)	Sq. Ft.	Options	Premiums
SONOMA THS																											
Sonoma THs				Taylor Morrison				1	2,536	3	2.5	3	2	1.50%	\$242	\$332,900	(\$4,000)	\$328,900	\$130	\$30,000	\$15,000	\$373,900	\$147	\$2,181	\$84,000		
Alpharetta								1	2,536	3	3.5	3	2	1.50%	\$242	\$332,900	(\$4,000)	\$328,900	\$130	\$30,000	\$15,000	\$373,900	\$147	\$2,181	\$84,000		
Product:				Townhomes				1	2,559	3	3.0	3	2	1.50%	\$242	\$335,900	(\$4,000)	\$331,900	\$130	\$30,000	\$15,000	\$376,900	\$147	\$2,196	\$85,000		
				Total Units:				1	2,562	3	3.0	3	2	1.50%	\$242	\$339,900	(\$4,000)	\$335,900	\$131	\$30,000	\$15,000	\$380,900	\$149	\$2,217	\$86,000		
				Units Sold:				1	2,570	3	3.0	3	2	1.50%	\$242	\$342,900	(\$4,000)	\$338,900	\$132	\$30,000	\$15,000	\$383,900	\$149	\$2,232	\$86,000		
				Last 3 Months																							
% Remaining				57%																							
				Units Remaining:																							
Sales Open Date:				May-16																							
				Overall Sales Rate:				1.7																			
				3 Mo Sales Rate:				2.0																			
Totals/Averages:									2,553								\$336,900	(\$4,000)	\$332,900	\$130	\$30,000	\$15,000	\$377,900	\$148	\$2,201	\$85,000	
AVALON THS																											
Avalon THs				Monte Hewett				1	2,490	3	2.5	2	2	1.50%	\$275	\$639,900	(\$8,000)	\$631,900	\$254	\$35,000	\$4,000	\$670,900	\$269	\$3,754	\$145,000		
Alpharetta								1	2,760	3	2.5	2	2	1.50%	\$275	\$749,900	(\$10,000)	\$739,900	\$268	\$40,000	\$4,000	\$783,900	\$284	\$4,340	\$168,000		
Product:				Townhomes				1	3,163	3	2.5	2	2	1.50%	\$275	\$869,900	(\$12,000)	\$857,900	\$271	\$50,000	\$4,000	\$911,900	\$288	\$5,004	\$194,000		
				Total Units:																							
				Units Sold:																							
				Last 3 Months																							
% Remaining				27%																							
				Units Remaining:																							
Sales Open Date:				May-14																							
				Overall Sales Rate:				1.5																			
				3 Mo Sales Rate:				1.7																			
Totals/Averages:									2,804									\$753,233	(\$10,000)	\$743,233	\$264	\$41,667	\$4,000	\$788,900	\$281	\$4,366	\$169,000
ENCORE WALK THS																											
Encore Walk THs				Traton				1	2,136	3	2.5	3	2	1.50%	\$175	\$369,900	(\$5,000)	\$364,900	\$171	\$10,000	\$4,000	\$378,900	\$177	\$2,140	\$83,000		
Alpharetta																											
Product:				Townhomes																							
				Total Units:																							
				Units Sold:																							
				Last 3 Months																							
% Remaining				79%																							
				Units Remaining:																							
Sales Open Date:				Mar-16																							
				Overall Sales Rate:				0.6																			
				3 Mo Sales Rate:				0.7																			
Totals/Averages:									2,136									\$369,900	(\$5,000)	\$364,900	\$171	\$10,000	\$4,000	\$378,900	\$177	\$2,140	\$83,000
EAST OF MAIN THS																											
East of Main THs				Providence Group				1	2,333	3	3.5	3	2	1.50%	\$200	\$509,900	(\$10,000)	\$499,900	\$214	\$20,000	\$2,000	\$521,900	\$224	\$2,906	\$113,000		
Alpharetta								1	2,333	3	3.5	3	2	1.50%	\$200	\$539,900	(\$10,000)	\$529,900	\$227	\$20,000	\$2,000	\$551,900	\$237	\$3,062	\$119,000		
Product:				Townhomes				1	2,535	3	3.5	2	2	1.50%	\$200	\$549,900	(\$10,000)	\$539,900	\$213	\$20,000	\$2,000	\$561,900	\$222	\$3,114	\$121,000		
				Total Units:																							
				Units Sold:																							
				Last 3 Months																							
% Remaining				95%																							
				Units Remaining:																							
Sales Open Date:				Mar-17																							
				Overall Sales Rate:				1.0																			
				3 Mo Sales Rate:				1.0																			
Totals/Averages:									2,400									\$533,233	(\$10,000)	\$523,233	\$218	\$20,000	\$2,000	\$545,233	\$227	\$3,027	\$117,667

Townhome Series: Competitive Details Cont.

				MIX	PRODUCT						TAX & HOA											
					Sq.	Plan Configuration				Tax	HOA	Base		Net Base Price (All	Net Base Price/	Average	Average Lot/View	Total	Total Price/	80% 4.25%	31% Income	
Project Name		Builder			Ft.	Bed	Bath	Level	Pkg	Rate		Price	Incentives	Incentives)	Sq. Ft.	Options	Premiums	Price	Sq. Ft.	Net Pmt.	to Qualify*	
OVERTURE AT ENCORE THS																						
Overture at Encore THS				John Wieland	1	3,800	4	3.5	3	2	1.50%	\$300	\$539,900	(\$10,000)	\$529,900	\$139	\$20,000	\$3,000	\$552,900	\$146	\$3,167	\$123,000
Product:	Townhomes	Total Units:	76	1	3,900	3	4.5	3	2	1.50%	\$300	\$559,900	(\$10,000)	\$549,900	\$141	\$20,000	\$3,000	\$572,900	\$147	\$3,271	\$127,000	
		Units Sold:	28																			
		Last 3 Months	0																			
% Remaining	63%	Units Remaining:	48																			
Sales Open Date:	May-15	Overall Sales Rate:	1.5																			
		3 Mo Sales Rate:	1.5																			
Totals/Averages:					3,850							\$549,900	(\$10,000)	\$539,900	\$140	\$20,000	\$3,000	\$562,900	\$146	\$3,219	\$125,000	
THE GEORGIAN THS																						
The Georgian THS				KM Homes	1	2,391	3	3.0	3	2	1.50%	\$250	\$350,900	(\$5,000)	\$345,900	\$145	\$40,000	\$5,000	\$390,900	\$163	\$2,277	\$88,000
Product:	Townhomes	Total Units:	54	1	2,536	3	3.5	3	2	1.50%	\$250	\$356,900	(\$5,000)	\$351,900	\$139	\$40,000	\$5,000	\$396,900	\$157	\$2,308	\$89,000	
		Units Sold:	54																			
		Last 3 Months	0																			
% Remaining	0%	Units Remaining:	0																			
Sales Open Date:	May-14	Overall Sales Rate:	2.5																			
		3 Mo Sales Rate:	--																			
Totals/Averages:					2,464							\$353,900	(\$5,000)	\$348,900	\$142	\$40,000	\$5,000	\$393,900	\$160	\$2,293	\$88,500	
HARLOW THS																						
Harlow THS				Edward Andrews	1	2,025	3	3.5	3.0	2	1.50%	\$200	\$365,900	(\$10,000)	\$355,900	\$176	\$20,000	\$2,000	\$377,900	\$187	\$2,160	\$84,000
Product:	Townhomes	Total Units:	350	1	2,450	3	2.5	3.0	2	1.50%	\$200	\$395,900	(\$10,000)	\$385,900	\$158	\$20,000	\$2,000	\$407,900	\$166	\$2,315	\$90,000	
		Units Sold:	60	1	2,800	3	2.5	3.0	2	1.50%	\$200	\$425,900	(\$10,000)	\$415,900	\$149	\$25,000	\$2,000	\$442,900	\$158	\$2,497	\$97,000	
		3 Mon. Sold:	18	1	3,400	3	3.5	3.0	2	1.50%	\$200	\$455,900	(\$10,000)	\$445,900	\$131	\$25,000	\$2,000	\$472,900	\$139	\$2,652	\$103,000	
		Units Remaining:	290	1	2,394	2	2.5	3.0	2	1.50%	\$200	\$525,900	(\$10,000)	\$515,900	\$215	\$25,000	\$2,000	\$542,900	\$227	\$3,015	\$117,000	
% Remaining	83%	Units Remaining:	290	1	3,000	3	3.5	3.0	2	1.50%	\$200	\$525,900	(\$10,000)	\$515,900	\$172	\$30,000	\$2,000	\$547,900	\$183	\$3,041	\$118,000	
		Units Remaining:	290	1	3,300	4	3.5	3.0	2	1.50%	\$200	\$565,900	(\$10,000)	\$555,900	\$168	\$30,000	\$2,000	\$587,900	\$178	\$3,249	\$126,000	
Sales Open Date:	Apr-16	Overall Sales Rate:	4.9																			
		3 Mon. Sales Rate:	6.0																			
Totals/Averages:					2,767					1.50%	\$200	\$465,900	(\$10,000)	\$455,900	\$165	\$25,000	\$2,000	\$482,900	\$175	\$2,704	\$105,000	
WOODLANDS PRESERVE THS																						
Woodlands Preserve THS				Sharp Residential	1	2,562	4	3.5	3.0	2	1.50%	\$180	\$389,900	(\$15,000)	\$374,900	\$146	\$40,000	\$3,000	\$417,900	\$163	\$2,347	\$91,000
Product:	Townhomes	Total Units:	18																			
		Units Sold:	18																			
		3 Mon. Sold:	6																			
% Remaining	0%	Units Remaining:	0																			
Sales Open Date:	Apr-16	Overall Sales Rate:	2.0																			
		3 Mon. Sales Rate:	2.0																			
Totals/Averages:					2,562					1.50%	\$180	\$389,900	(\$15,000)	\$374,900	\$146	\$40,000	\$3,000	\$417,900	\$163	\$2,347	\$91,000	
WINDSONG THS																						
Windsong THS				Talon Homes	1	3,492	4	3.5	3.0	2	1.50%	\$180	\$750,000	(\$10,000)	\$740,000	\$212	\$30,000	\$2,000	\$772,000	\$221	\$4,183	\$162,000
Product:	Townhomes	Total Units:	24																			
		Units Sold:	2																			
		3 Mon. Sold:	2																			
% Remaining	92%	Units Remaining:	22																			
Sales Open Date:	Jan-17	Overall Sales Rate:	0.7																			
		3 Mon. Sales Rate:	0.7																			
Totals/Averages:					3,492					1.50%	\$180	\$750,000	(\$10,000)	\$740,000	\$212	\$30,000	\$2,000	\$772,000	\$221	\$4,183	\$162,000	

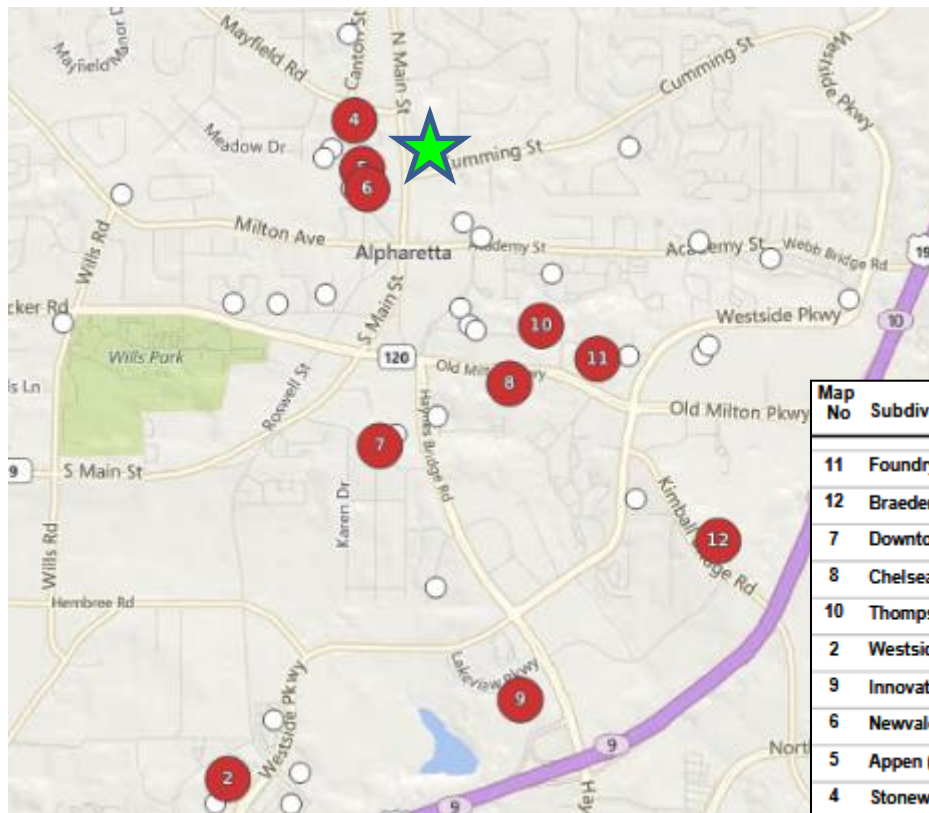
Townhome Series: Resale Townhome Sales

We pulled recent resale townhome transactions that closed within the last 6 months, that were built since 2000, and located within Alpharetta (Fulton County), GA. The Builder's pro forma sales prices are 10% higher than comparable resales within Alpharetta that were built since 2000. This gap would be reasonable for a traditional townhome community in a typical suburban location. However, given the community's walkability to Downtown Alpharetta and the community design that combines with single-family detached, we believe that our recommended sales price premium at 20% is reasonable.



Competitive Analysis – Alpharetta Future Townhome Communities

A full three quarters of all future townhome development planned for Alpharetta will be concentrated within a 2-mile ring of the Avalon/Downtown Alpharetta area. Within a 2-mile ring of the Subject property, there are 9,500 households representing nearly half the total household size of the City of Alpharetta. According to ESRI, this area of Downtown Alpharetta is projected to add 700 net new households over the next 5 years. While the number of competitive townhome offerings within Downtown Alpharetta are expected to increase by 400 units of future supply (which is comparable to a 5-year forecast supply), it will likely meet just over half of the projected natural demand increase (with the rest of that growth being supplemented by single-family detached). While historical demand for townhomes was concentrated below \$400,000, the majority of these future communities are planned from the upper \$400s-\$600s, which is reflective of the increasing household income levels.

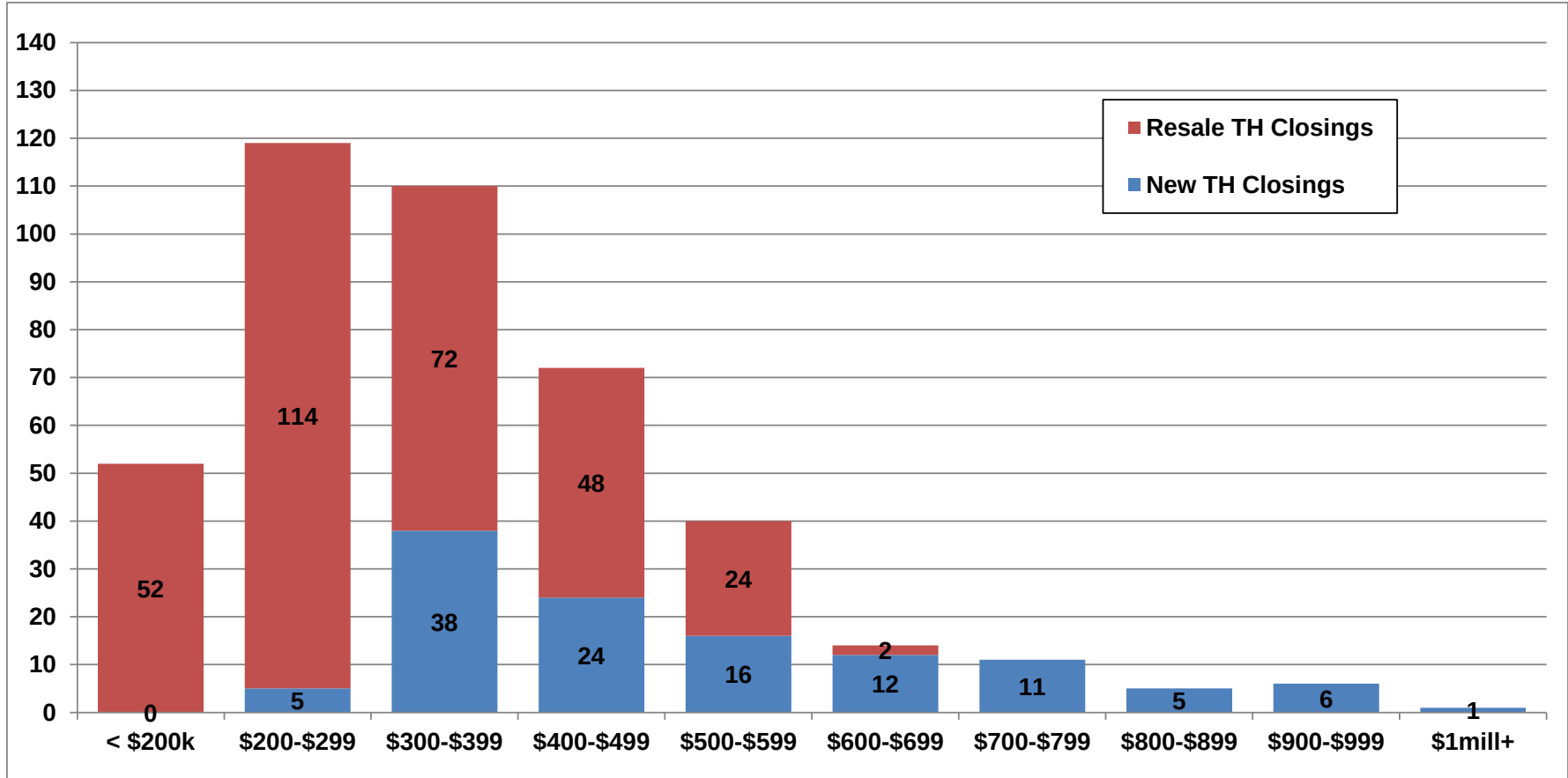


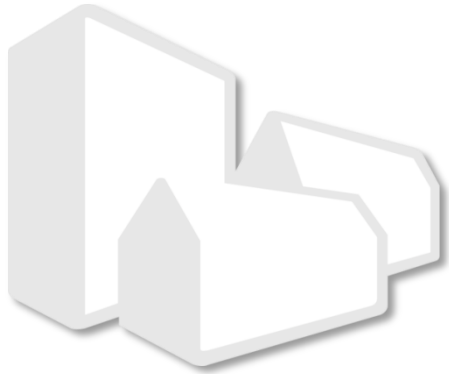
Map No	Subdivision Name	Sub Area	Status	Lot Size	VDL	Future	Total
11	Foundry(TH)	NFul-Alph	Future	20'	0	88	88
12	Braeden,Walk(TH)	NFul-Alph	Future	20'	0	56	56
7	Downtown Main/(TH)	NFul-Alph	Future	20'	0	55	55
8	Chelsea Walk(TH)	NFul-Alph	Future	20'-25'	0	49	49
10	Thompson St(TH)	NFul-Alph	Future	25'	0	40	40
2	Westside Pkwy(TH)	NFul-Alph	Future	20'	0	33	33
9	Innovation(TH)	NFul-Alph	Future	20'	0	25	25
6	Newvale(TH)	NFul-Alph	Future	30'	0	23	23
5	Appen (TH)	NFul-Alph	Future	20'	0	17	17
4	Stonewalk(TH)	NFul-Alph	Future	25'	0	16	16
Selection Totals					0	402	402

Source: Metrostudy

Competitive Analysis – Alpharetta New & Resale Townhome Sales

There were a total of 430 new and resale townhome transactions recorded within the primary Alpharetta area in the last 12 months according to Redfin. The majority of those transactions were resales occurring within the \$200s-\$300s. However, there were a total of 149 combined townhome transactions above \$400k. At a sales rate of 2.0/month, the Cumming Street THs would need to capture about 16% of the townhome market above \$400k, which we believe the Subject can do given its location and pricing advantages.





Competitive New Single-Family Detached Analysis

Single-Family Series: JBREC Pricing & Absorption Recommendation

The chart below provides our recommended base pricing and total (sales) price estimates for the single-family detached products assuming the Builder's product plans. These recommendations are based on our independent evaluation of the performance of actively selling and recently closed out new single-family detached communities in the area, coupled with our understanding of the relative strengths of this location.

				MIX	PRODUCT	TAX & HOA											
					Unit Size (Sq. Ft.)	Tax Rate	HOA	Base Price	Incentives	Net Base Price (All Incentives)	Net Base Price/ Sq. Ft.	Average Options	Average Premiums	Total Net Price	Total Net Price/ Sq. Ft.	80% 4.25% Ttl Net Pmt.	31% Income to Qualify*
CUMMING STREET SFD -JBREC Recommend																	
Cumming Street SFD JBREC Recommend				1	2,536	1.50%	\$200	\$529,900	(\$15,000)	\$514,900	\$203	\$40,000	\$4,000	\$558,900	\$220	\$3,098	\$120,000
				1	2,829	1.50%	\$200	\$553,900	(\$15,000)	\$538,900	\$190	\$40,000	\$4,000	\$582,900	\$206	\$3,223	\$125,000
Product:	Single-Family	Total Units:	30	1	2,916	1.50%	\$200	\$559,900	(\$15,000)	\$544,900	\$187	\$40,000	\$4,000	\$588,900	\$202	\$3,254	\$126,000
		Units Sold:	0	1	3,154	1.50%	\$200	\$579,900	(\$15,000)	\$564,900	\$179	\$40,000	\$4,000	\$608,900	\$193	\$3,357	\$130,000
		3 Mon. Sold:	0														
% Remaining:	100%	Units Remaining:	30														
		Targeted Sales Rate:	2.0														
Totals/Averages:				4	2,859	1.50%	\$200	\$555,900	(\$15,000)	\$540,900	\$189	\$40,000	\$4,000	\$584,900	\$205	\$3,233	\$125,250

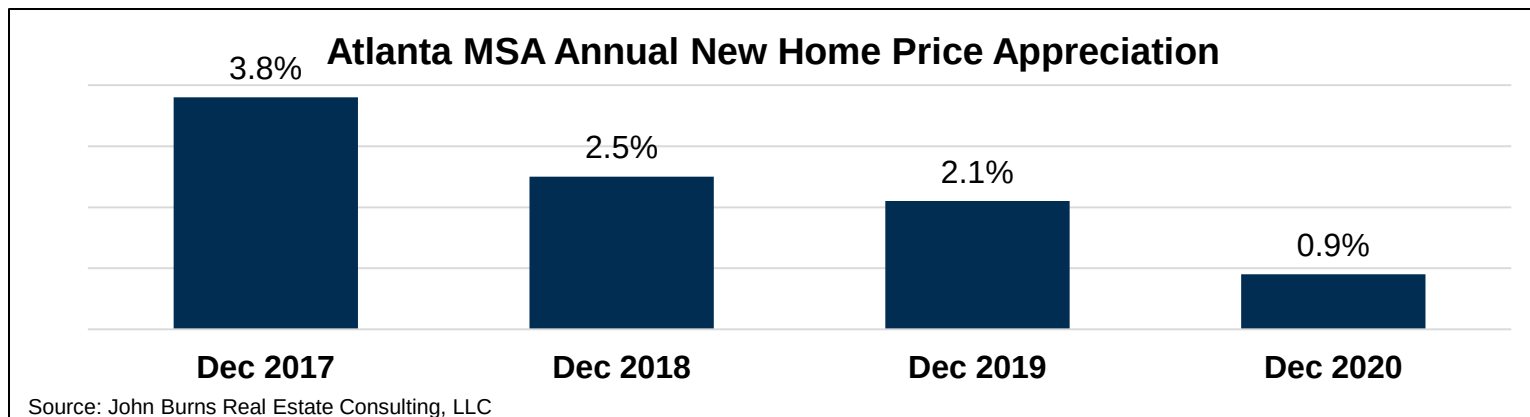
Single-Family Series: Appreciation & Build Out Assumptions

The following chart provides JBREC's recommended sales price and build out scenario for the single-family detached series at Cumming Street given JBREC's new home price appreciation forecasts and estimated sales rates. For 2017-2020, we see annual new home price appreciation rates for the Atlanta market that tail off over time. JBREC's market-guided price and pace recommendations would generate an average sales price of \$619,000 over life of project.

Price Appreciation				3.8%	2.5%	2.1%	0.9%
Community	Source	Units	JBREC ASP	Dec-17	Dec-18	Dec-19	Dec-20
Cumming Street SFD	JBREC Recommend	30	\$584,900	\$607,126	\$622,304	\$635,373	\$641,091

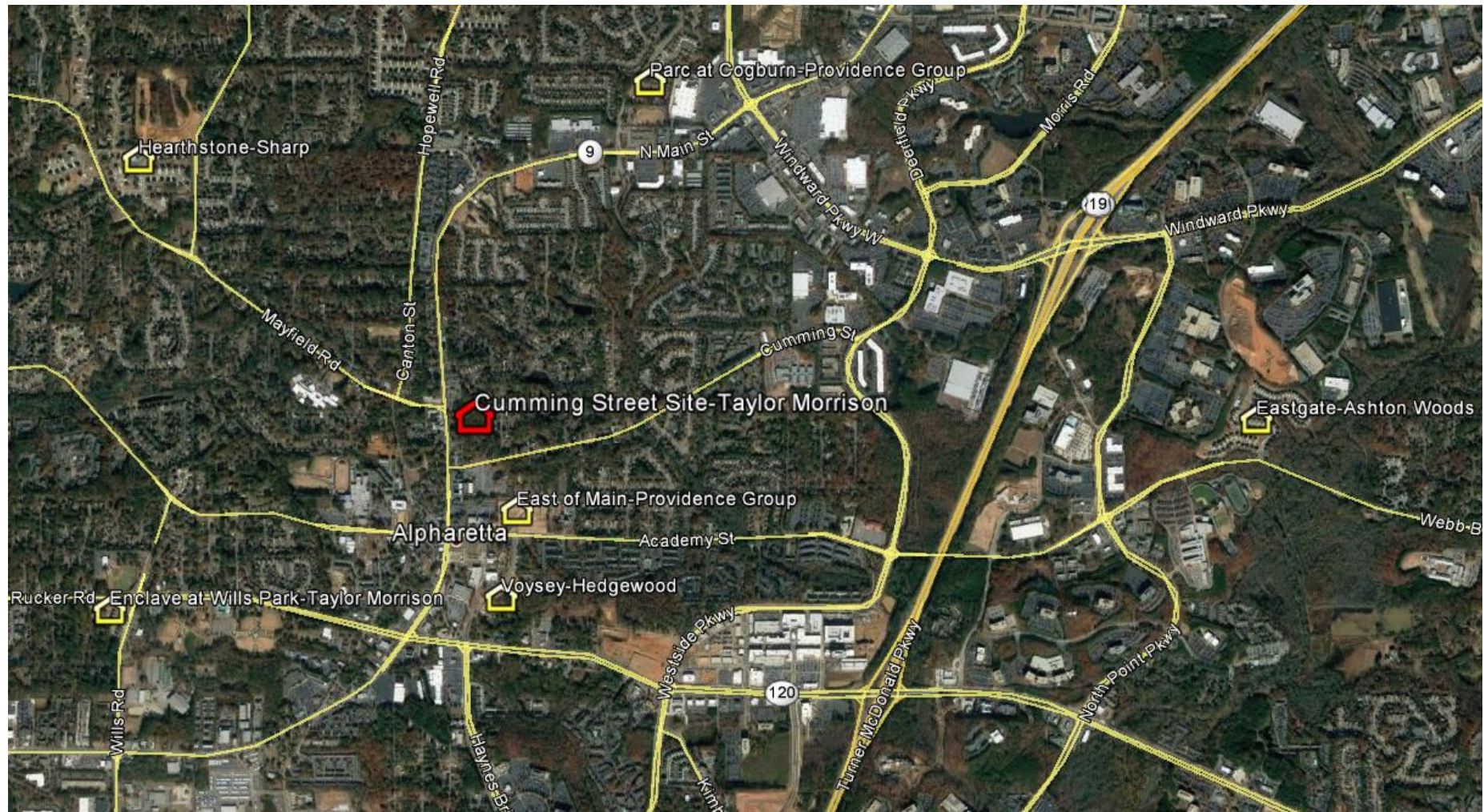
Absorption Appreciation				0%	0%	0%	0%
Community	Source	Units	JBREC Abs.	Dec-17	Dec-18	Dec-19	Dec-20
Cumming Street SFD	JBREC Recommend	30	2.0	2.0	2.0	2.0	2.0

Potential Buildout						
Community	Source	Units	2017	2018	2019	2020
Cumming Street SFD	JBREC Recommend	30	0	20	10	0



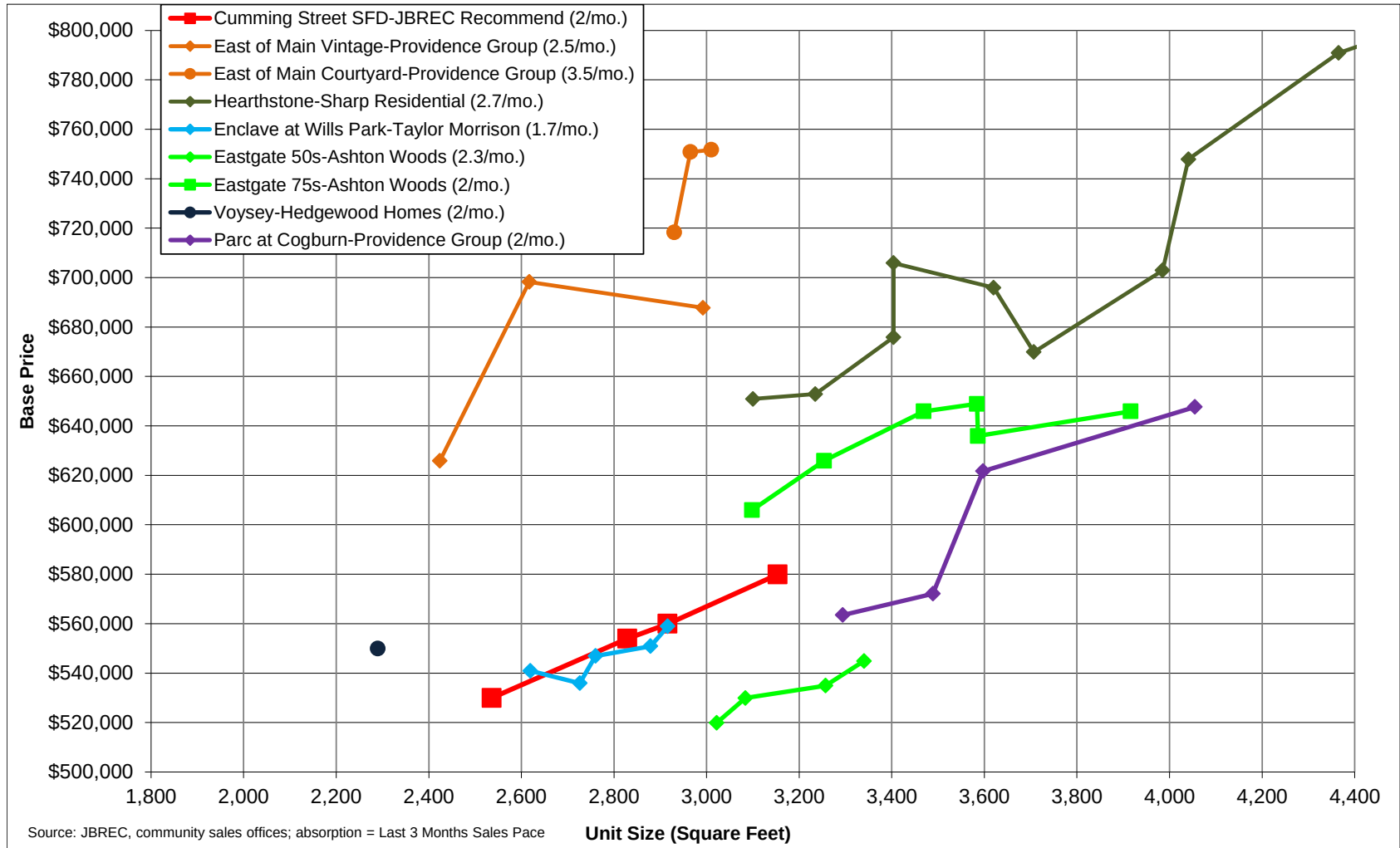
Single-Family Series: Comparable Communities

For our single-family competitive analysis, JBREC selected the most direct single-family detached new home competitors within Alpharetta that vie for the move-up and upscale family and empty nester buyers in the area. There were 6 competitive new single-family communities, with a total of 8 product series selected for this analysis. We believe the Subject is better located than Enclave at Wills Park and Parc at Cogburn, yet less desirable than East of Main's community and location.



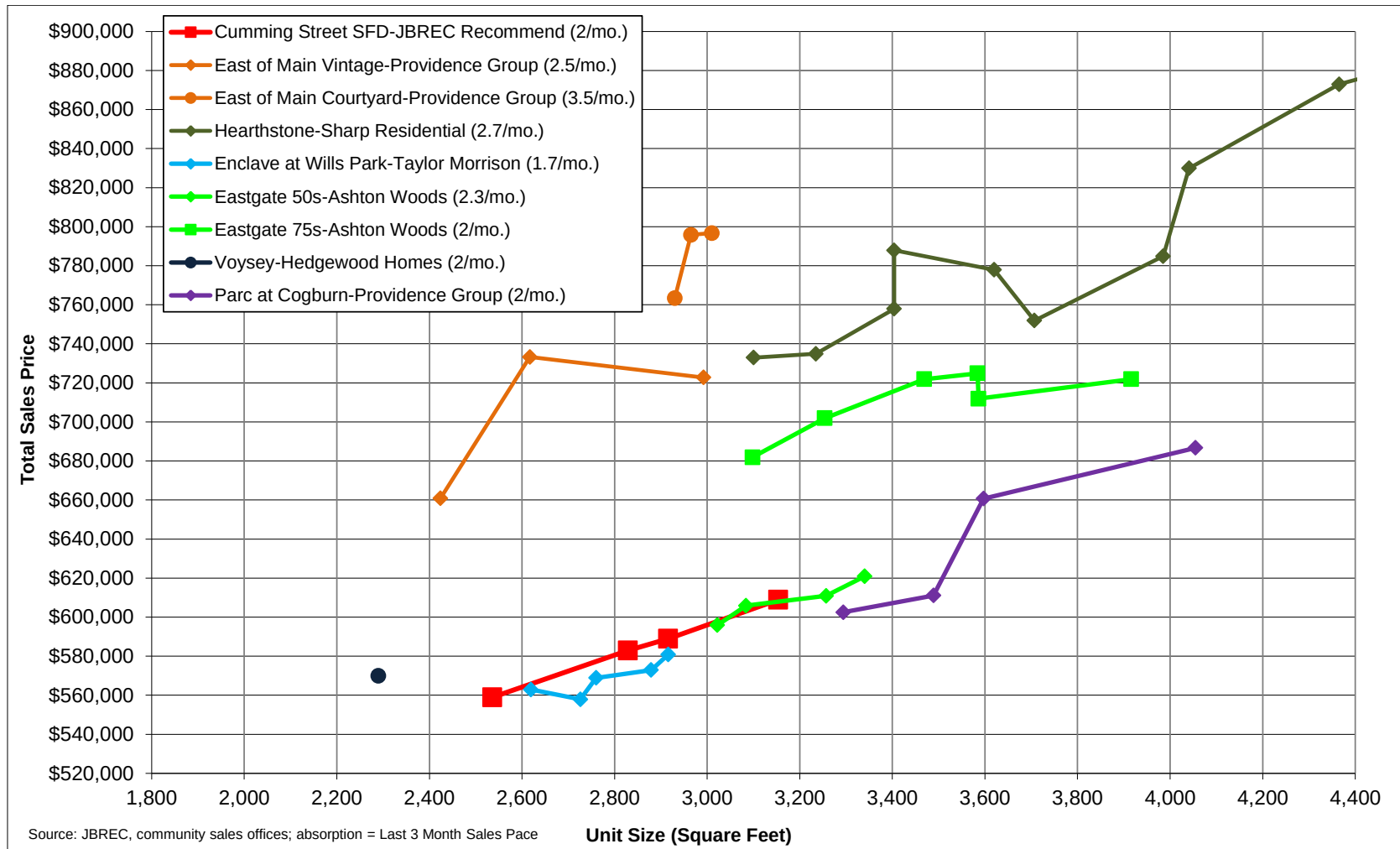
Single-Family Series: Net Base Price Positioning

Below are the base price positioning of the single-family detached competitive set, coupled with JBREC's pricing recommendation. We believe the Subject should be base price positioned consistent with most direct competitors (Enclave at Wills Park, Eastgate 50s, Parc at Cogburn, and Voysey), yet at a discount to East of Main and the larger lot traditional single-family competitors in the market (Eastgate 75s and Hearthstone).



Single-Family Series: Total Price Positioning

On a total price basis (which includes options and lot premiums, less incentives), our pricing recommendation continues to position the Subject in line with Enclave at Wills Park, Eastgate 50s and Parc at Cogburn, yet at a value to East of Main, Eastgate 75s and Hearthstone. Our total price recommendations will continue to position the Subject's single-family detached series as a value in the market.



Single-Family Series: Comparables Summary

JBREC's recommended total sales prices are consistent with the competitive median sales price per square foot (\$205/sqft), even as the Subject will be 200sqft smaller. Base prices are lower than every major single-family new home competitor in this Downtown Alpharetta area. We have increased incentives to boost initial sales, though these incentives are still lower than the Builder is currently offering (\$20K on average and \$30K back pocket) at their Enclave at Wills Park community. Options are consistent with the competitive median, while lot premiums are slightly lower given the current site plan. The net result is total sales prices that are below any direct competitor within the target market. As a result, we feel confident the Builder can consistently sell 2.0 homes per month at Cumming Street single-family community.

COMPETITORS	BUILDER	STATUS	BASE PRICE RANGE	ABSORPTION		AVERAGE SUMMARY OF COMPETITORS						
				OVERALL	MOS RAT	BASE PRICE	INCENTIVES	OPTIONS	PREMIUMS	TOTAL PRICE	UNIT SIZE (SF)	TOTAL \$/SQ. FT.
East of Main Vintage	Providence Group	Active	\$626K - \$688K	2.8	2.5	\$670,638	(\$10,000)	\$40,000	\$5,000	\$705,638	2,678	\$264
East of Main Courtyard	Providence Group	Active	\$718K - \$752K	3.9	3.5	\$740,268	(\$10,000)	\$50,000	\$5,000	\$785,268	2,968	\$265
Hearthstone	Sharp Residential	Active	\$651K - \$828K	2.7	2.7	\$712,100	(\$25,000)	\$95,000	\$12,000	\$794,100	3,780	\$210
Enclave at Wills Park	Taylor Morrison	Active	\$541K - \$559K	0.8	1.7	\$548,733	(\$20,000)	\$40,000	\$2,000	\$570,733	2,803	\$204
Eastgate 50s	Ashton Woods	Sold Out	\$520K - \$545K	2.3	--	\$532,400	(\$5,000)	\$40,000	\$6,000	\$608,400	3,176	\$192
Eastgate 75s	Ashton Woods	Active	\$606K - \$646K	2.3	2.0	\$634,733	(\$5,000)	\$75,000	\$6,000	\$710,733	3,485	\$204
Voysey	Hedgewood Homes	Active	\$550K	1.5	2.0	\$549,900	(\$10,000)	\$30,000	\$0	\$569,900	2,290	\$249
Parc at Cogburn	Providence Group	Active	\$563K - \$648K	1.4	2.0	\$601,245	(\$10,000)	\$45,000	\$4,000	\$640,245	3,609	\$177
			AVERAGE	2.2	2.3	\$623,752	(\$11,875)	\$51,875	\$5,000	\$673,127	3,098	\$220
			MEDIAN	2.3	2.0	\$617,989	(\$10,000)	\$42,500	\$5,000	\$672,942	3,072	\$207
SUBJECT RECOMMEND.	SOURCE	STATUS	BASE PRICE RANGE	ABSORPTION		AVERAGE SUMMARY OF COMPETITORS						
				PROJ	MOS RAT	BASE PRICE	INCENTIVES	OPTIONS	PREMIUMS	TOTAL PRICE	UNIT SIZE (SF)	TOTAL \$/SQ. FT.
Cumming Street SFD	JBREC Recommend	Future	\$500K - \$580K	2.0	--	\$555,900	(\$15,000)	\$40,000	\$4,000	\$584,900	2,859	\$205

Sources: Community sales offices, John Burns Real Estate Consulting, LLC

Single-Family Series: Competitive Details

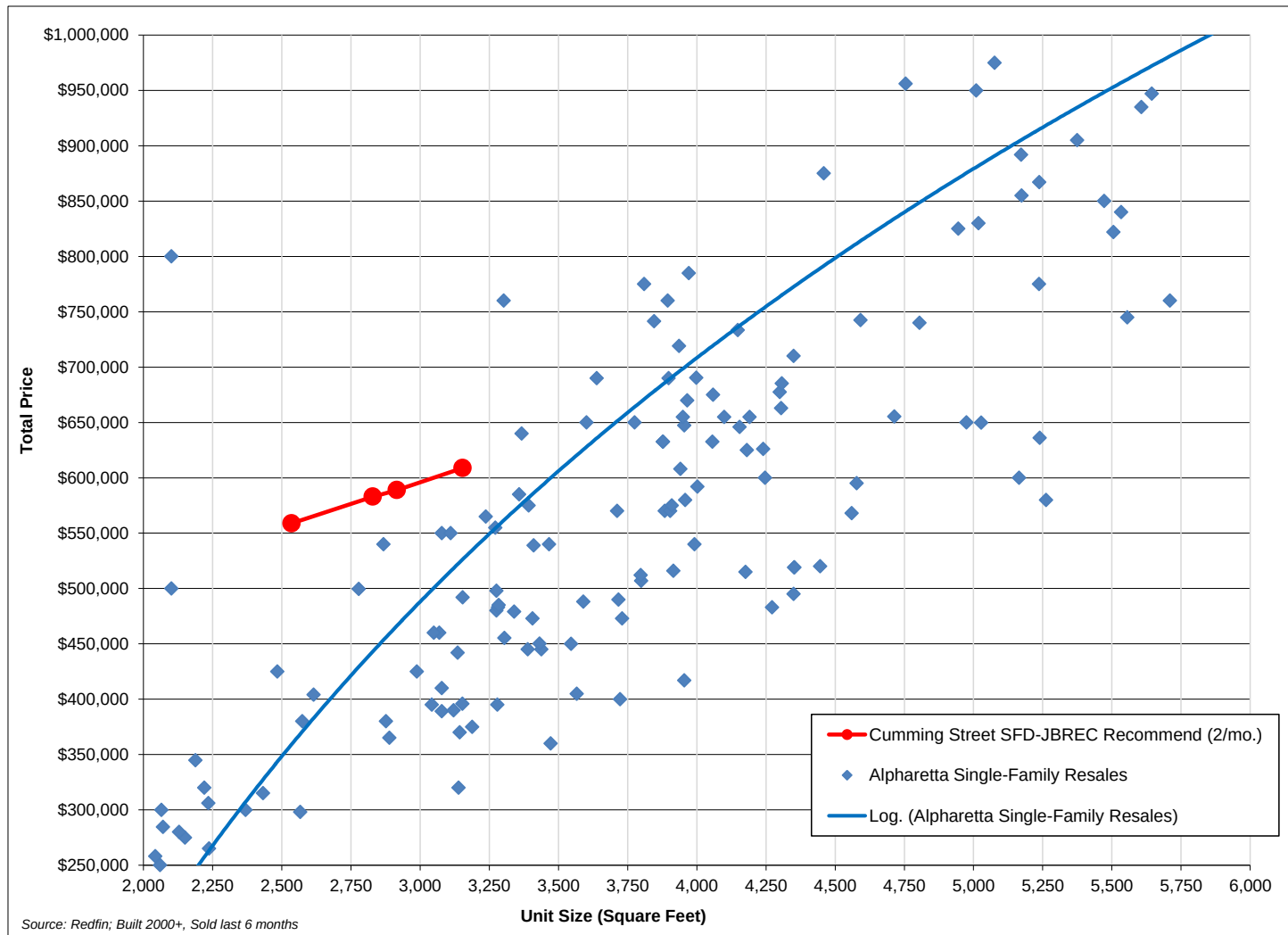
New Home Comps				MIX	PRODUCT				TAX & HOA														
Survey Date: 4/24/2017					Sq. Ft.	Plan Configuration			Tax Rate	HOA	Base Price	Incentives	Net Base Price (All Incentives)	Net Base Price/ Sq. Ft.	Average Options	Average Basement Option	Average Premiums	Total Total Net	Total Net Price/ Sq. Ft.	80% 4.25% Trl Net Pmt	31% Income to Qualify*		
Project Name		Builder				Bed	Bath	Level	Pkg														
EAST OF MAIN VINTAGE																							
East of Main Vintage		Providence Group		1	2,424	3	2.5	2	2	1.50%	\$200	\$625,900	(\$10,000)	\$615,900	\$254	\$40,000	\$0	\$5,000	\$660,900	\$273	\$3,627	\$140,000	
				1	2,617	4	3.5	2	2	1.50%	\$200	\$698,240	(\$10,000)	\$688,240	\$263	\$40,000	\$0	\$5,000	\$733,240	\$280	\$4,002	\$155,000	
Product:	Single Family	Total Units:	16	1	2,992	4	3.5	2	2	1.50%	\$200	\$687,775	(\$10,000)	\$677,775	\$227	\$40,000	\$0	\$5,000	\$722,775	\$242	\$3,948	\$153,000	
		Units Sold:	5																				
		3 Mon. Sold:	5																				
% Remaining	6%	Units Remaining:	1																				
Sales Open Date:	Mar-17	Overall Sales Rate:	2.8																				
		3 Mon. Sales Rate:	2.5																				
Totals/Averages:					2,678					1.50%	\$200	\$670,638	(\$10,000)	\$660,638	\$247	\$40,000	\$0	\$5,000	\$705,638	\$264	\$3,859	\$149,333	
EAST OF MAIN COURTYARD																							
East of Main Courtyard		Providence Group		1	2,930	4	4.0	2	2	1.50%	\$200	\$718,300	(\$10,000)	\$708,300	\$242	\$50,000	\$0	\$5,000	\$763,300	\$261	\$4,158	\$161,000	
				1	2,965	5	4.5	2	2	1.50%	\$200	\$750,800	(\$10,000)	\$740,800	\$250	\$50,000	\$0	\$5,000	\$795,800	\$268	\$4,327	\$167,000	
Product:	Single Family	Total Units:	16	1	3,010	4	3.5	2	2	1.50%	\$200	\$751,705	(\$10,000)	\$741,705	\$246	\$50,000	\$0	\$5,000	\$796,705	\$265	\$4,331	\$168,000	
		Units Sold:	7																				
		3 Mon. Sold:	7																				
% Remaining	56%	Units Remaining:	9																				
Sales Open Date:	Mar-17	Overall Sales Rate:	3.9																				
		3 Mon. Sales Rate:	3.5																				
Totals/Averages:					2,968					1.50%	\$200	\$740,268	(\$10,000)	\$730,268	\$246	\$50,000	\$0	\$5,000	\$785,268	\$265	\$4,272	\$165,333	
HEARTHSTONE																							
Hearthstone		Sharp Residential		1	3,100	5	4.0	2	2	1.50%	\$79	\$650,900	(\$25,000)	\$625,900	\$202	\$75,000	\$20,000	\$12,000	\$732,900	\$236	\$3,879	\$150,000	
				1	3,235	5	4.0	2	2	1.50%	\$79	\$652,900	(\$25,000)	\$627,900	\$194	\$75,000	\$20,000	\$12,000	\$734,900	\$227	\$3,890	\$151,000	
Product:	Single Family	Total Units:	106	1	3,404	5	3.0	2	3	1.50%	\$79	\$675,900	(\$25,000)	\$650,900	\$191	\$75,000	\$20,000	\$12,000	\$757,900	\$223	\$4,009	\$155,000	
		Units Sold:	85	1	3,404	5	4.5	2	3	1.50%	\$79	\$705,900	(\$25,000)	\$680,900	\$200	\$75,000	\$20,000	\$12,000	\$787,900	\$231	\$4,165	\$161,000	
		3 Mon. Sold:	8	1	3,620	5	5.0	2	3	1.50%	\$79	\$695,900	(\$25,000)	\$670,900	\$185	\$75,000	\$20,000	\$12,000	\$777,900	\$215	\$4,113	\$159,000	
% Remaining	20%	Units Remaining:	21	1	3,707	4	4.5	2	3	1.50%	\$79	\$669,900	(\$25,000)	\$644,900	\$174	\$75,000	\$20,000	\$12,000	\$751,900	\$203	\$3,978	\$154,000	
				1	3,985	5	5.0	2	3	1.50%	\$79	\$702,900	(\$25,000)	\$677,900	\$170	\$75,000	\$20,000	\$12,000	\$784,900	\$197	\$4,149	\$161,000	
				1	4,041	5	4.5	2	2	1.50%	\$79	\$747,900	(\$25,000)	\$722,900	\$179	\$75,000	\$20,000	\$12,000	\$829,900	\$205	\$4,382	\$170,000	
Sales Open Date:	Sep-14	Overall Sales Rate:	2.7	1	4,365	5	5.5	2	3	1.50%	\$79	\$790,900	(\$25,000)	\$765,900	\$175	\$75,000	\$20,000	\$12,000	\$872,900	\$200	\$4,605	\$178,000	
		3 Mon. Sales Rate:	2.7	1	4,942	5	4.0	2	2	1.50%	\$79	\$827,900	(\$25,000)	\$802,900	\$162	\$75,000	\$20,000	\$12,000	\$909,900	\$184	\$4,797	\$186,000	
Totals/Averages:					3,780					1.50%	\$79	\$712,100	(\$25,000)	\$687,100	\$182	\$75,000	\$20,000	\$12,000	\$794,100	\$210	\$4,197	\$162,500	
ENCLAVE AT WILLS PARK																							
Enclave at Wills Park		Taylor Morrison		1	2,619	3	3.5	2	2	1.50%	\$175	\$540,900	(\$20,000)	\$520,900	\$199	\$40,000	\$0	\$2,000	\$562,900	\$215	\$3,094	\$120,000	
				1	2,726	4	3.5	2	2	1.50%	\$175	\$535,900	(\$20,000)	\$515,900	\$189	\$40,000	\$0	\$2,000	\$557,900	\$205	\$3,068	\$119,000	
Product:	Single Family	Total Units:	27	1	2,760	4	3.5	2	2	1.50%	\$175	\$546,900	(\$20,000)	\$526,900	\$191	\$40,000	\$0	\$2,000	\$568,900	\$206	\$3,125	\$121,000	
		Units Sold:	20	1	2,879	4	3.5	2	2	1.50%	\$175	\$550,900	(\$20,000)	\$530,900	\$184	\$40,000	\$0	\$2,000	\$572,900	\$199	\$3,146	\$122,000	
		3 Mon. Sold:	5	2	2,916	4	3.5	2	2	1.50%	\$175	\$558,900	(\$20,000)	\$538,900	\$185	\$40,000	\$0	\$2,000	\$580,900	\$199	\$3,187	\$123,000	
% Remaining	26%	Units Remaining:	7																				
Sales Open Date:	May-15	Overall Sales Rate:	0.8																				
		3 Mon. Sales Rate:	1.7																				
Totals/Averages:					2,803					1.50%	\$175	\$548,733	(\$20,000)	\$528,733	\$189	\$40,000	\$0	\$2,000	\$570,733	\$204	\$3,135	\$121,333	

Single-Family Series: Competitive Details Cont.

New Home Comps				MIX	PRODUCT					TAX & HOA												80%		31%	
Survey Date: 4/24/2017					Sq. Ft.	Plan Configuration				Tax Rate	HOA	Base Price	Incentives	Net Base Price (All Incentives)	Net Base Price/ Sq. Ft.	Average Options	Average Basement Option	Average Premiums	Total Total Net	Total Net Price/ Sq. Ft.	Ttl Net Pmt.	4.25%	Income to Qualify*		
Project Name				Builder			Bed	Bath	Level	Pkg															
EASTGATE 50S																									
Eastgate 50s				Ashton Woods	1	3,022	4	2.5	2	2	1.50%	\$125	\$519,900	(\$5,000)	\$514,900	\$170	\$45,000	\$30,000	\$6,000	\$595,900	\$197	\$3,215	\$124,000		
					1	3,084	4	2.5	2	2	1.50%	\$125	\$529,900	(\$5,000)	\$524,900	\$170	\$45,000	\$30,000	\$6,000	\$605,900	\$196	\$3,267	\$126,000		
Product:	Single Family	Total Units:	45	1	3,257	4	2.5	2	2	1.50%	\$125	\$534,900	(\$5,000)	\$529,900	\$163	\$45,000	\$30,000	\$6,000	\$610,900	\$188	\$3,293	\$127,000			
				Units Sold:	45	1	3,340	4	2.5	2	1.50%	\$125	\$544,900	(\$5,000)	\$539,900	\$162	\$45,000	\$30,000	\$6,000	\$620,900	\$186	\$3,345	\$129,000		
				3 Mon. Sold:	0																				
				Units Remaining:	0																				
% Remaining	0%	Units Remaining:	0																						
Sales Open Date:	Sep-15	Overall Sales Rate:	2.3																						
				3 Mon. Sales Rate:	--																				
Totals/Averages:					3,176					1.50%	\$125	\$532,400	(\$5,000)	\$527,400	\$166	\$45,000	\$30,000	\$6,000	\$608,400	\$192	\$3,280	\$126,500			
EASTGATE 75S																									
Eastgate 75s				Ashton Woods	1	3,098	4	2.5	2	2	1.50%	\$125	\$605,900	(\$5,000)	\$600,900	\$194	\$45,000	\$30,000	\$6,000	\$681,900	\$220	\$3,661	\$142,000		
					1	3,254	4	3.5	2	2	1.50%	\$125	\$625,900	(\$5,000)	\$620,900	\$191	\$45,000	\$30,000	\$6,000	\$701,900	\$216	\$3,765	\$146,000		
Product:	Single Family	Total Units:	46	1	3,469	4	3.5	2	2	1.50%	\$125	\$645,900	(\$5,000)	\$640,900	\$185	\$45,000	\$30,000	\$6,000	\$721,900	\$208	\$3,868	\$150,000			
				Units Sold:	45	1	3,584	5	4.0	2	1.50%	\$125	\$648,900	(\$5,000)	\$643,900	\$180	\$45,000	\$30,000	\$6,000	\$724,900	\$202	\$3,884	\$150,000		
				3 Mon. Sold:	6	1	3,586	4	3.5	2	1.50%	\$125	\$635,900	(\$5,000)	\$630,900	\$176	\$45,000	\$30,000	\$6,000	\$711,900	\$199	\$3,817	\$148,000		
% Remaining	2%	Units Remaining:	1	1	3,916	4	3.5	2	2	1.50%	\$125	\$645,900	(\$5,000)	\$640,900	\$164	\$45,000	\$30,000	\$6,000	\$721,900	\$184	\$3,868	\$150,000			
Sales Open Date:	Sep-15	Overall Sales Rate:	2.3																						
				3 Mon. Sales Rate:	2.0																				
Totals/Averages:					3,485					1.50%	\$125	\$634,733	(\$5,000)	\$629,733	\$181	\$45,000	\$30,000	\$6,000	\$710,733	\$204	\$3,811	\$147,667			
VOYSEY																									
Voysey				Hedgewood Homes	1	2,290	4	3.5	3	2	1.50%	\$250	\$549,900	(\$10,000)	\$539,900	\$236	\$30,000	\$0	\$0	\$569,900	\$249	\$3,205	\$124,000		
Product:	Single Family	Total Units:	42																						
				Units Sold:	10																				
				3 Mon. Sold:	6																				
% Remaining	76%	Units Remaining:	32																						
Sales Open Date:	Oct-16	Overall Sales Rate:	1.5																						
				3 Mon. Sales Rate:	2.0																				
Totals/Averages:					2,290					1.50%	\$250	\$549,900	(\$10,000)	\$539,900	\$236	\$30,000	\$0	\$0	\$569,900	\$249	\$3,205	\$124,000			
PARC AT COGBURN																									
Parc at Cogburn				Providence Group	1	3,294	5	4.5	2	2	1.50%	\$250	\$563,480	(\$10,000)	\$553,480	\$168	\$45,000	\$0	\$4,000	\$602,480	\$183	\$3,374	\$131,000		
					1	3,489	4	3.5	2	2	1.50%	\$250	\$572,095	(\$10,000)	\$562,095	\$161	\$45,000	\$0	\$4,000	\$611,095	\$175	\$3,419	\$132,000		
Product:	Single Family	Total Units:	19	1	3,597	5	4.0	2	2	1.50%	\$250	\$621,710	(\$10,000)	\$611,710	\$170	\$45,000	\$0	\$4,000	\$660,710	\$184	\$3,676	\$142,000			
				Units Sold:	15	1	4,055	6	5.5	2	1.50%	\$250	\$647,695	(\$10,000)	\$637,695	\$157	\$45,000	\$0	\$4,000	\$686,695	\$169	\$3,811	\$148,000		
				3 Mon. Sold:	6																				
				Units Remaining:	4																				
% Remaining	21%	Units Remaining:	4																						
Sales Open Date:	Jun-16	Overall Sales Rate:	1.4																						
				3 Mon. Sales Rate:	2.0																				
Totals/Averages:					3,609					1.50%	\$250	\$601,245	(\$10,000)	\$591,245	\$164	\$45,000	\$0	\$4,000	\$640,245	\$177	\$3,570	\$138,250			

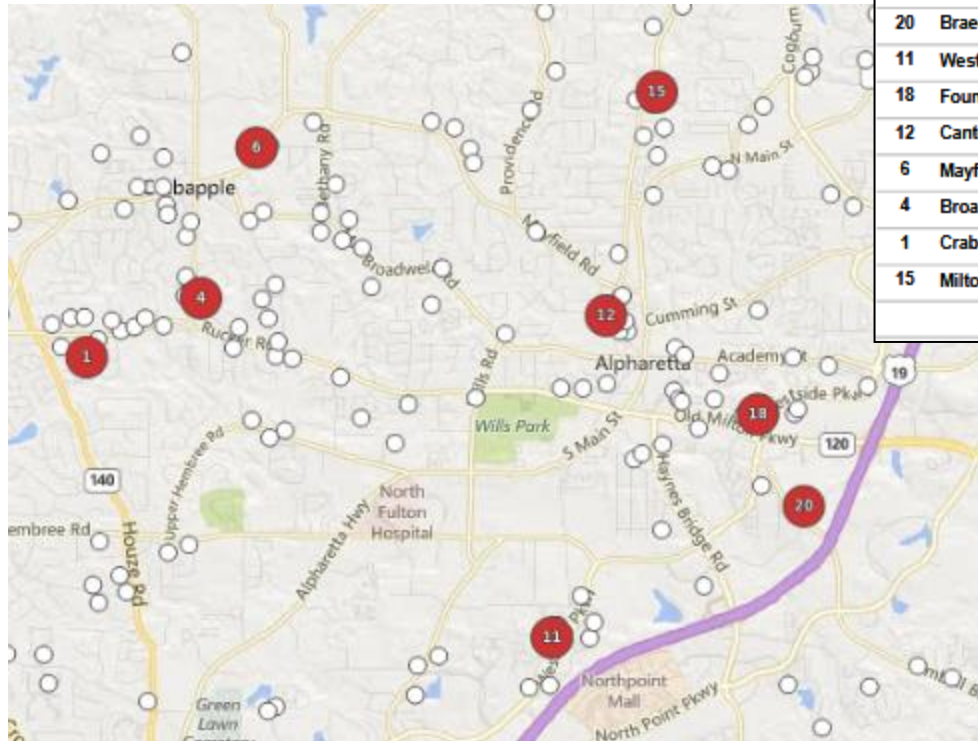
Single-Family Series: Resale Sales

We pulled recent resale single-family detached transactions that closed within the last 6 months, that were built since 2000, and located within Alpharetta (Fulton County), GA. While there are a number of more affordable resales offering larger floor plans, the average single-family detached resale sold for \$670K, which is well above our pricing recommendations for the Subject (granted the average resale was also much larger at 3,998sqft). In fact, a full half of the recent resale transactions of single-family detached homes built since 2000 sold at prices above our recommended average sales price at the Subject.



Competitive Analysis – Alpharetta Future Single-Family Communities

Contrary to future townhome development, which will be heavily concentrated within the corridor between Downtown Alpharetta and Avalon, record high land prices will limit most single-family detached development within Alpharetta to outlying locations. Expect to see increased future development between Crabapple and Roswell in the west, north of Windward Pkwy, and in the Johns Creek areas of Alpharetta. According to ESRI, this area of Downtown Alpharetta is projected to add 700 net new households over the next 5 years. While the number of competitive townhome offerings within Downtown Alpharetta are expected to increase by 400 units of future supply (which is comparable to a 5-year forecast supply), the future single-family lots at 217 will not be enough to keep up with growing demand within the area.

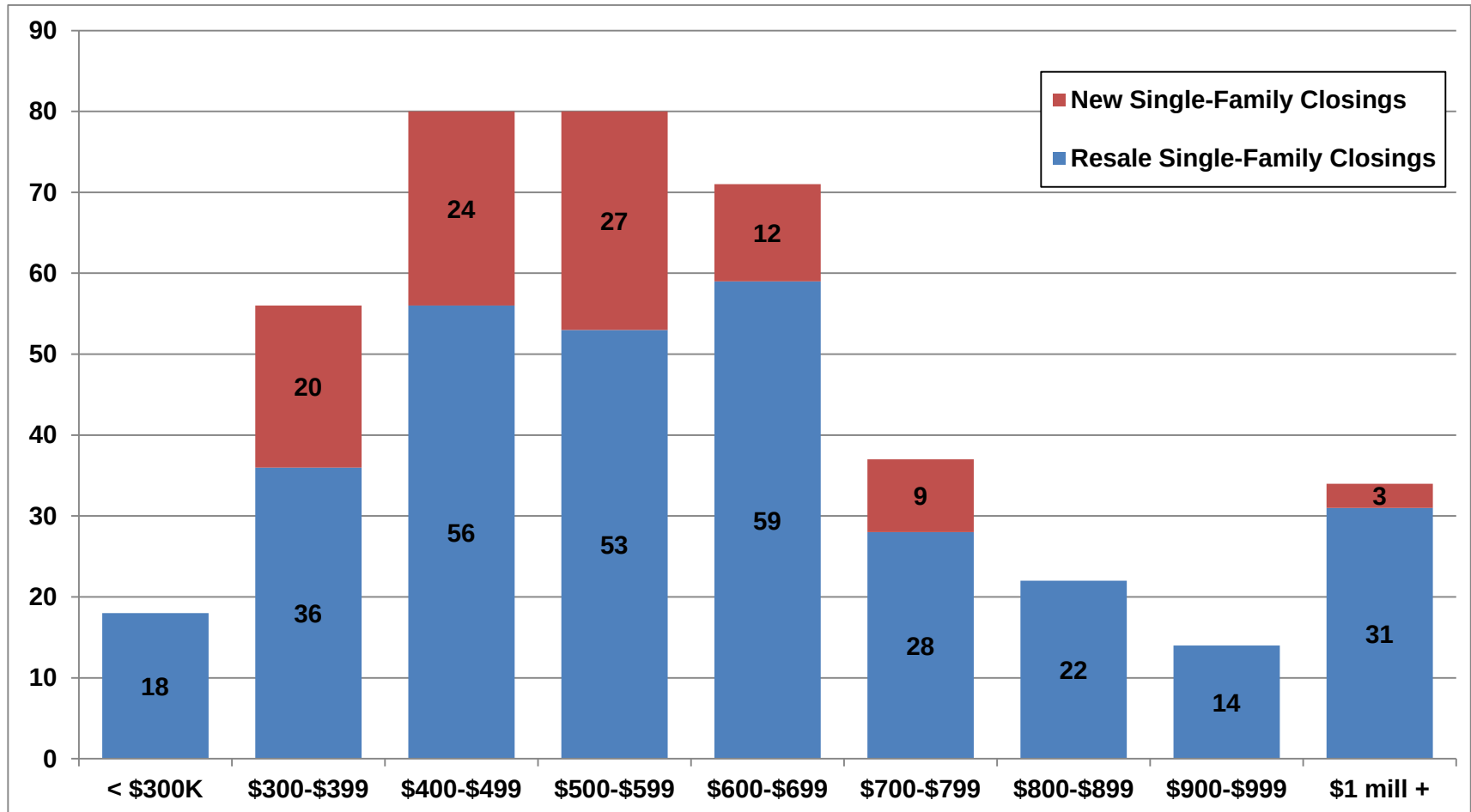


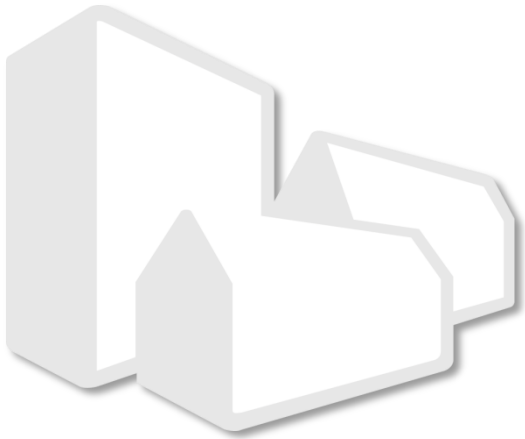
Map No	Subdivision Name	Sub Area	Status	Lot Size	VDL	Future	Total
20	Braeden	NFul-Alph	Future	40'	0	74	74
11	Westside Pkwy	NFul-Alph	Future	50'	0	38	38
18	Foundry	NFul-Alph	Future	40'	0	25	25
12	Canton Street Commons	NFul-Alph	Future	30'	0	21	21
6	Mayfield, 980	NFul-Alph	Future	0'	0	20	20
4	Broadwell Rd Tract2 Ashton	NFul-Alph	Future	50'	0	18	18
1	Crabapple/Berkdale	NFul-Alph	Future	60'	0	12	56
15	Milton Place NF	NFul-Alph	Future	100'	0	11	38
Selection Totals					0	217	288

Source: Metrostudy

Competitive Analysis – Alpharetta New & Resale Single-Family Sales

There were a total of 412 new and resale single-family detached home transactions recorded within the primary Alpharetta area in the last 12 months according to Redfin. The majority of those transactions were resales occurring within the \$400s-\$700s. Among those sales between \$400-\$700K, which would be the target qualified buyers at the Subject's single-family detached series, there were more than 230 closings. With a sales pace of 2.0 per month, the Subject would need to capture 10% of the combined transactions from within the primary Alpharetta target area.

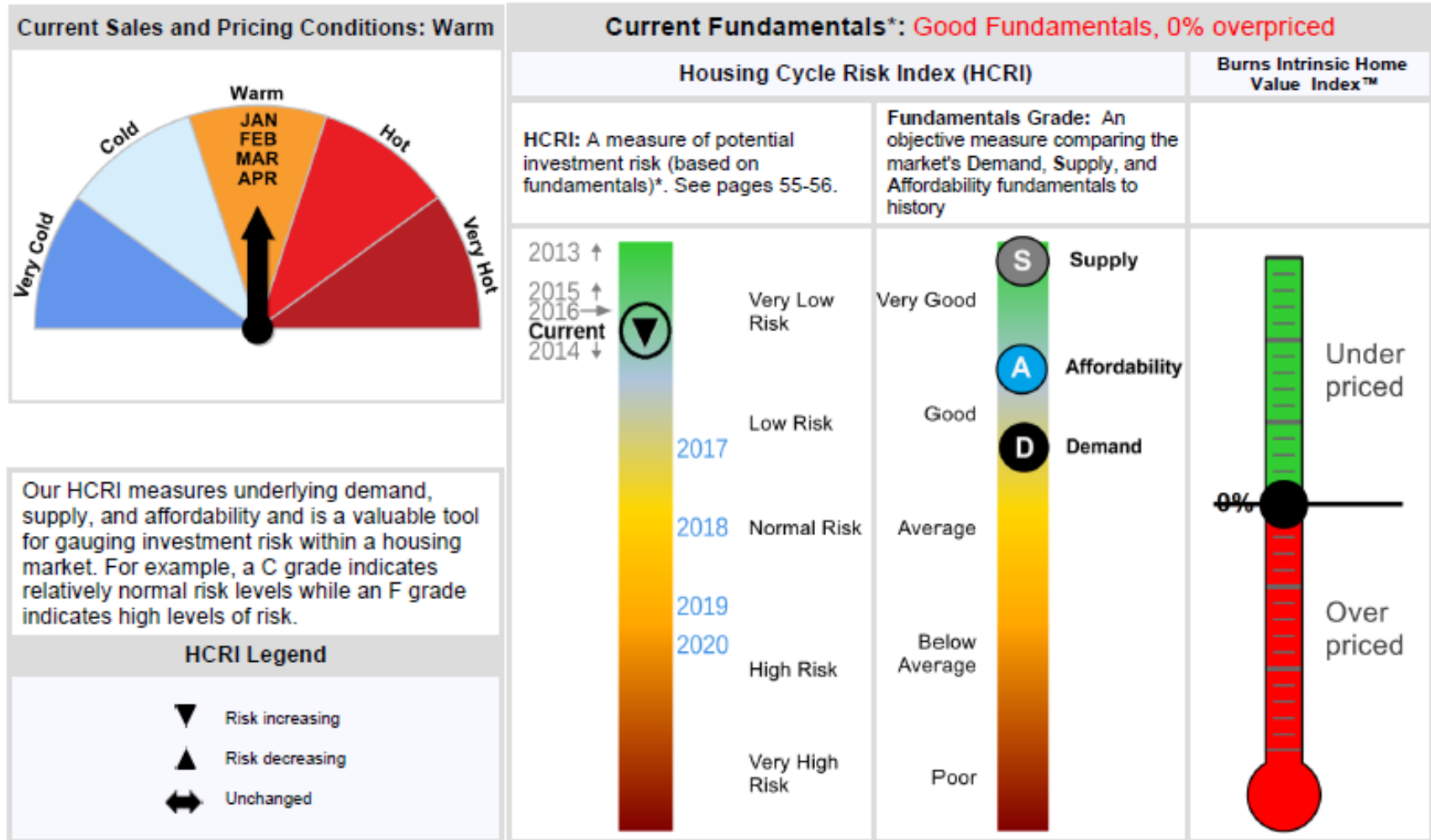




Housing Market Trends Atlanta, GA MSA

Atlanta, GA MSA – Current Market Trends & Fundamentals

The housing market in the Atlanta, GA MSA has strong fundamentals with solid demand, very good affordability and tight supply. Through 2020, softening market drives will increase the risk for operators in the market.



Housing Market Trends – Key Housing Trends & Projections

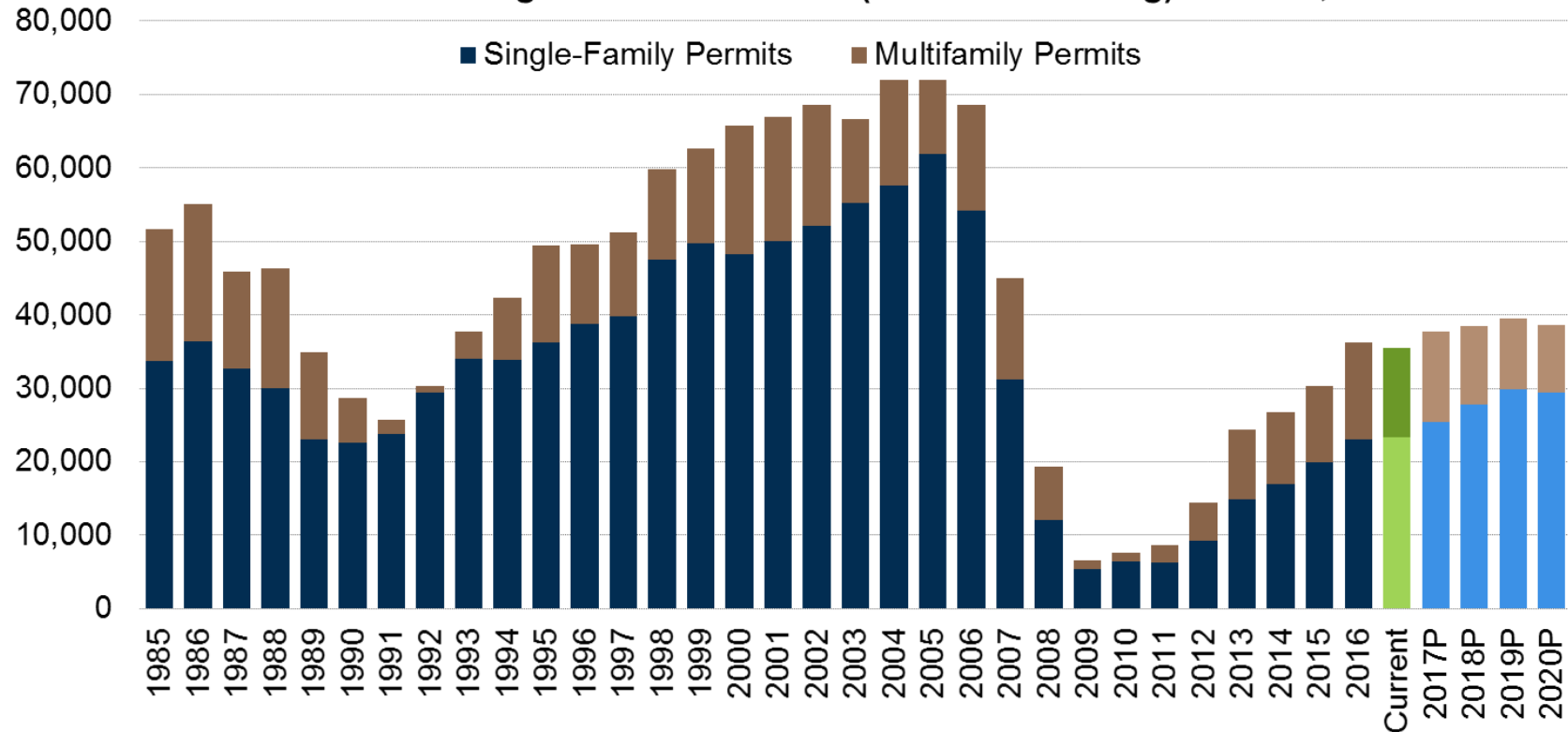
The housing market fundamentals are excellent today, with record resale home sales volume and prices, while the new home market has been enjoying double digit growth with new home prices recently hitting new record prices. Housing market conditions are projected to remain favorable, albeit with a gradually slowing rate of growth over the next four years.

KEY STATISTICS HISTORY AND PROJECTIONS										
	2014	2015	2016	1 Year Ago	Current	2017P	2018P	2019P	2020P	Detail Page
EXISTING HOMES										
Home Value Appreciation Dec. to Dec. (BHVI)	8.4%	8.1%	5.6%	7.4%	5.3%	5.7%	4.5%	3.5%	1.6%	12
% of Current Yr Price Apprec. Remaining	-	-	-	-	-	4.8%	-	-	-	12
Existing Median Home Price (34)	\$178,500	\$196,900	\$202,500	\$182,200	\$188,000	n/a	n/a	n/a	n/a	11
Existing Median Price Apprec. (34)	12.8%	10.3%	2.8%	4.0%	3.2%	n/a	n/a	n/a	n/a	11
Existing Sales Volume (75)	85,209	93,248	103,890	93,857	105,116	104,500	106,100	106,900	105,400	10
NEW SUPPLY										
Single-Family Permits	16,984	19,995	23,003	20,249	23,206	25,400	27,800	29,800	29,400	34
Multifamily Permits	9,699	10,347	13,190	11,215	13,424	12,300	10,600	9,700	9,200	35
Total Permits	26,683	30,342	36,193	31,464	36,630	37,700	38,400	39,500	38,600	33
E/P Ratio	3.3	2.7	2.1	2.5	1.9	1.7	1.3	0.9	0.2	36
NEW HOMES										
New Home Median Price (76)	\$270,700	\$283,400	\$286,600	\$295,000	\$292,300	n/a	n/a	n/a	n/a	18
New Home Med. Price Apprec (a)	4.7%	4.7%	1.1%	1.3%	(0.9%)	-	-	-	-	18
Net New Home Apprec. Forecast Dec.- Dec. (a)	-	-	-	-	-	3.8%	2.5%	2.1%	0.9%	19
% of Current Yr Price Apprec. Remaining	-	-	-	-	-	3.2%	-	-	-	19
New Home Sales (75)	13,102	16,127	19,140	16,410	19,399	21,400	23,300	24,800	24,500	17

Economic and Housing Market Trends – Building Permits

A contraction in multifamily permitting slowed total permit growth to 8% over the past twelve months; however, single family permitting remains strong with continued double digit growth. We expect total permitting activity to slow over the short term, driven by a protracted decline in multifamily permits. Continued strength in single-family permitting will contribute to positive total permit growth through 2019.

Residential Building Permit Issuances (12-Month Rolling): Atlanta, GA

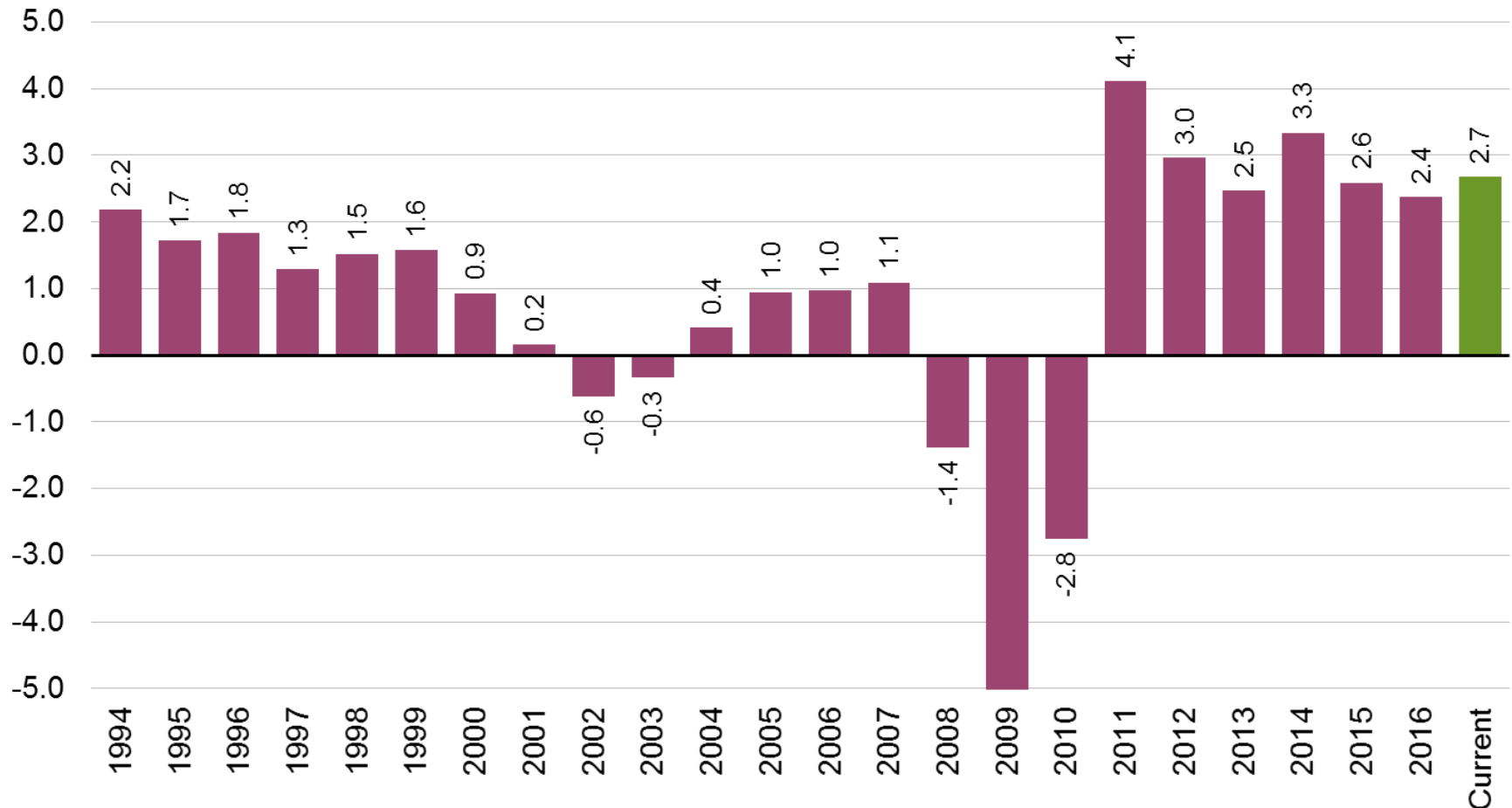


Sources: Census; John Burns Real Estate Consulting, LLC (Data as of February 2017, projections as of April 2017)

Permit History & Projections	2009	2010	2011	2012	2013	2014	2015	2016	Current	2017P	2018P	2019P	2020P
Single-Family Permits	5,455	6,417	6,248	9,182	14,864	16,984	19,995	23,003	23,266	25,400	27,800	29,800	29,400
1-Year Growth Rate	-55%	18%	-3%	47%	62%	14%	18%	15%	13%	10%	9%	7%	-1%
Multifamily Permits	1,112	1,191	2,420	5,213	9,473	9,699	10,347	13,190	12,299	12,300	10,600	9,700	9,200
1-Year Growth Rate	-85%	7%	103%	115%	82%	2%	7%	27%	-1%	-7%	-14%	-8%	-5%
Total Permits	6,567	7,608	8,668	14,395	24,337	26,683	30,342	36,193	35,565	37,700	38,400	39,500	38,600
1-Year Growth Rate	-66%	16%	14%	66%	69%	10%	14%	19%	8%	4%	2%	3%	-2%

Driven by strong jobs gains, the current employment growth to building permit ratio in Atlanta is very strong at nearly 3:1 (2.7 jobs are created for each new permit). Both employment and permitting activity are projected to slow over the next three years, but we expect the market will remain balanced (1.0 to 1.5 job-to-permit ratio).

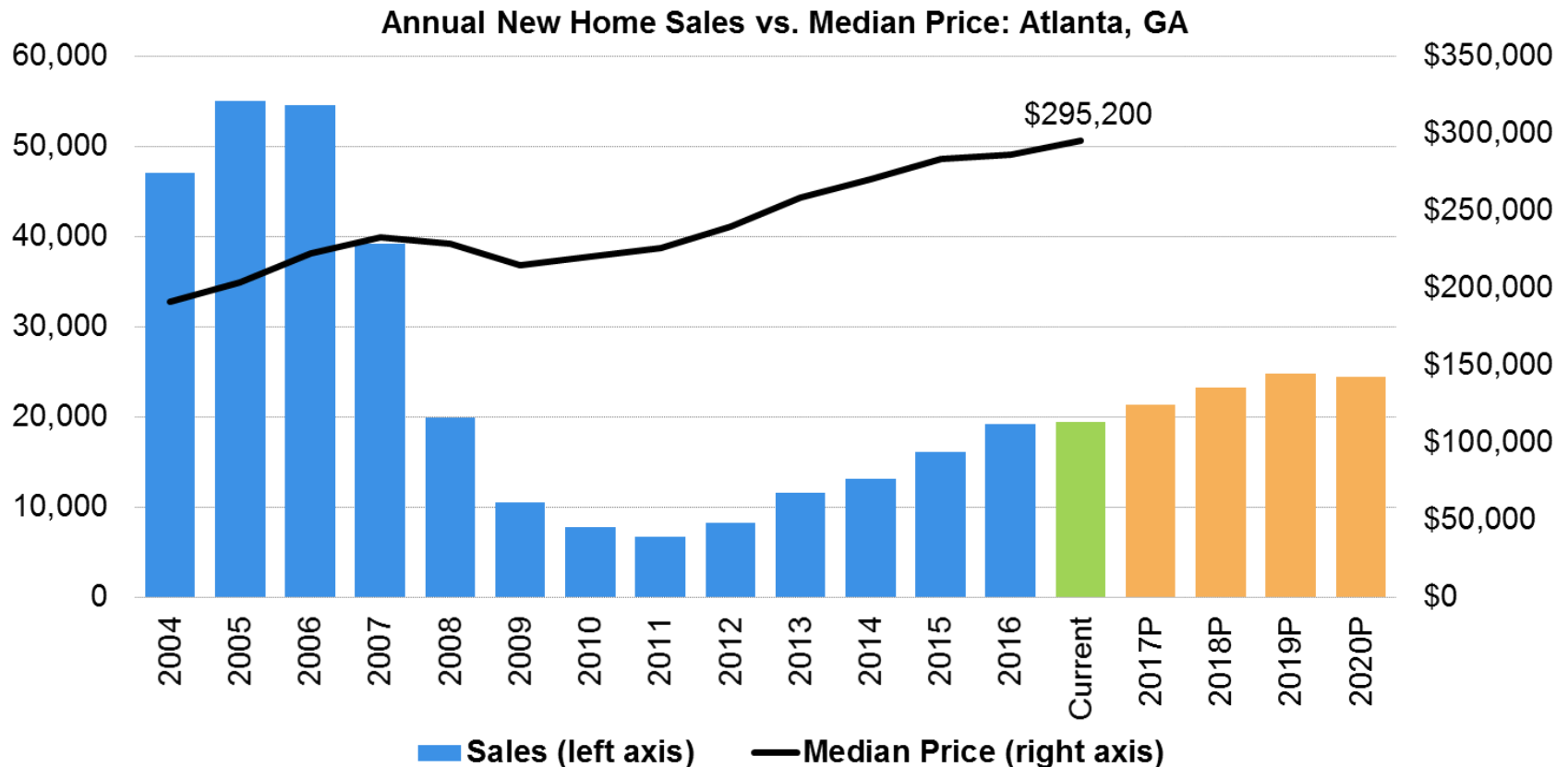
Employment / Permit Ratio: Atlanta, GA



Sources: Census, BLS; John Burns Real Estate Consulting, LLC (Data as of February 2017, projections as of April 2017)

Economic and Housing Market Trends – New Home Sales and Pricing

New home sales are up 17% over the past twelve months, continuing a five year expansion streak. We anticipate strong, but slowing annual sales growth in 2017 (+12%) with annual softening through 2020. Median new home prices are up 7.5% on a rolling twelve month basis. We project new home price appreciation will average +2.3% annually from 2017 through 2020.



Sources: CoreLogic; John Burns Real Estate Consulting, LLC (Data as of February 2017, projections as of April 2017)

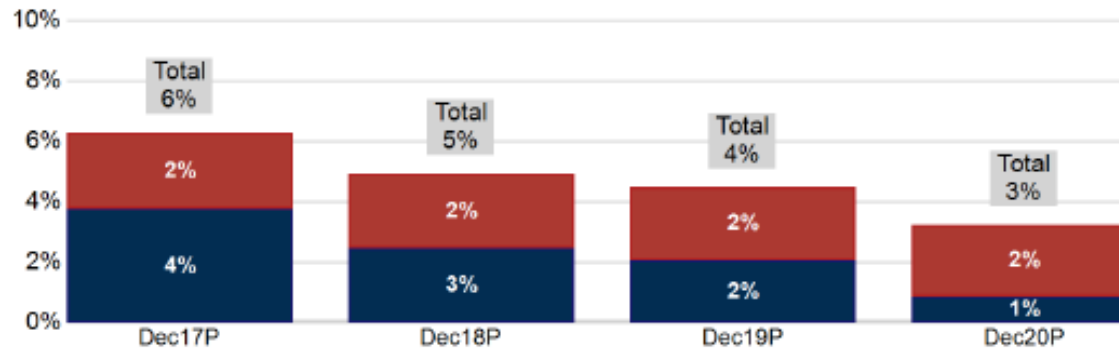
New Home Projections	2009	2010	2011	2012	2013	2014	2015	2016	Current	2017P	2018P	2019P	2020P
Annualized New Home Sales	10,500	7,838	6,664	8,297	11,610	13,102	16,127	19,185	19,428	21,400	23,300	24,800	24,500
1-Year Growth Rate	-47%	-25%	-15%	25%	40%	13%	23%	19%	17%	12%	9%	6%	-1%
Median New Home Price	\$215,000	\$220,600	\$225,800	\$239,700	\$258,500	\$270,700	\$283,400	\$286,500	\$295,200	n/a	n/a	n/a	n/a
1-Year Growth Rate	-6%	3%	2%	6%	8%	5%	5%	1%	8%	n/a	n/a	n/a	n/a
New Home Price Appreciation Forecast	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.8%	2.5%	2.1%	0.9%

The year-over-year payment change for new homes considers both the change attributed to annual new home price appreciation and the projected annual change in interest rates. We expect payment changes to range to increase by 6% in 2017, driven by near 4% price appreciation expectations. New home payments are forecast to increase between 3 and 5% from 2018 to 2020. Overall, net price appreciation is projected to increase at 2.3% on an average annual basis from 2017 to 2020 and changes in interest rates will account for approximately 2% of payment increases between 2017 and 2020.

YEAR-OVER-YEAR PAYMENT CHANGE

Based on New Home Price Appreciation Forecasts **

■ Change Attributed to Price ■ Change Attributed to Interest Rate ■ Total Change

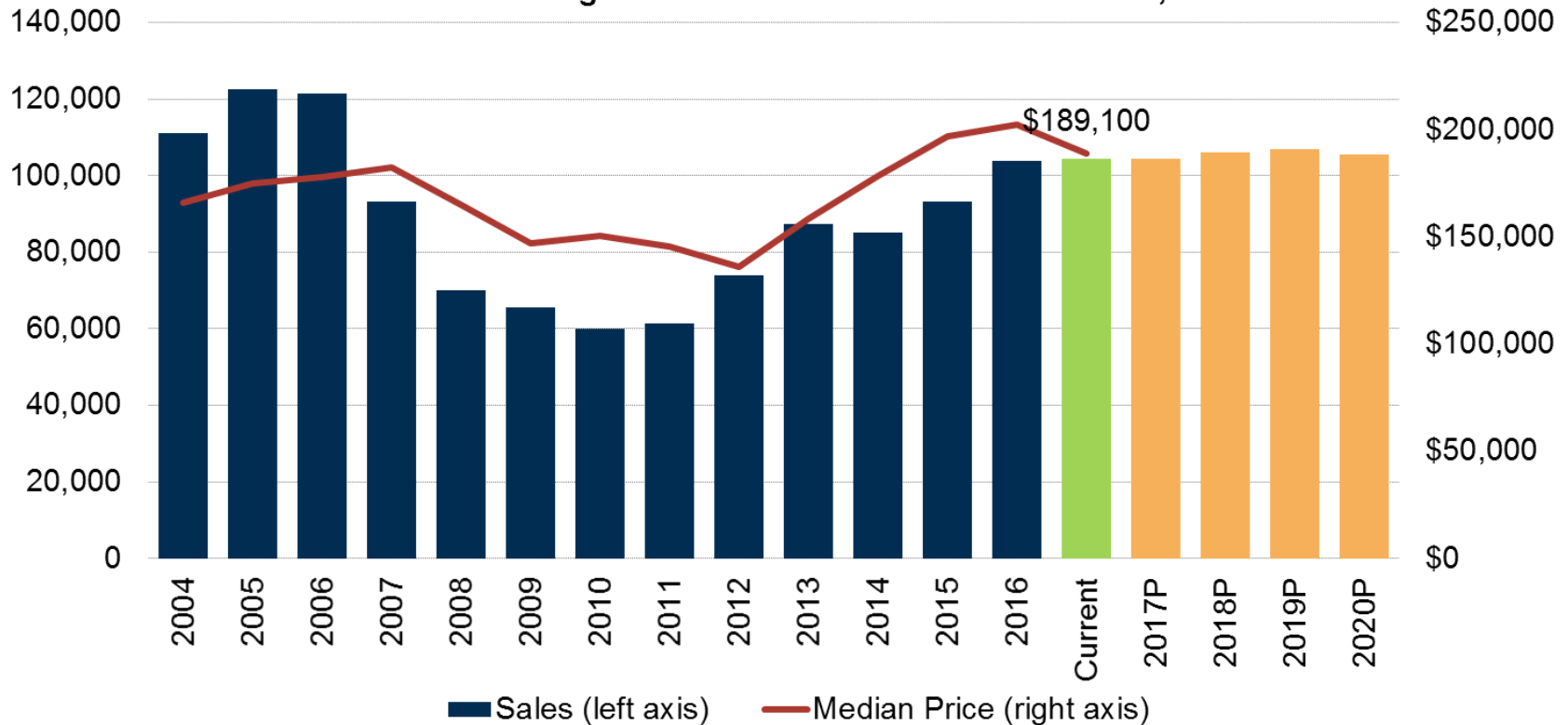


** Principal and interest payment only, based on JBREC net of incentive new home appreciation rates and forecasted annual average mortgage rates.

Economic and Housing Market Trends – Existing Home Sales and Pricing

Existing home sales are up 10% (nearly 105,000 homes) on a twelve month basis; and the median existing home price is up a healthy 6% to \$189,100. We expect existing home sales will have relatively flat growth over the next four years and price appreciation will moderate to near 4% annual growth through 2020.

Annual Existing Home Sales vs. Median Price: Atlanta, GA



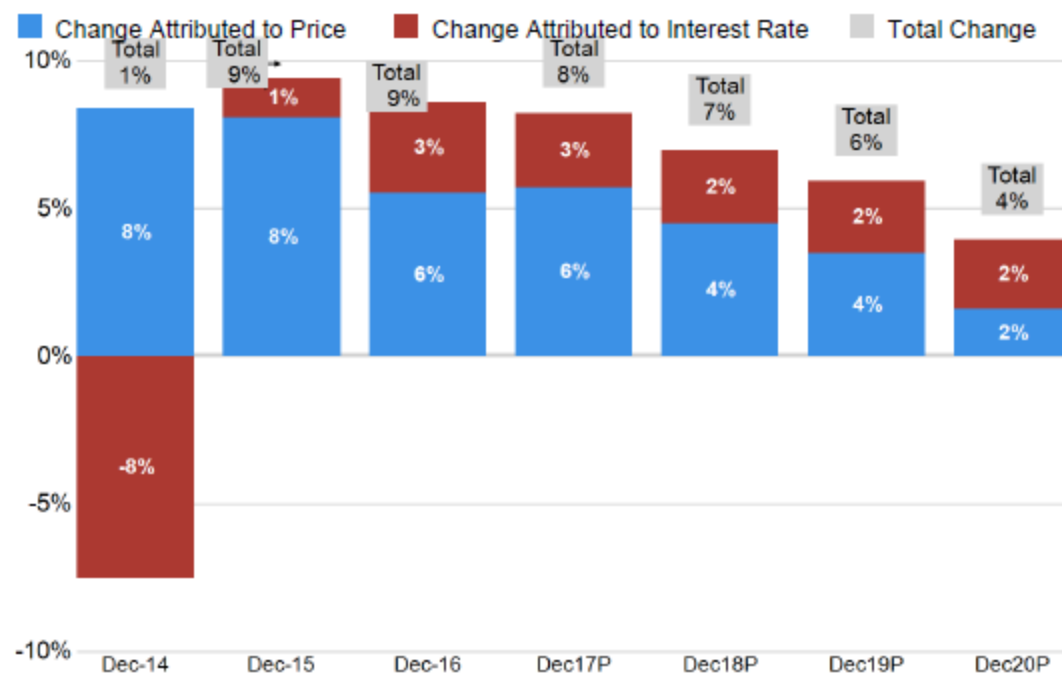
Sources: CoreLogic; John Burns Real Estate Consulting, LLC (Data as of February 2017, projections as of April 2017)

Resale Home History & Projections	2009	2010	2011	2012	2013	2014	2015	2016	Current	2017P	2018P	2019P	2020P
Annualized Existing Home Sales	65,561	59,908	61,509	74,080	87,370	85,209	93,248	103,895	104,496	104,500	106,100	106,900	105,400
1-Year Growth Rate	-6%	-9%	3%	20%	18%	-2%	9%	11%	10%	1%	2%	1%	-1%
Median Existing Home Price	\$147,000	\$150,500	\$145,600	\$136,000	\$158,300	\$178,500	\$196,900	\$202,600	\$189,100	n/a	n/a	n/a	n/a
1-Year Growth Rate	-11%	2%	-3%	-7%	16%	13%	10%	3%	6%	n/a	n/a	n/a	n/a
Burns Home Value Index™	-5%	-7%	-8%	4%	12%	8%	8%	6%	5%	6%	4%	4%	2%

We anticipated total payments for existing homes will increase by 8% in 2017, driven by 5.7% price appreciation and rising interest rates. Total payment changes will range between 4% and 7% from 2018 to 2020.

Year-over-Year Payment Change

Median Existing Home Value*

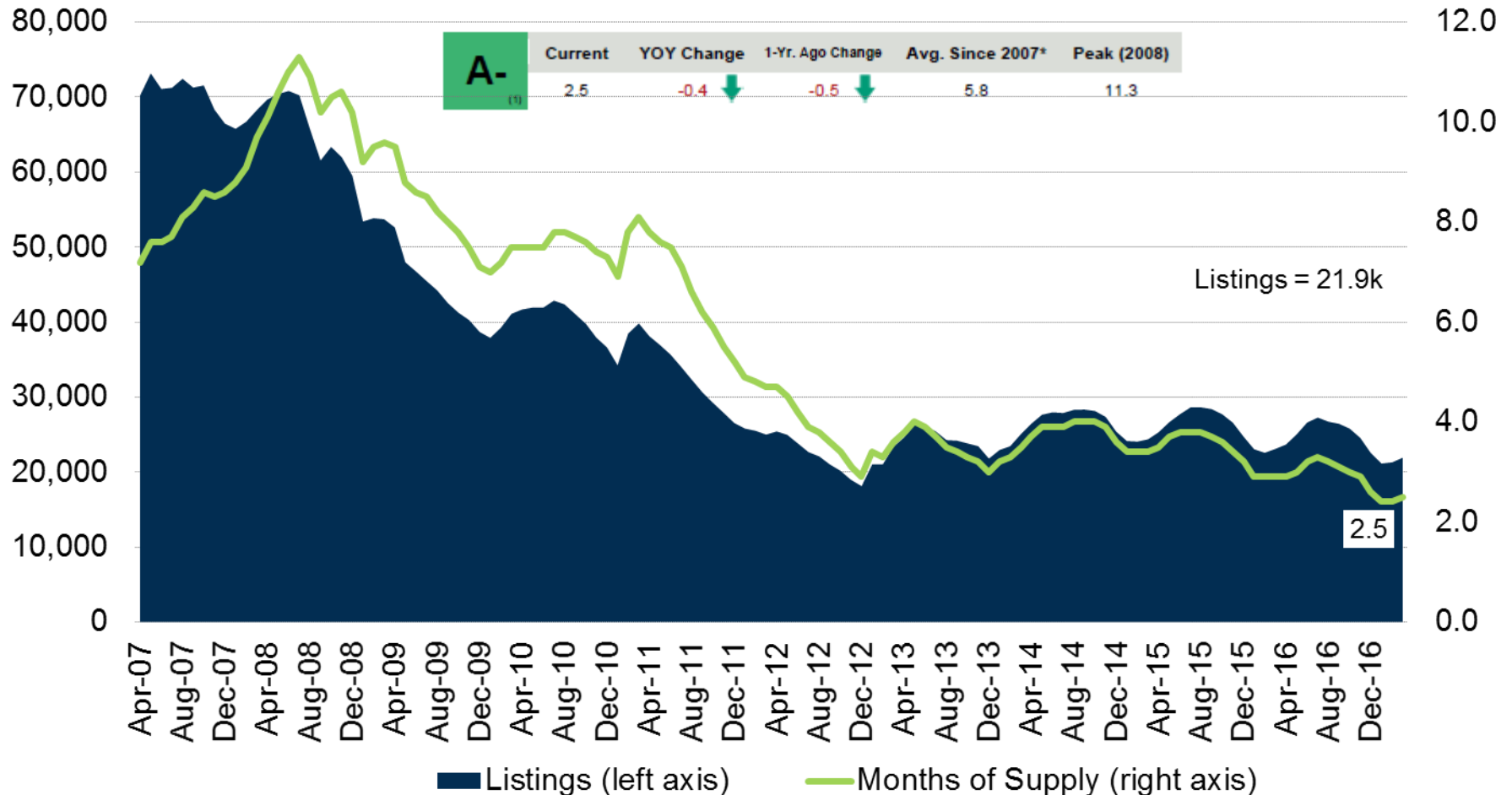


Change % Attributed to:			Total Change %
Year	Price	Interest Rate	
Dec-01	4.9 %	-3.2 %	1.7 %
Dec-02	3.6 %	-10.4 %	-6.8 %
Dec-03	3.8 %	-1.9 %	1.9 %
Dec-04	4.1 %	-1.5 %	2.6 %
Dec-05	4.2 %	6.0 %	10.2 %
Dec-06	1.9 %	-1.4 %	0.5 %
Dec-07	-2.0 %	-0.4 %	-2.4 %
Dec-08	-9.8 %	-7.6 %	-17.5 %
Dec-09	-5.2 %	-3.8 %	-9.0 %
Dec-10	-6.9 %	-2.3 %	-9.2 %
Dec-11	-7.8 %	-7.8 %	-15.6 %
Dec-12	4.1 %	-7.5 %	-3.4 %
Dec-13	11.9 %	16.2 %	28.1 %
Dec-14	8.4 %	-7.5 %	0.9 %
Dec-15	8.1 %	1.3 %	9.4 %
Dec-16	5.5 %	3.1 %	8.6 %
Dec17P	5.7 %	2.5 %	8.2 %
Dec18P	4.5 %	2.5 %	7.0 %
Dec19P	3.5 %	2.4 %	5.9 %
Dec20P	1.8 %	2.4 %	3.9 %

*Principal and interest payment only, based on Burns Home Value Index™ appreciation rates and forecasted annual average mortgage rates

There is a very low 2.5 month supply of resale units across the Atlanta MSA, down 0.5 months from 3.0 months one year ago. A five to six month supply of existing homes is considered to be equilibrium for this market.

Monthly Home Inventory (Existing): Atlanta, GA

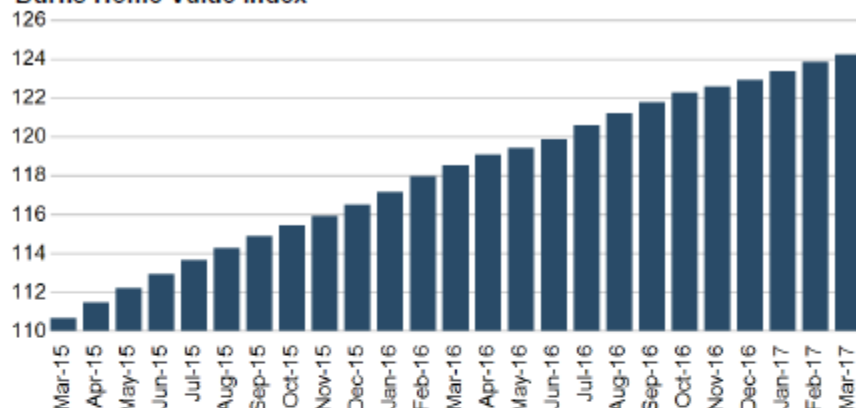


Sources: John Burns Real Estate Consulting, LLC estimates or various MLS sources (Data as of March 2017, projections as of April 2017)

Economic and Housing Market Trends – Burns Home Value Index (BHVI)

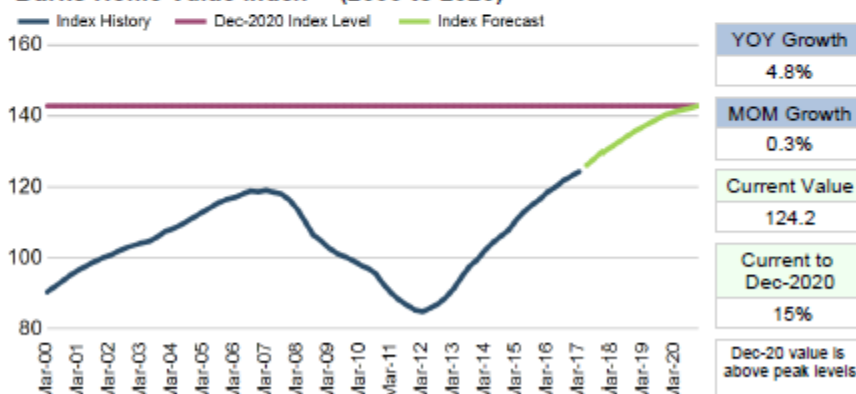
The Burns Home Value Index (BHVI) measures housing value trends for the entire market. On a rolling twelve month basis, prices in the Atlanta MSA, are up 4.8%. We expect a total 15.5% in price appreciation through 2020.

Burns Home Value Index™



BHVI Indexed to 100 in January 2002

Burns Home Value Index™ (2000 to 2020)



Source: John Burns Real Estate Consulting, LLC (Data: Mar 17, Pub: Apr 17)

AVG. SINCE 1981*

3.2%

NOW

4.8%

Monthly Data

Date	Value	YOY %
May-15	112.2	8.2%
Jun-15	112.9	8.3%
Jul-15	113.7	8.4%
Aug-15	114.3	8.4%
Sep-15	114.9	8.4%
Oct-15	115.4	8.4%
Nov-15	115.9	8.3%
Dec-15	116.5	8.1%
Jan-16	117.2	7.8%
Feb-16	118.0	7.5%
Mar-16	118.5	7.1%
Apr-16	119.1	6.8%
May-16	119.4	6.5%
Jun-16	119.9	6.2%
Jul-16	120.6	6.1%
Aug-16	121.2	6.0%
Sep-16	121.7	6.0%
Oct-16	122.2	5.9%
Nov-16	122.6	5.8%
Dec-16	122.9	5.5%
Jan-17	123.4	5.3%
Feb-17	123.8	5.0%
Mar-17	124.2	4.8%

Year End Values

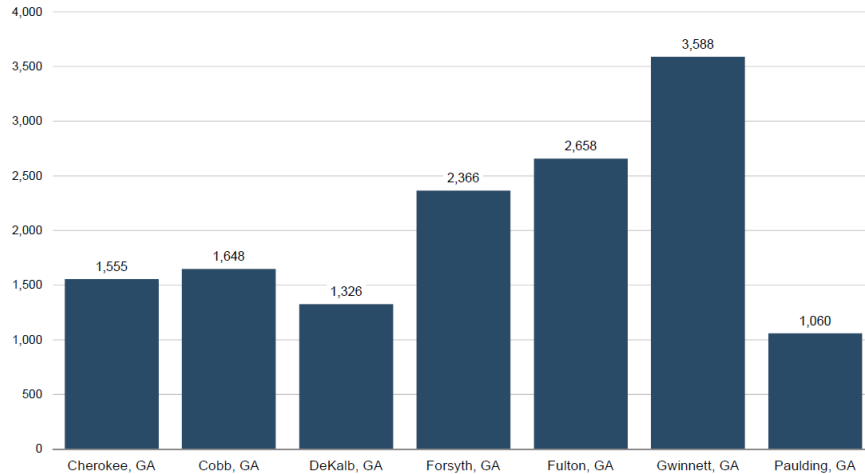
Date	Value	YOY %
Dec-00	95.1	
Dec-01	99.8	4.9%
Dec-02	103.4	3.6%
Dec-03	107.3	3.8%
Dec-04	111.7	4.1%
Dec-05	116.4	4.2%
Dec-06	118.6	1.9%
Dec-07	116.2	-2.0%
Dec-08	104.8	-9.8%
Dec-09	99.3	-5.2%
Dec-10	92.5	-6.9%
Dec-11	85.3	-7.8%
Dec-12	88.8	4.1%
Dec-13	99.4	11.9%
Dec-14	107.8	8.4%
Dec-15	116.5	8.1%
Dec-16	122.9	5.5%
Dec-17P	129.9	5.7%
Dec-18P	135.8	4.5%
Dec-19P	140.5	3.5%
Dec-20P	142.8	1.6%

BHVI indexed to 100 in January 2002

* Historical average growth rate based on annual averages.

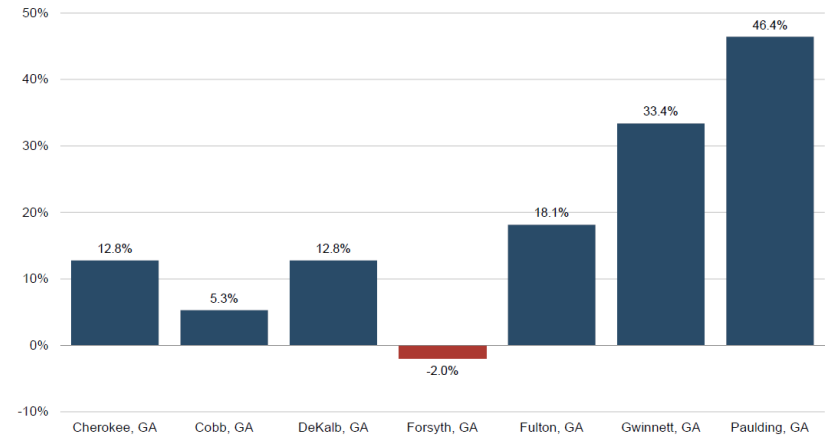
Fulton County is the second highest selling (total sales) county in the MSA behind Gwinnett County today. New home sales in Fulton County are up 18% over the past twelve months and the median new home price (\$325,000) is the third highest among counties in the Atlanta MSA.

New Home Sales Volume



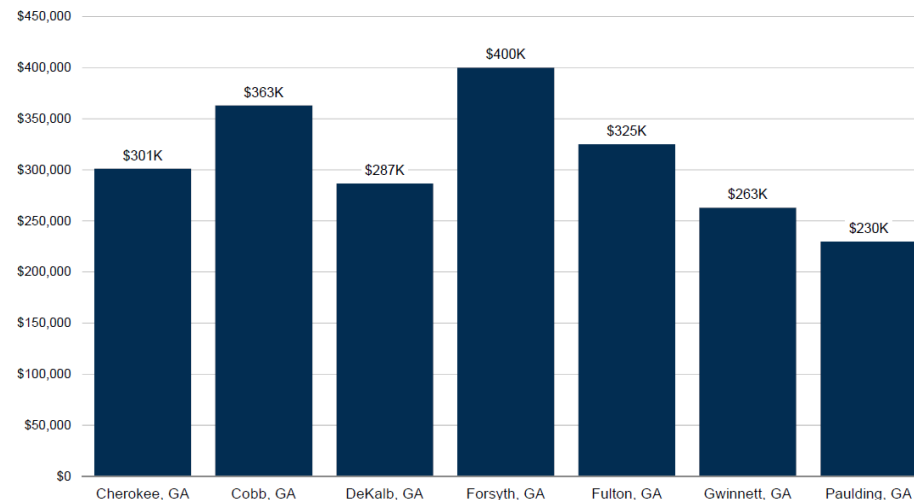
Source: Corelogic (Data: Jan-17, Pub: Mar-17)
Trailing Twelve Month

New Home Sales Growth YOY %



Source: Corelogic (Data: Jan-17, Pub: Mar-17)
Trailing Twelve Month

New Home Median Price

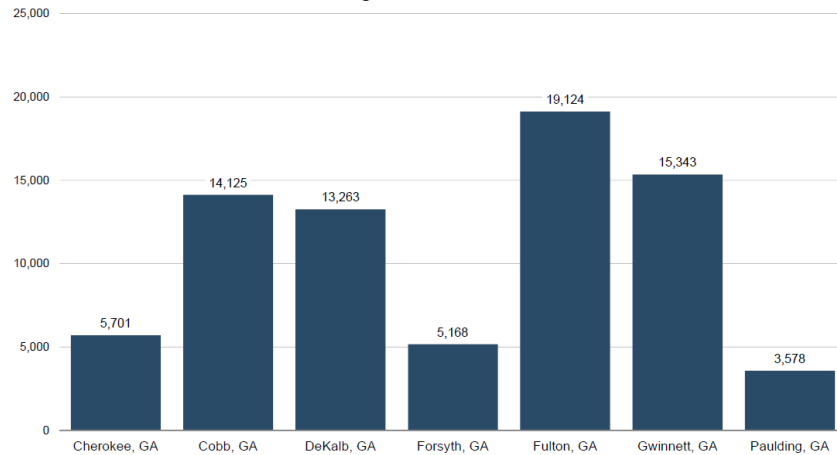


Source: Corelogic (Data: Jan-17, Pub: Mar-17)

Economic and Housing Market Trends – Existing Home Sales by County

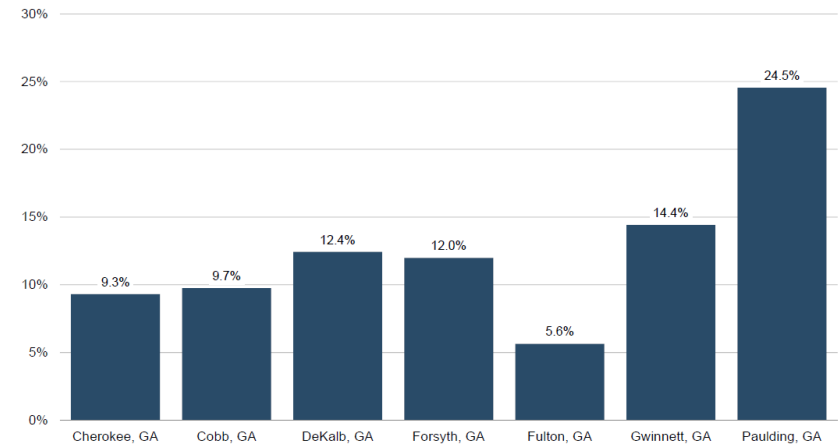
Due to the extensive recovery within Fulton County, existing home sales are up only 5.6%, while prices are down -16%. This is due to product mix, as demand for townhomes in North Fulton and affordable single-family detached in South Fulton are weighing in on sales prices. The delta between new and resale homes in Fulton County is 48%, which is slightly narrower than the 55% average across the MSA.

Existing Home Sales Volume



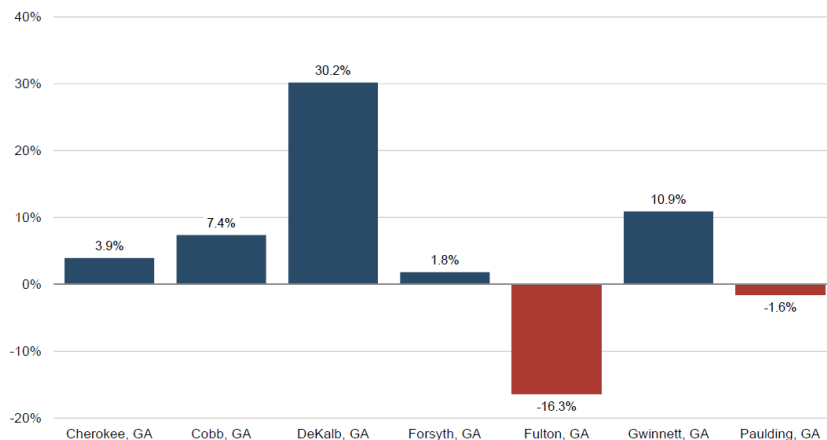
Source: Corelogic (Data: Jan-17, Pub: Mar-17)
Trailing Twelve Month

Existing Home Sales Growth YOY %



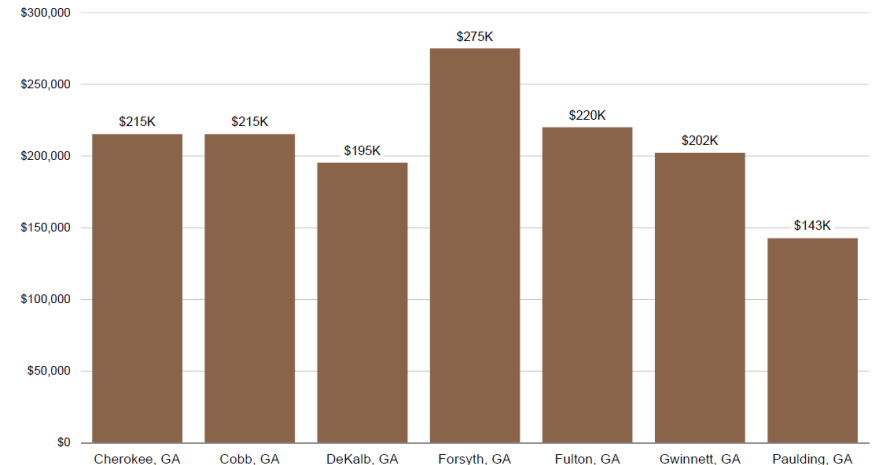
Source: Corelogic (Data: Jan-17, Pub: Mar-17)
Trailing Twelve Month

Existing Home Price Growth YOY %

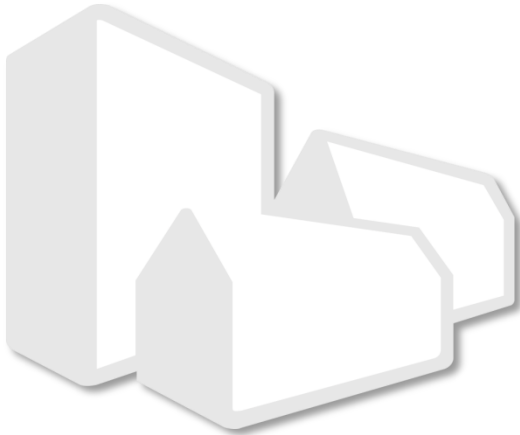


Source: Corelogic (Data: Jan-17, Pub: Mar-17)

Existing Median Home Price



Source: Corelogic (Data: Jan-17, Pub: Mar-17)

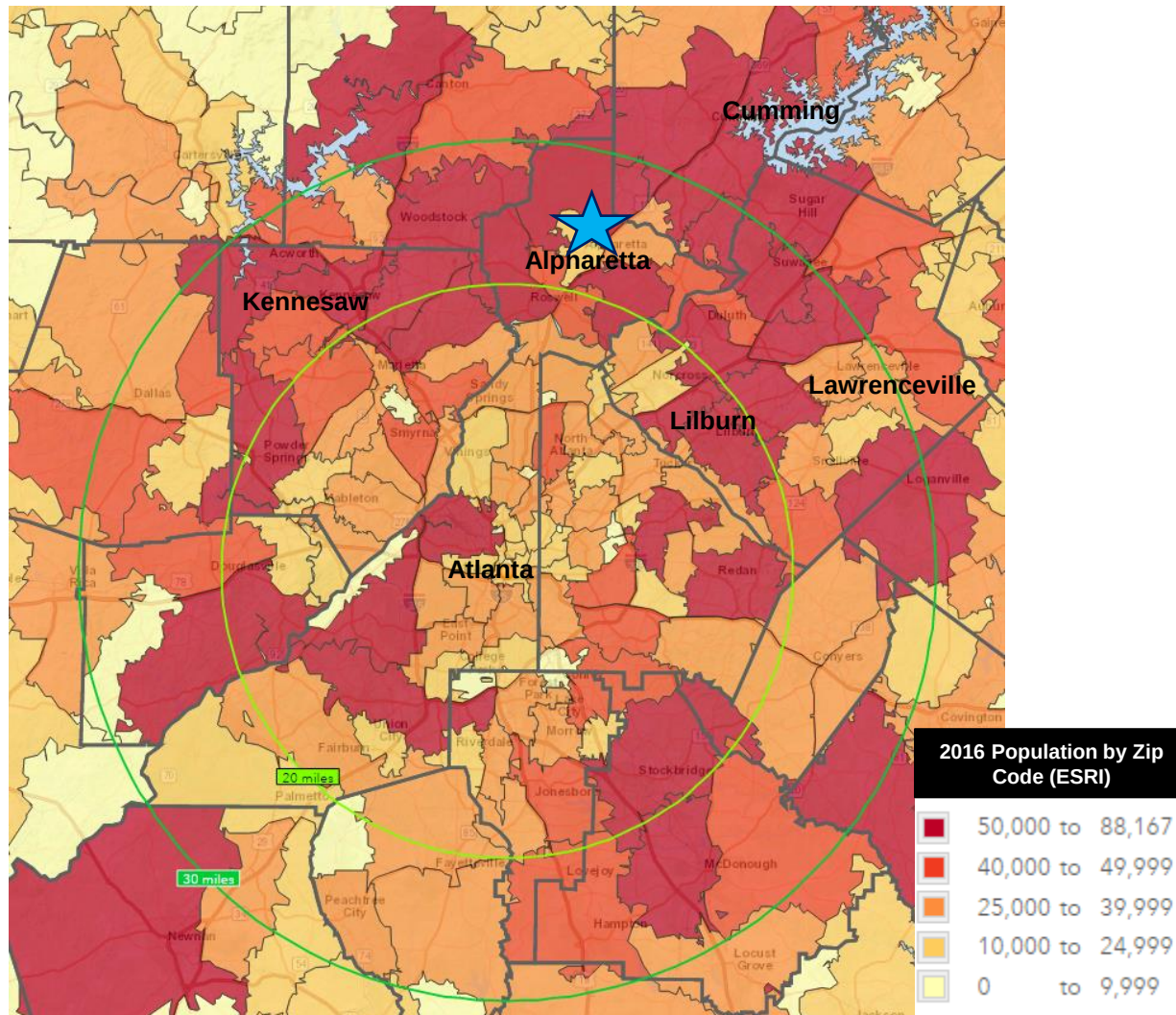


Demographic and Economic Trends Atlanta, GA MSA

Atlanta, GA MSA – Current Population Heat Map of Atlanta

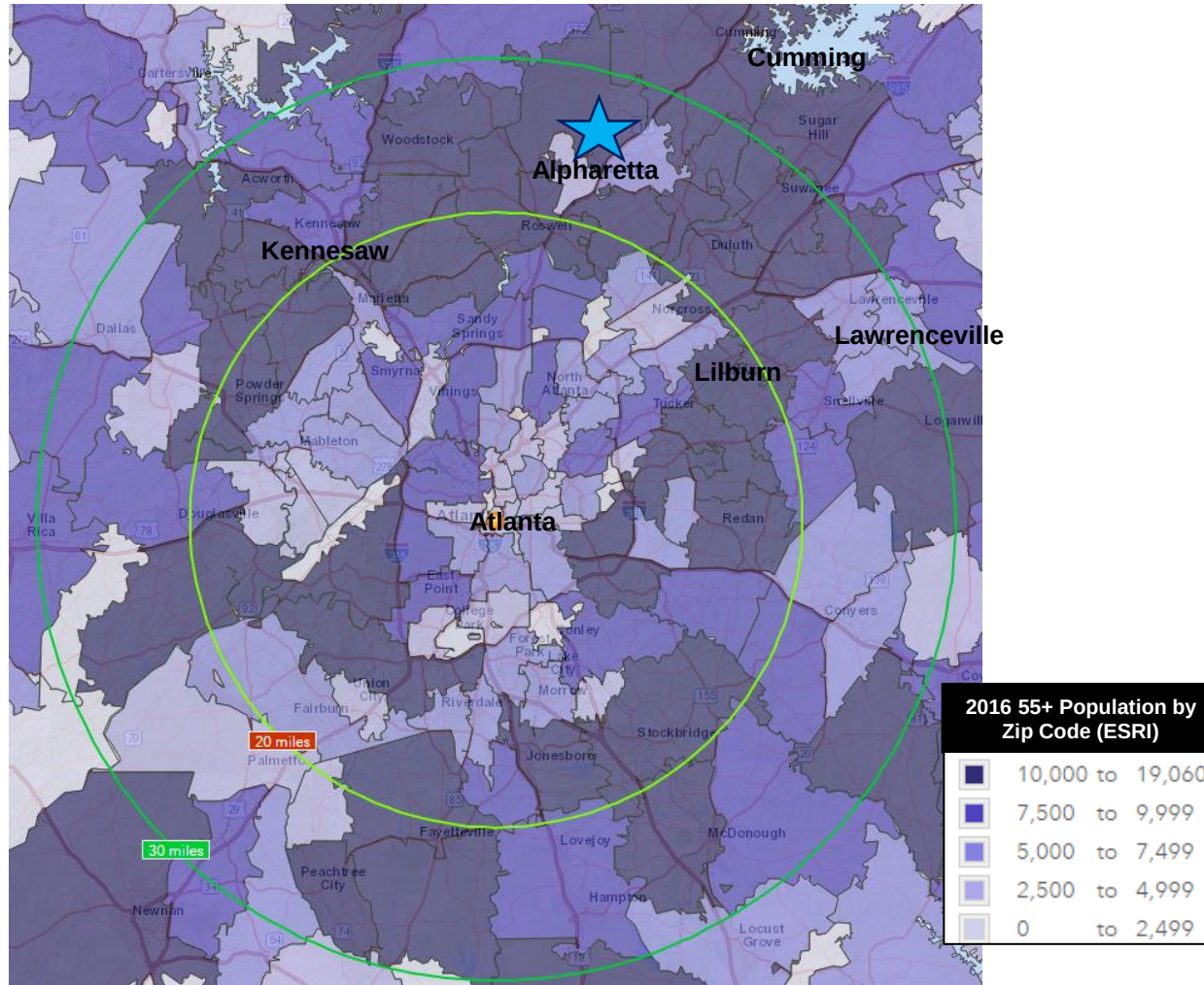
Atlanta's population is highly concentrated within the northern suburbs.

- This population “donut” is between 20-30 miles from Central Atlanta (Which includes the areas of Downtown, Midtown and Buckhead) and is characterized as a family destination with excellent schools.
- This area was part of the first phases of the local housing recovery and currently enjoys strong housing demand.



Atlanta, GA MSA – Current 55+ Population Heat Map of Atlanta

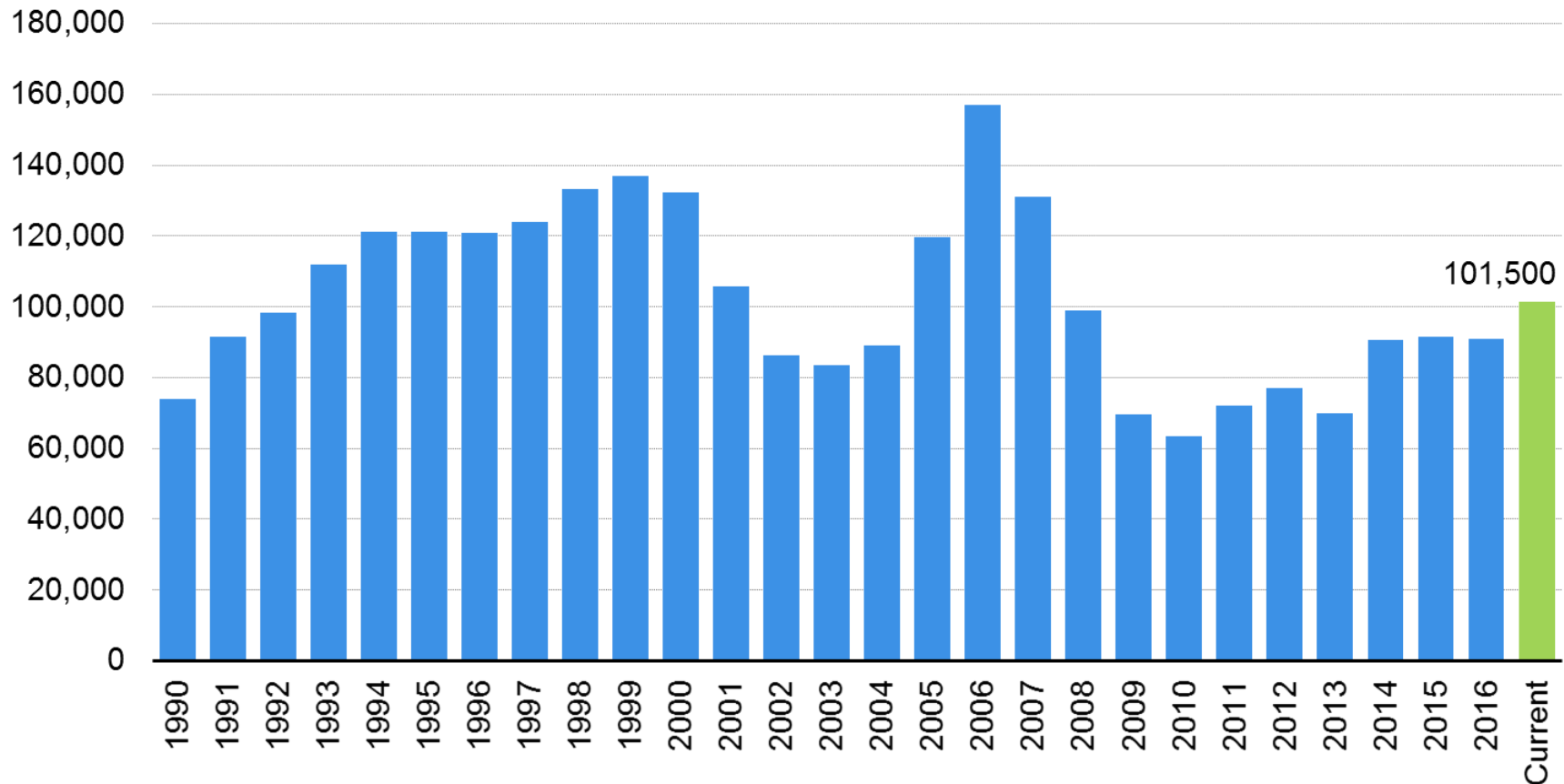
Atlanta's mature population is highly concentrated within the outer suburbs/exurbs including the areas of North Fulton into Forsyth County. The population above 55 years is projected to grow at an average 6.1% annually in Fulton County over the next five years.



Economic and Housing Market Trends – Population Growth

The metro continues to expand via birth and in-migration adding over 101,000 new residents over the past twelve months. This growth is a slight acceleration compared to the past recent years and the ten-year average.

Annual Average Population Growth: Atlanta, GA (1990 to Current)

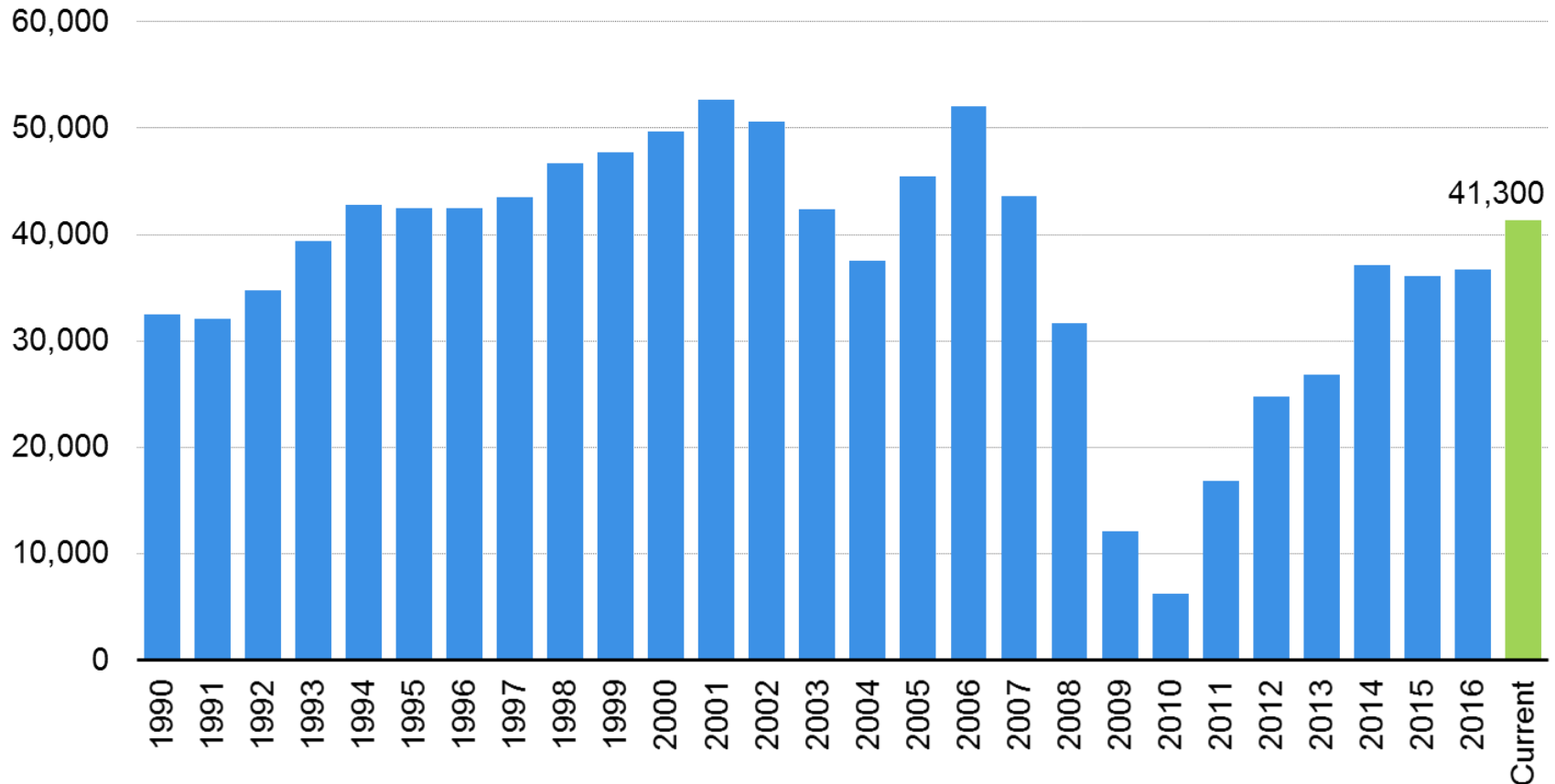


Sources: Moody's Analytics; John Burns Real Estate Consulting, LLC (Data as of February 2017, projections as of April 2017)

Population History & Projections	2009	2010	2011	2012	2013	2014	2015	2016	Current
Population Total	5,248,600	5,312,200	5,384,300	5,461,300	5,531,100	5,621,700	5,713,200	5,804,000	5,870,000
1-Year Change	69,600	63,600	72,100	77,000	69,800	90,600	91,500	90,800	101,500
1-Year Growth Rate	1.3%	1.2%	1.4%	1.4%	1.3%	1.6%	1.6%	1.6%	1.8%

Household growth is consistent with population growth, up 2.0% (41,000 households) over the past twelve months.

Annual Average Household Growth: Atlanta, GA (1990 to Current)



Sources: Moody's Analytics; John Burns Real Estate Consulting, LLC (Data as of February 2017, projections as of April 2017)

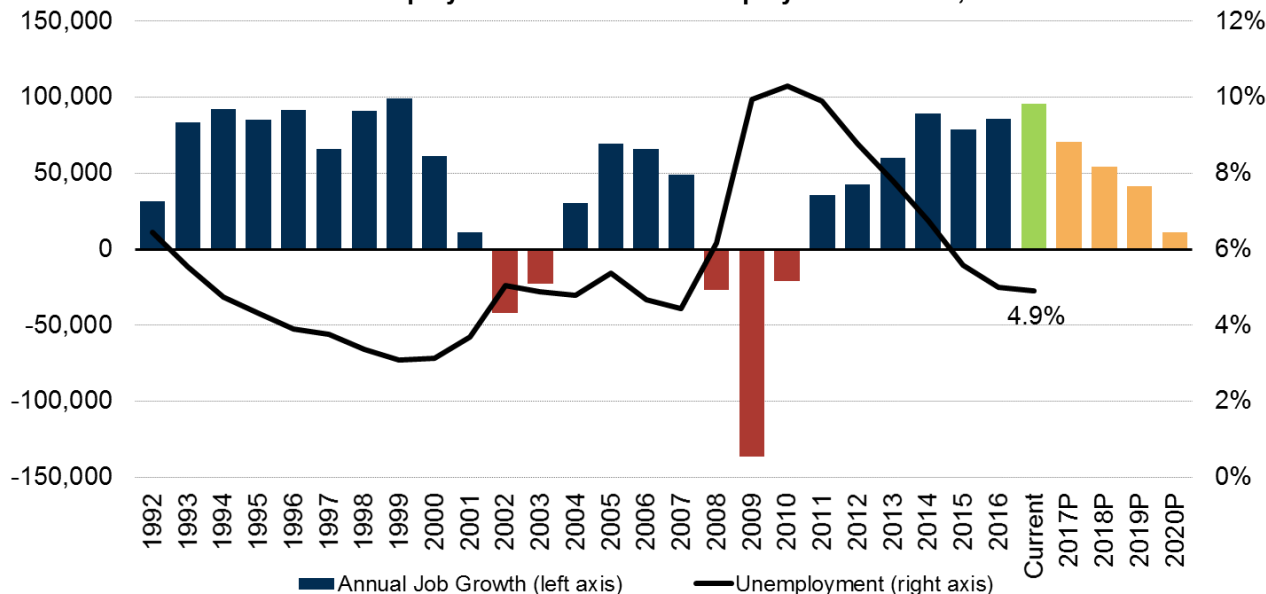
Household History & Projections	2009	2010	2011	2012	2013	2014	2015	2016	Current
Household Total	1,947,100	1,953,300	1,970,100	1,994,900	2,021,700	2,058,800	2,094,900	2,131,600	2,158,400
1-Year Change	12,100	6,200	16,800	24,800	26,800	37,100	36,100	36,700	41,300
1-Year Growth Rate	0.6%	0.3%	0.9%	1.3%	1.3%	1.8%	1.8%	1.8%	2.0%

Economic and Housing Market Trends – Employment

Employment growth continues to experience healthy expansion, the MSA added over 95,000 net new jobs over the past twelve months (+3.6%). The 4.9% unemployment rate slightly lags the national average (4.5%). We expect employment growth will moderate over the short term, growing at 2.7% in 2017 and softening to flat, 0.4% growth by 2020.

Over the past twelve months, 36% of total job growth occurred in high income sectors Professional and Business Services, Financial Activities, and Information. The Leisure & Hospitality and Trade, Transportation & Utilities sector also drove employment expansion, accounting for 18% and 14% of growth respectively. The Atlanta, GA MSA has a higher concentration of jobs in the Professional and Business Services and Transportation & Utilities sectors than the US.

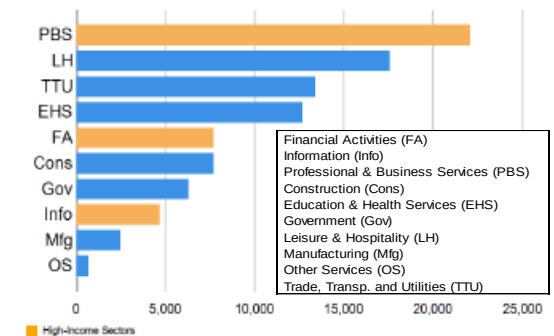
Annual Employment Growth vs. Unemployment: Atlanta, GA



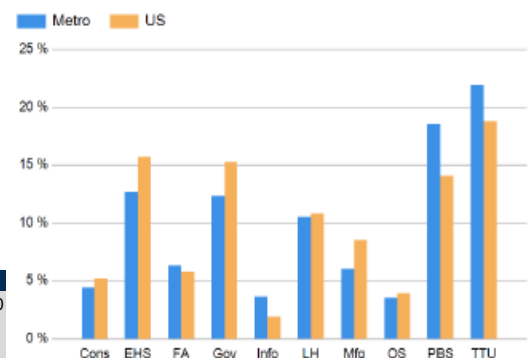
Sources: BLS; John Burns Real Estate Consulting, LLC (Data as of February 2017, projections as of April 2017)

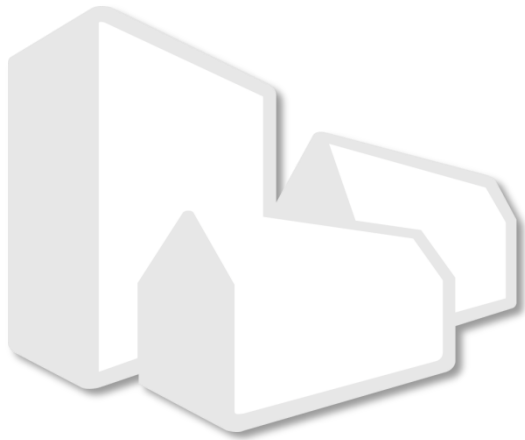
Employment History & Projections	2009	2010	2011	2012	2013	2014	2015	2016	Current	2017P	2018P	2019P	2020P
Payroll Survey Total	2,297,000	2,276,100	2,311,700	2,354,300	2,414,300	2,503,400	2,582,100	2,667,800	2,710,900	2,738,600	2,792,800	2,834,100	2,845,000
1-Year Change	-136,400	-20,900	35,600	42,600	60,000	89,100	78,700	85,700	95,400	70,800	54,200	41,300	10,900
1-Year Growth Rate	-5.6%	-0.9%	1.6%	1.8%	2.5%	3.7%	3.1%	3.3%	3.6%	2.7%	2.0%	1.5%	0.4%
Unemployment Rate	9.9%	10.3%	9.9%	8.8%	7.8%	6.7%	5.6%	5.0%	4.9%				

CURRENT EMPLOYMENT GROWTH BY SECTOR



EMPLOYMENT BY SECTOR - % OF TOTAL

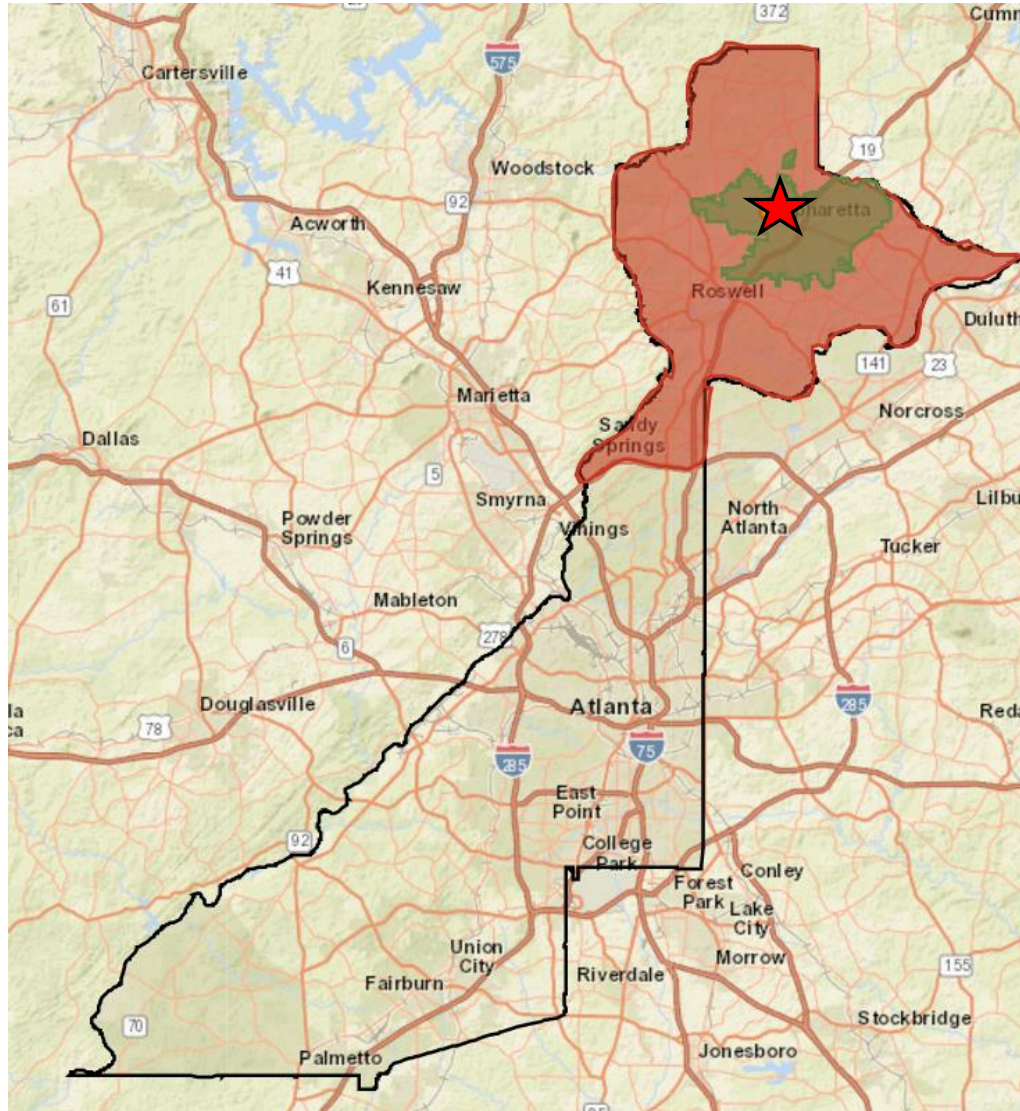




Local Demographic Trends

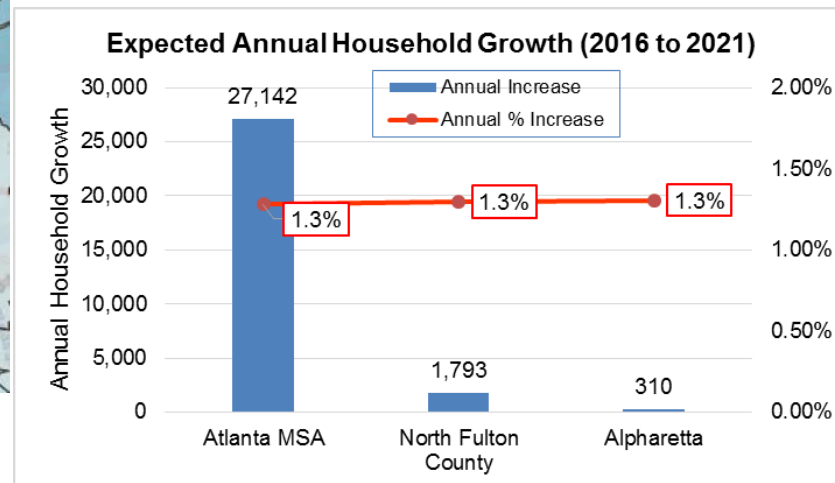
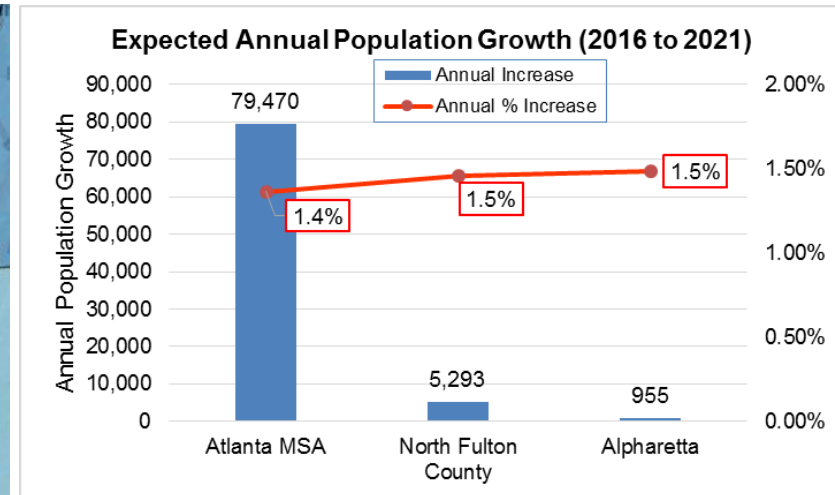
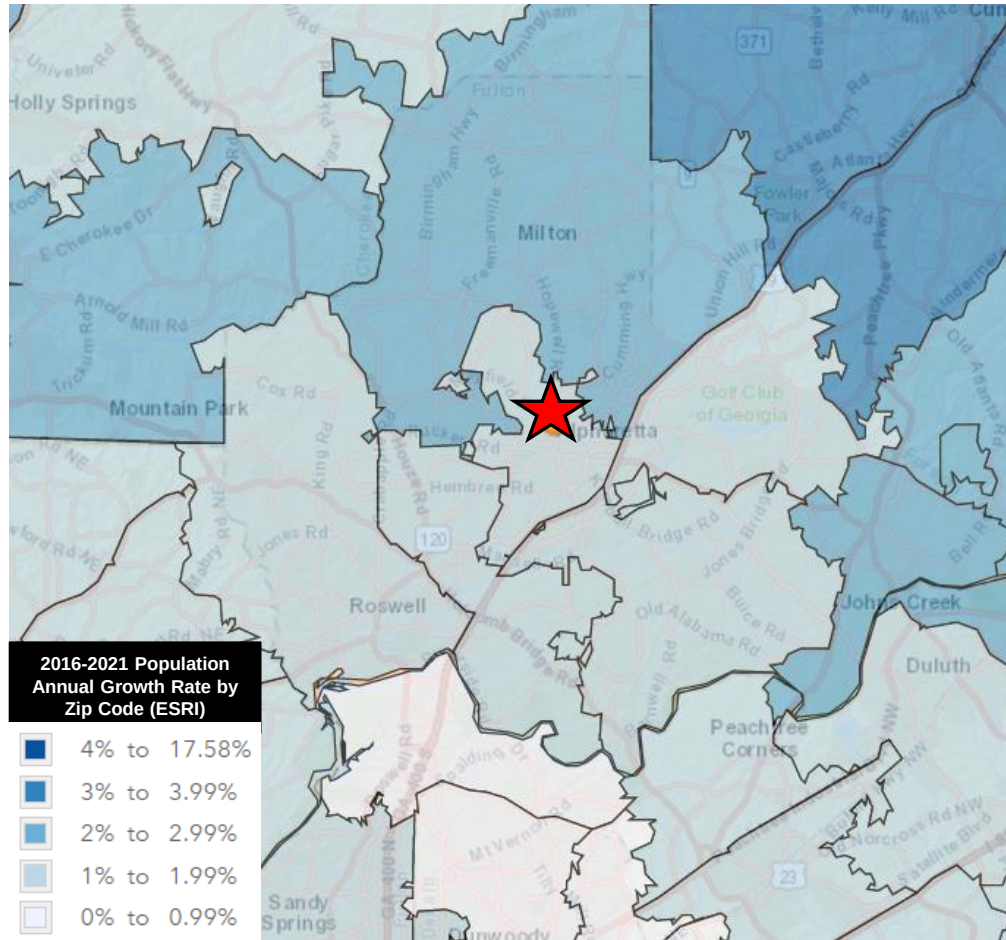
Demographic Trends – Analysis Areas

The map below defines the custom areas analyzed in this report. Demographic and psychographic information is detailed on the following pages for the City of Alpharetta, North Fulton County (outside I-285) and the Atlanta, GA MSA.



Demographic Trends – Population Concentration

Population and household growth rates projections are comparable across all compared areas and consistent with average annual growth since the 2010 Census.



Demographic Trends – Population Profile

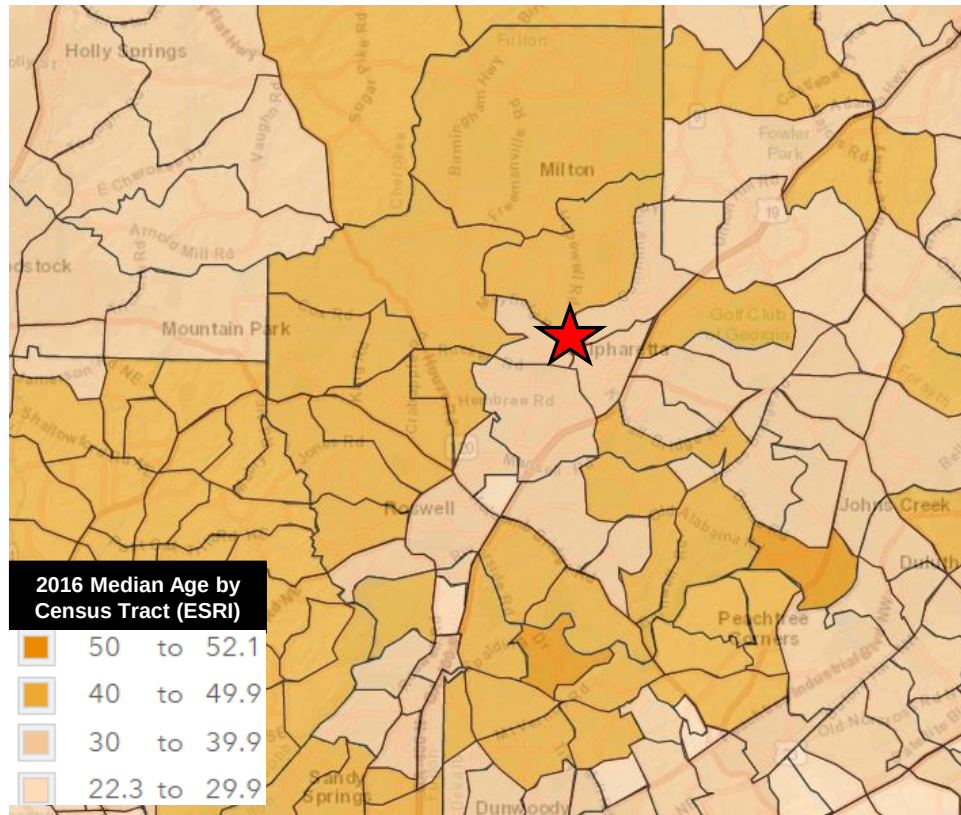
Mature career professionals (45 to 54) are the largest single population group in Alpharetta and North Fulton County, comprising 17.2% and 16.1% of the area population respectively. This cohort often has older children, many are preparing for retirement. Population and household growth rates in Alpharetta are projected to lead the state and grow at nearly twice the national rate through 2021, with the fastest segment being those 55+, who will continue to gain market share in Alpharetta.

Demographic and Income Profile

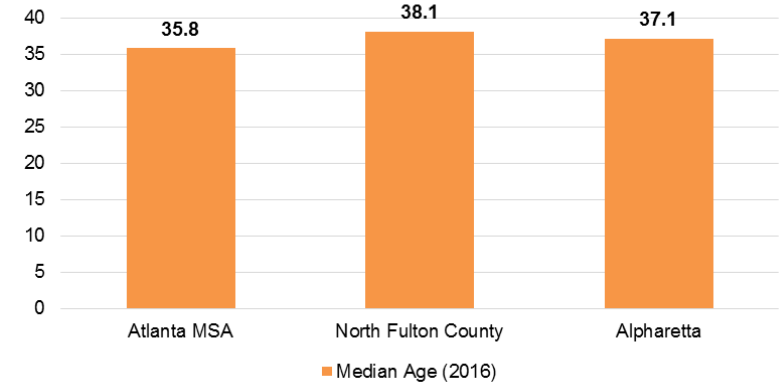
	Alpharetta				North Fulton County				Atlanta MSA			
Summary	Census 2010	2016	2021		Census 2010	2016	2021		Census 2010	2016	2021	
Population	57,500	62,424	67,200		324,418	352,530	378,995		5,286,728	5,665,958	6,063,308	
Households	21,710	23,145	24,697		125,844	134,608	143,571		1,943,885	2,065,785	2,201,496	
Families	15,122	15,911	16,946		85,448	90,910	96,683		1,326,189	1,396,798	1,482,091	
Average Household Size	2.65	2.69	2.72		2.57	2.61	2.63		2.68	2.70	2.72	
Owner Occupied Housing Units	14,129	13,706	14,661		81,816	82,868	88,394		1,285,066	1,282,688	1,365,140	
Renter Occupied Housing Units	7,581	9,439	10,036		44,028	51,741	55,177		658,819	783,097	836,356	
Median Age	36.6	37.1	38.4		36.9	38.1	39.2		34.9	35.8	36.4	
Trends: 2016 - 2021 Annual Rate	Area	State	National		Area	State	National		Area	State	National	
Population	149%	102%	0.84%		146%	102%	0.84%		136%	102%	0.84%	
Households	131%	0.96%	0.79%		130%	0.96%	0.79%		128%	0.96%	0.79%	
Families	127%	0.87%	0.72%		124%	0.87%	0.72%		119%	0.87%	0.72%	
Owner HHs	136%	0.93%	0.73%		130%	0.93%	0.73%		125%	0.93%	0.73%	
Median Household Income	181%	2.34%	189%		2.31%	2.34%	189%		2.66%	2.34%	186%	
	2016		2021		2016		2021		2016		2021	
Population by Age	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0 - 4	3,760	6.0%	3,955	5.9%	21,002	6.0%	22,013	5.8%	380,008	6.7%	398,252	6.6%
5 - 9	4,321	6.9%	4,133	6.2%	24,348	6.9%	23,688	6.3%	392,983	6.9%	401,183	6.6%
10 - 14	5,181	8.3%	4,676	7.0%	27,635	7.8%	26,882	7.1%	406,441	7.2%	419,251	6.9%
15 - 19	4,649	7.4%	4,750	7.1%	24,424	6.9%	25,619	6.8%	385,702	6.8%	408,131	6.7%
20 - 24	3,570	5.7%	3,506	5.2%	19,979	5.7%	20,778	5.5%	389,646	6.9%	384,816	6.3%
25 - 34	7,853	12.6%	9,181	13.7%	43,303	12.3%	48,211	12.7%	812,298	14.3%	899,650	14.8%
35 - 44	9,539	15.3%	9,776	14.5%	52,444	14.9%	53,246	14.0%	814,478	14.4%	848,808	14.0%
45 - 54	10,708	17.2%	10,469	15.6%	56,775	16.1%	57,041	15.1%	802,580	14.2%	799,999	13.2%
55 - 64	7,557	12.1%	9,416	14.0%	44,395	12.6%	51,314	13.5%	655,952	11.6%	722,579	11.9%
65 - 74	3,420	5.5%	4,918	7.3%	24,240	6.9%	32,162	8.5%	402,246	7.1%	497,614	8.2%
75 - 84	1,349	2.2%	1,811	2.7%	9,513	2.7%	13,033	3.4%	163,879	2.9%	214,731	3.5%
85+	515	0.8%	609	0.9%	4,471	1.3%	5,009	1.3%	59,745	1.1%	68,294	1.1%

Demographic Trends – Median Age

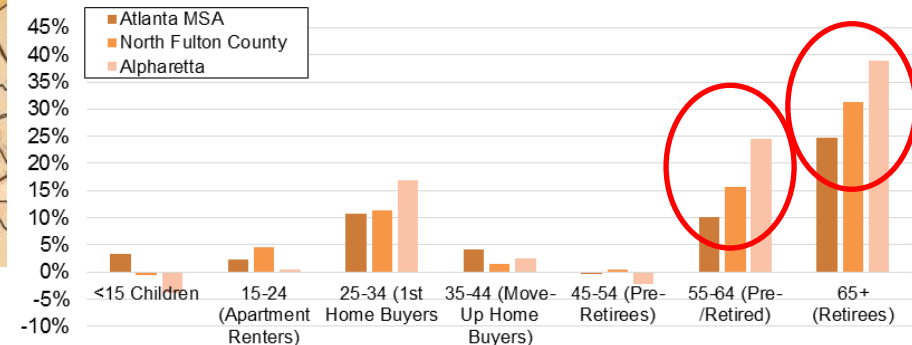
The median age is comparable in North Fulton County and Alpharetta; both are slightly older than the median age in the MSA. Consistent with the national trend, the population over 55 years will have the strongest population growth over the next five years, with secondary growth among young, first time home buyers.



Median Age (2016)

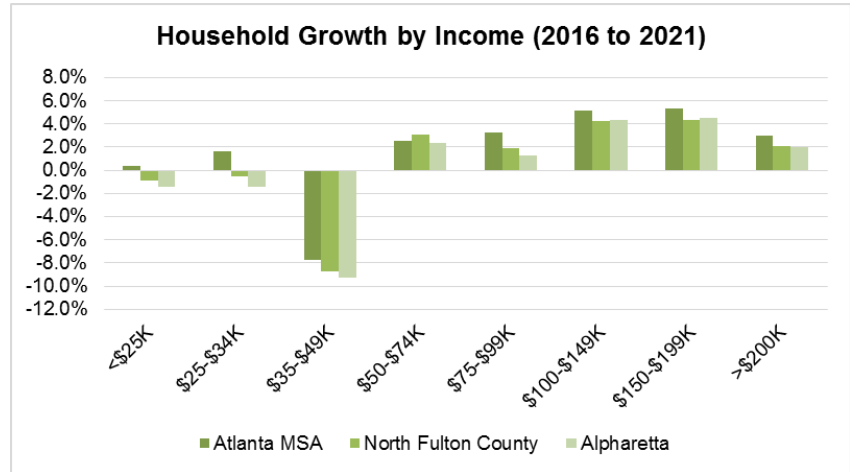
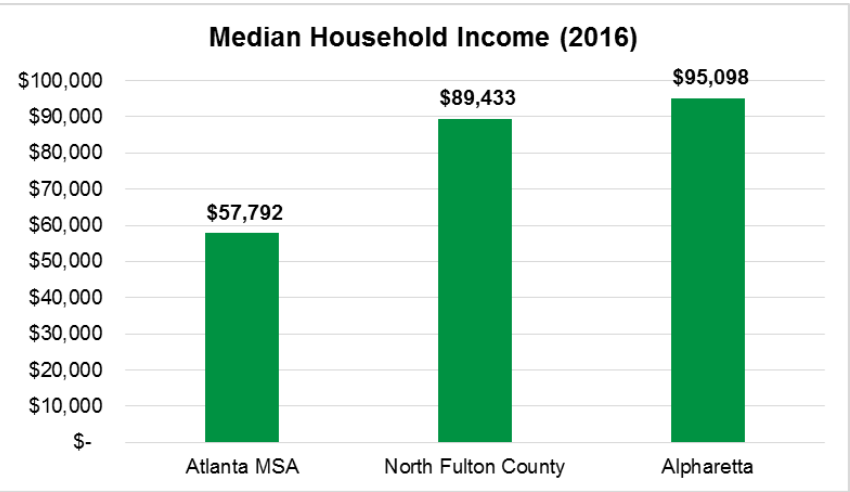
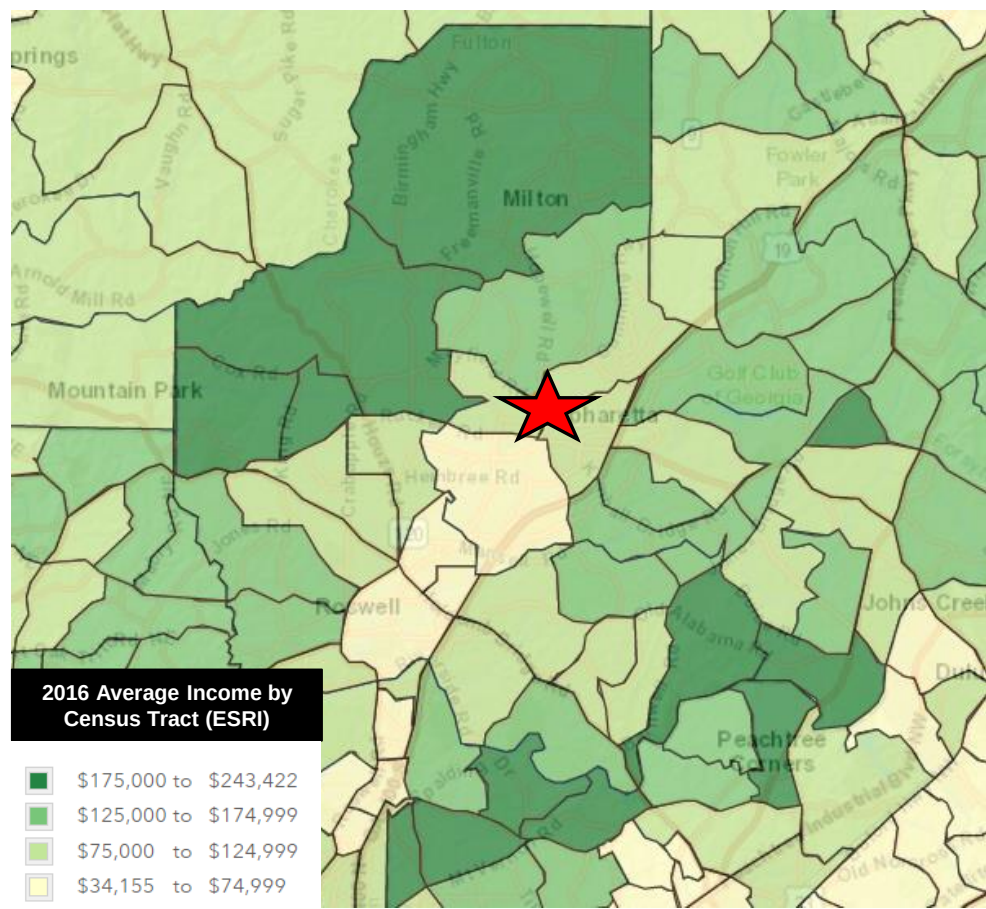


Population Growth by Age (2016 to 2021)



Demographic Overview – Income Concentration

Median household income in Alpharetta is significantly higher than income levels in the MSA and leads income levels in North Fulton County. Over the next five years, household incomes between \$100,000 and \$199,999 are projected to have the strongest growth.



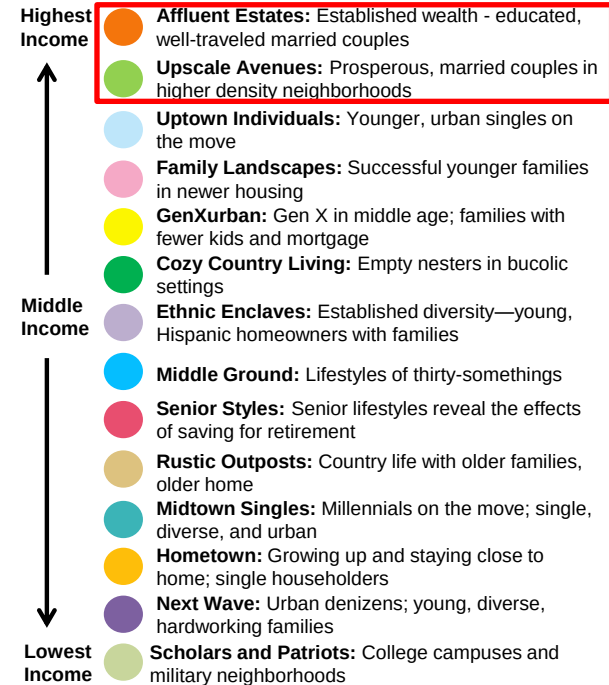
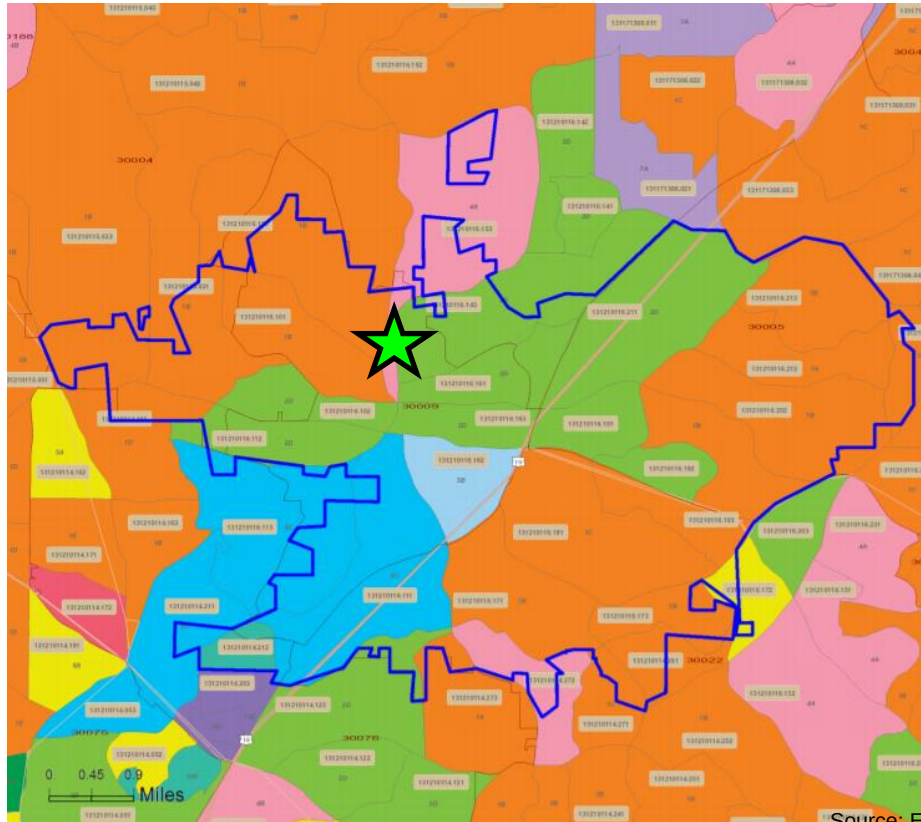
Demographic Trends – Income & Ethnicity Profile

Nearly half of households in Alpharetta earn above \$100,000 compared to 26% in the MSA. Households earning between \$100,000 and \$149,999 are the single largest group across all compared areas. Alpharetta has a larger share of Asian residents and buyers (primarily ethnic Indians) and will account for over 20% of the city's population by 2021.

Demographic and Income Profile													
	Alpharetta				North Fulton County				Atlanta MSA				
Households by Income	2016		2021		2016		2021		2016		2021		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
	<\$15,000	1,293	5.6%	1,205	4.9%	7,984	5.9%	7,638	5.3%	224,188	10.9%	232,880	10.6%
	\$15,000 - \$24,999	1,087	4.7%	1,009	4.1%	7,843	5.8%	7,491	5.2%	190,763	9.2%	190,329	8.6%
	\$25,000 - \$34,999	1,198	5.2%	1,111	4.5%	8,429	6.3%	8,208	5.7%	196,789	9.5%	212,871	9.7%
	\$35,000 - \$49,999	1,766	7.6%	947	3.8%	12,438	9.2%	6,986	4.9%	273,902	13.3%	167,838	7.6%
	\$50,000 - \$74,999	3,632	15.7%	4,065	16.5%	19,953	14.8%	22,981	16.0%	367,489	17.8%	413,281	18.8%
	\$75,000 - \$99,999	3,082	13.3%	3,271	13.2%	16,650	12.4%	18,262	12.7%	271,422	13.1%	315,899	14.3%
	\$100,000 - \$149,999	4,857	21.0%	5,914	23.9%	24,746	18.4%	29,977	20.9%	297,560	14.4%	374,568	17.0%
	\$150,000 - \$199,999	2,596	11.2%	3,176	12.9%	14,473	10.8%	17,593	12.3%	118,841	5.8%	150,403	6.8%
\$200,000+	3,634	15.7%	3,999	16.2%	22,091	16.4%	24,436	17.0%	124,810	6.0%	143,406	6.5%	
Median Household Income	\$95,098		\$104,006		\$89,433		\$100,231		\$57,792		\$65,901		
Average Household Income	\$124,750		\$134,450		\$124,528		\$134,333		\$81,382		\$89,263		
Per Capita Income	\$46,581		\$49,758		\$47,594		\$50,923		\$30,041		\$32,755		
	Alpharetta				North Fulton County				Atlanta MSA				
Race and Ethnicity	2016		2021		2016		2021		2016		2021		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
	White Alone	41,069	65.8%	42,132	62.7%	234,207	66.4%	241,834	63.8%	2,997,959	52.9%	3,071,957	50.7%
	Black Alone	6,731	10.8%	6,836	10.2%	44,603	12.7%	46,016	12.1%	1,896,454	33.5%	2,082,375	34.3%
	American Indian Alone	116	0.2%	117	0.2%	680	0.2%	688	0.2%	18,282	0.3%	19,197	0.3%
	Asian Alone	10,816	17.3%	13,996	20.8%	50,104	14.2%	64,896	17.1%	328,840	5.8%	406,218	6.7%
	Pacific Islander Alone	37	0.1%	45	0.1%	172	0.0%	203	0.1%	3,147	0.1%	3,632	0.1%
	Some Other Race Alone	1,816	2.9%	1,923	2.9%	12,877	3.7%	13,712	3.6%	265,944	4.7%	294,147	4.9%
	Two or More Races	1,839	2.9%	2,152	3.2%	9,888	2.8%	11,646	3.1%	155,332	2.7%	185,782	3.1%
	Hispanic Origin (Any Race)	5,324	8.5%	5,641	8.4%	33,581	9.5%	35,795	9.4%	610,720	10.8%	684,671	11.3%

Demographic Trends – Tapestry

The predominate lifestyle group living in Alpharetta is **Affluent Estates**, a well-educated, wealthy cohort with older families and older married couples. **Upscale Avenues** is a sizeable secondary cohort, comprised of up and coming, younger families in a mix of higher-density single-family and townhomes. The chart below highlights the top consumer segments near the site.



Source: ESRI

ALPHARETTA, GA								Local Adj.					
Rank	Cluster	Lifestyle Group	Urbanization Group	Household Type	Diversity Index	Own vs. Rent	Preferred Housing	Age	HH Size	HH Income	Net Worth	Home Value	HH %
1	Professional Pride (1B)	Affluent Estates	Suburban Periphery	Married Couples	42.1	92%	Single Family	42.7	3.3	\$187,253	\$1,024,948	\$831,736	36.2%
2	Enterprising Professionals (2D)	Upscale Avenues	Suburban Periphery	Married Couples	71.8	52%	Multi-Units; Single Family	36.7	2.6	\$115,410	\$169,995	\$630,127	31.3%
3	Boomburbs (1C)	Affluent Estates	Suburban Periphery	Married Couples	61.6	84%	Single Family	35.4	3.4	\$158,112	\$581,391	\$643,568	9.6%
4	Bright Young Professionals (8C)	Middle Ground	Urban Periphery	Married Couples	66	44%	Single Family; Multi-Units	34.1	2.5	\$75,450	\$66,620	\$363,885	7.0%
5	Soccer Moms (4A)	Family Landscapes	Suburban Periphery	Married Couples	48.9	85%	Single Family	38.6	3.1	\$125,365	\$500,796	\$480,304	4.1%
6	Metro Renters (3B)	Uptown Individuals	Principal Urban Center	Singles	60.1	21%	Multi-Unit Rentals	33.7	1.7	\$82,086	\$28,907	\$655,032	3.6%
7	Top Tier (1A)	Affluent Estates	Suburban Periphery	Married Couples	35.5	90%	Single Family	48.8	3.0	\$235,005	\$1,092,334	\$1,424,111	3.6%
8	Metro Fusion (11C)	Midtown Singles	Urban Periphery	Singles	84.2	25%	Multi-Unit Rentals; Single Family	30.4	2.8	\$47,030	\$22,781	\$277,114	2.4%
9	Comfortable Empty Nesters (5A)	GenXurban	Suburban Periphery	Married Couples	31.2	87%	Single Family	49.6	2.6	\$97,666	\$517,834	\$390,964	1.1%
10	Savvy Suburbanites (1D)	Affluent Estates	Suburban Periphery	Married Couples	34	91%	Single Family	46.7	3.0	\$157,247	\$987,235	\$662,345	1.0%



LifeMode Group: Affluent Estates

Professional Pride

1B

Households: 1,878,000

Average Household Size: 3.11

Median Age: 40.5

Median Household Income: \$127,000

WHO ARE WE?

Professional Pride consumers are well-educated career professionals that have prospered through the Great Recession. To maintain their upscale suburban lifestyles, these goal oriented couples work, often commuting far and working long hours. However, their schedules are fine-tuned to meet the needs of their school age children. They are financially savvy; they invest wisely and benefit from interest and dividend income. So far, these established families have accumulated an average of 1.5 million dollars in net worth, and their annual household income runs at more than twice the US level. They take pride in their newer homes and spend valuable time and energy upgrading. Their homes are furnished with the latest in home trends, including finished basements equipped with home gyms and in-home theaters.



OUR NEIGHBORHOOD

- Typically owner occupied (Index 173), single-family homes are in newer neighborhoods: 59% of units were built in the last 20 years.
- Neighborhoods are primarily located in the suburban periphery of large metropolitan areas.
- Most households own two or three vehicles; long commutes are the norm.
- Homes are valued at more than twice the US median home value, although three out of four homeowners have mortgages to pay off.
- Families are mostly married couples (almost 80% of households), and more than half of these families have kids. Their average household size, 3.11, reflects the presence of children.

SOCIOECONOMIC TRAITS

- *Professional Pride* consumers are highly qualified in the science, technology, law, or finance fields; they've worked hard to build their professional reputation or their start-up businesses.
- These consumers are willing to risk their accumulated wealth in the stock market.
- They have a preferred financial institution, regularly read financial news, and use the Internet for banking transactions.
- These residents are goal oriented and strive for lifelong earning and learning.
- Life here is well organized; routine is a key ingredient to daily life.

Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100. Consumer preferences are estimated from data by GfK MRI.



LifeMode Group: Upscale Avenues

Enterprising Professionals

2D

Households: 1,627,000

Average Household Size: 2.46

Median Age: 34.8

Median Household Income: \$77,000

WHO ARE WE?

Enterprising Professionals residents are well educated and climbing the ladder in STEM (science, technology, engineering, and mathematics) occupations. They change jobs often and therefore choose to live in condos, town homes, or apartments; many still rent their homes. The market is fast-growing, located in lower density neighborhoods of large metro areas.

Enterprising Professionals residents are diverse, with Asians making up over one-fifth of the population. This young market makes over one and a half times more income than the US median, supplementing their income with high-risk investments. At home, they enjoy the Internet and TV on high-speed connections with premier channels and services.

OUR NEIGHBORHOOD

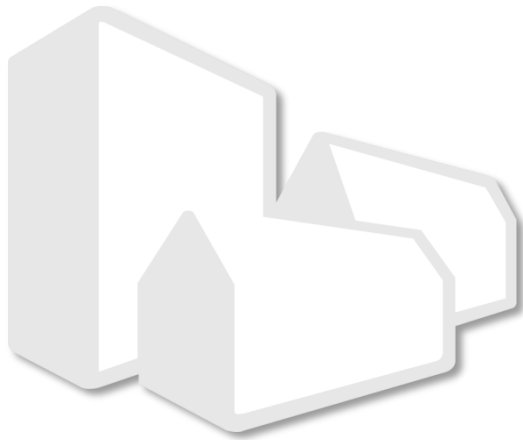
- Almost half of households are married couples, and 30% are single person households.
- Housing is a mixture of suburban single-family homes, row homes, and larger multiunit structures.
- Close to three quarters of the homes were built after 1980; 22% are newer, built after 2000.
- Renters make up nearly half of all households.

SOCIOECONOMIC TRAITS

- Median household income one and a half times that of the US.
- Over half hold a bachelor's degree or higher.
- Early adopters of new technology in hopes of impressing peers with new gadgets.
- Enjoy talking about and giving advice on technology.
- Half have smartphones and use them for news, accessing search engines, and maps.
- Work long hours in front of a computer.
- Strive to stay youthful and healthy, eat organic and natural foods, run and do yoga.
- Buy name brands and trendy clothes online.



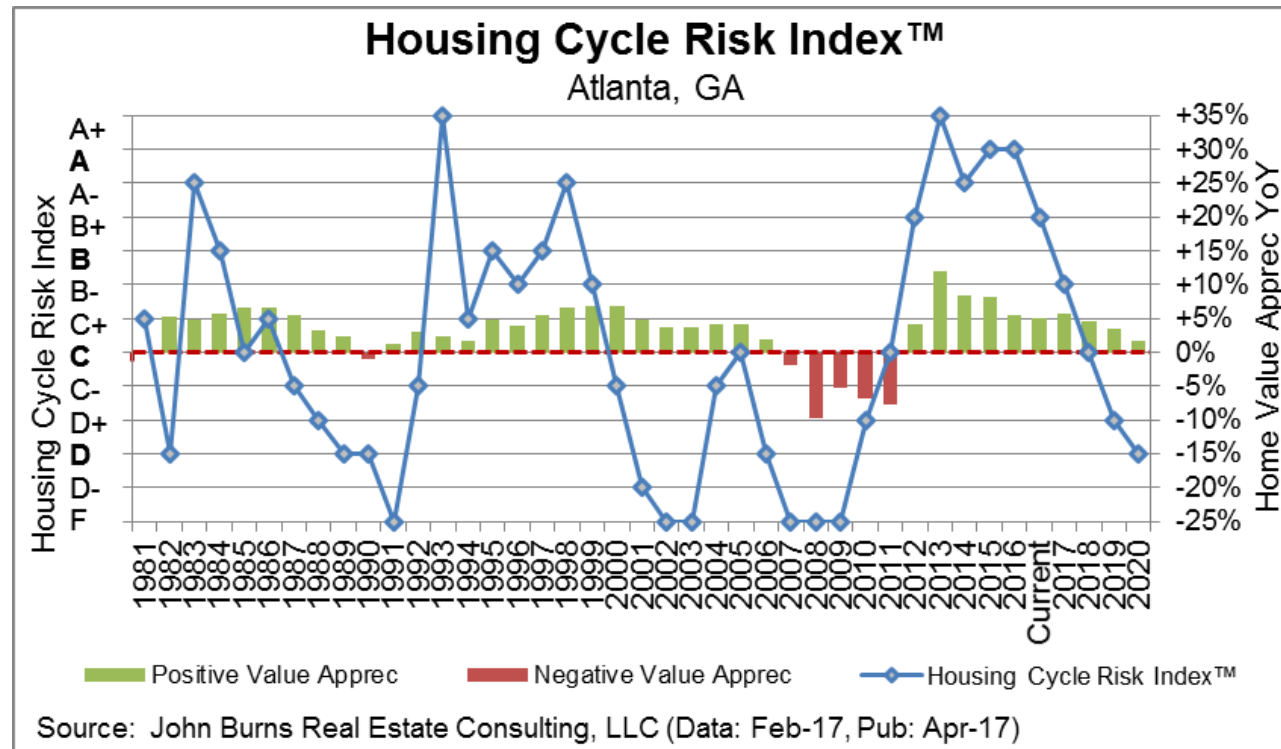
Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100. Consumer preferences are estimated from data by GfK MRI.



Market Risk Information

Atlanta, GA MSA – Burns Annual Housing Cycle Risk Index

JBREC's Housing Cycle Risk Index (HCRI) is a measure of housing market fundamentals in a given market. The index includes 4 major categories, 11 subcategories, and 25 calculations based on factors that include Demand, Supply, Affordability, and Economic Indicators. The HCRI for Atlanta, GA MSA is currently rated a **"B+"** indicating very low risk for operators. Increasing risk is expected over the short term with projected slowing employment growth and interest rates. The HCRI is projected to soften to a **"B-"** in 2017 and decline to a **"D"** by 2020. It is important to remember that the index is a broad one and not all products and price points will react the same.



Grade / Trend	Risk
A	= Very Low Risk
B (& trending ↑)	= Low Risk

Grade / Trend	Risk
B (& trending ↓)	= Medium Risk
C (& trending ↑)	= Medium Risk

Grade / Trend	Risk
C (& trending ↓)	= High Risk
D (& trending ↑)	= High Risk

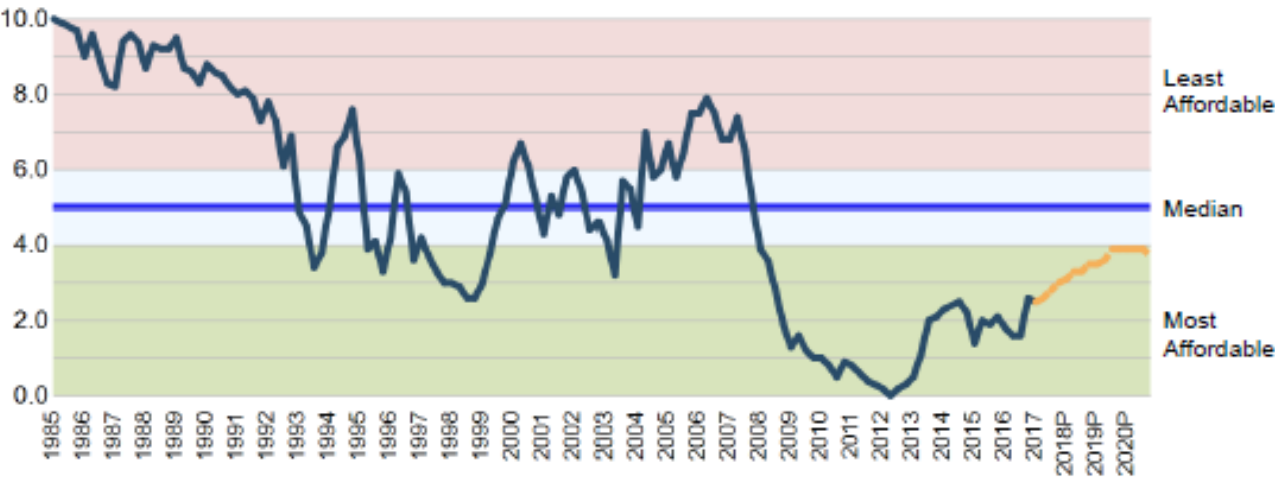
Grade / Trend	Risk
D (& trending ↓)	= Very High Risk
F	= Very High Risk

Atlanta, GA MSA - Burns Affordability Index

The JBREC Affordability Index measures the relationship between owning the median-priced home with the median household income. The current index for the Atlanta, GA MSA is 2.5 (where 5.0 is the historical median dating back to 1988). Though affordability is expected to moderate over the next four years, low household income to average home prices ratios across the MSA will keep this market affordable.

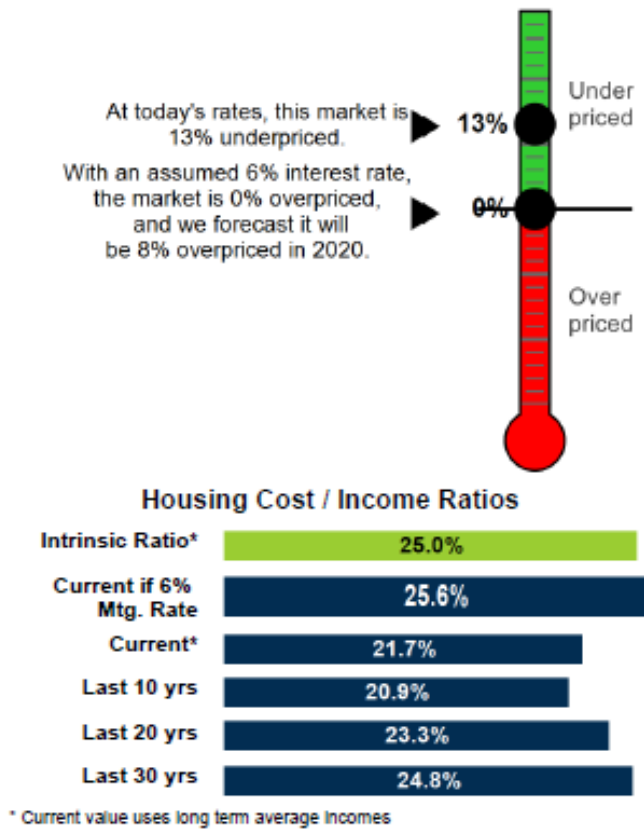
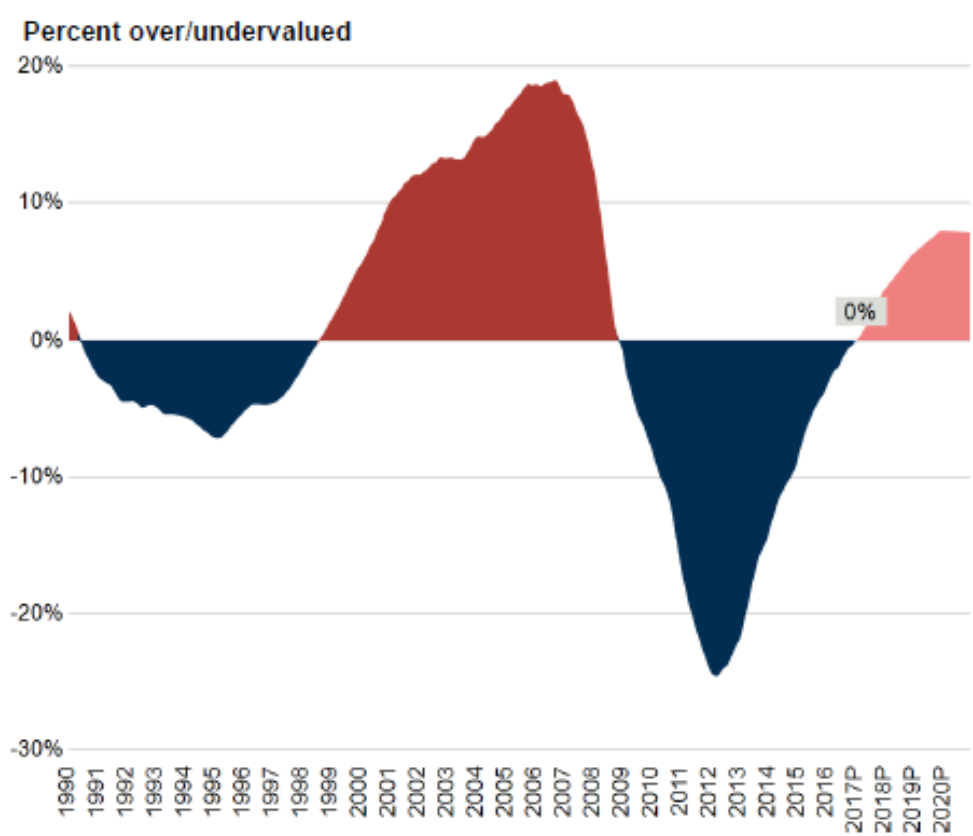
Current	1-Yr Ago	MoM	YoY
B-	B+	➡	⬆

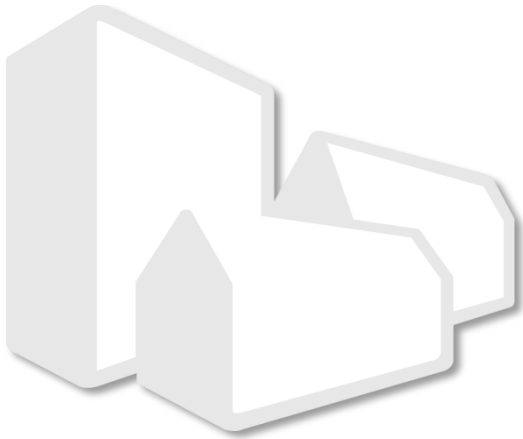
BURNS AFFORDABILITY INDEX Current: 2.5



	Burns Affordability Index	Housing Cost to Income Ratio	Annual Median HH Income
Dec-97	3.0	23.1%	\$46,100
Dec-98	2.8	22.6%	\$48,900
Dec-99	5.1	25.1%	\$51,400
Dec-00	5.2	25.1%	\$52,900
Dec-01	5.8	25.6%	\$53,100
Dec-02	4.8	24.7%	\$52,700
Dec-03	5.5	25.4%	\$52,500
Dec-04	6.0	25.8%	\$53,400
Dec-05	7.5	27.0%	\$55,200
Dec-06	6.8	26.3%	\$57,200
Dec-07	5.1	25.1%	\$58,600
Dec-08	1.9	21.2%	\$58,600
Dec-09	1.0	20.1%	\$57,200
Dec-10	0.9	19.7%	\$55,400
Dec-11	0.3	17.9%	\$54,500
Dec-12	0.3	17.9%	\$54,800
Dec-13	2.1	21.6%	\$55,800
Dec-14	2.2	21.7%	\$57,600
Dec-15	2.1	21.5%	\$60,000
Dec-16	2.6	22.3%	\$62,200
Current	2.5	22.2%	\$62,700
Dec-17P	3.0	23.1%	\$64,300
Dec-18P	3.5	23.9%	\$66,600
Dec-19P	3.9	24.3%	\$68,800
Dec-20P	3.7	24.1%	\$71,000

The Burns Intrinsic Home Value Index™ details the impact of interest rates and measures how home values would trend if mortgage rates were always 6.0% and the housing cost / income ratio was always 25.0%, which we believe to be the correct long-term assumptions to use for this market. **At today's rates, home values are 13% below their intrinsic value. At 6.0% interest rates, home values are on trend.**





Appendix

The conclusions and recommendations presented in this report are based on our analysis of the information available to us from our own research and from the client as of the date of this report. We assume that the information is correct and reliable and that we have been informed about any issues that would affect project marketability or success potential.

Our conclusions and recommendations are based on current and expected performance of the national, and/or local economy and real estate market. Given that economic conditions can change and real estate markets are cyclical, it is critical to monitor the economy and real estate market continuously and to revisit key project assumptions periodically to ensure that they are still justified.

The future is difficult to predict, particularly given that the economy and housing markets can be cyclical, as well as subject to changing consumer and market psychology. There will usually be differences between projected and actual results because events and circumstances frequently do not occur as expected, and the differences may be material. We do not express any form of assurance on the achievability of any pricing or absorption estimates or reasonableness of the underlying assumptions.

In general, for projects out in the future, we are assuming “normal” real estate market conditions and not a condition of either prolonged “boom” or “bust” market conditions. We do assume that economic, employment, and household growth will occur more or less in accordance with current expectations. We are not taking into account major shifts in the level of consumer confidence; in the ability of developers to secure needed project entitlements; in the cost of development or construction; in tax laws that favor or disfavor real estate markets; or in the availability and/or cost of capital and mortgage financing for real estate developers, owners and buyers. Should there be such major shifts affecting real estate markets, this analysis should be updated, with the conclusions and recommendations summarized herein reviewed and reevaluated under a potential range of build-out scenarios reflecting changed market conditions.

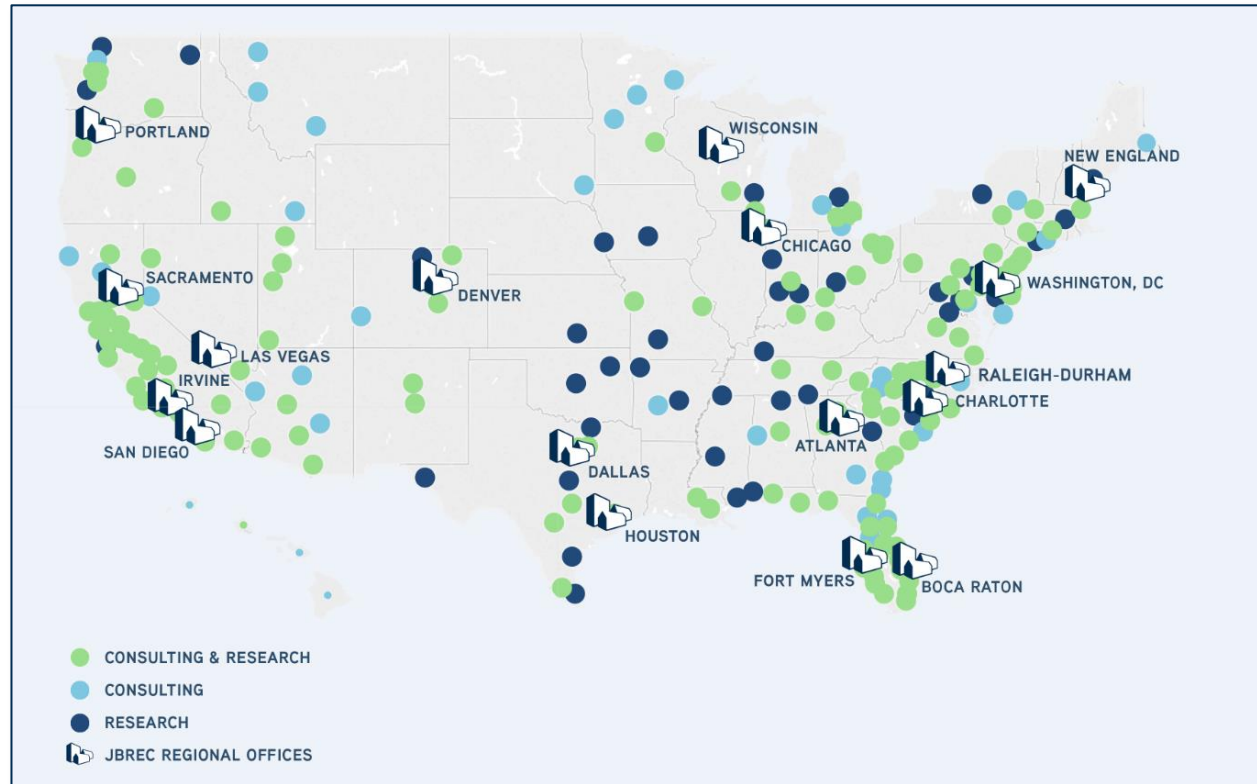
We have no responsibility to update our analysis for events and circumstances occurring after the date of our report.

The following are the data sources most frequently used by John Burns Real Estate Consulting, LLC.

DATA SOURCES

- **Employment** – U.S. Bureau of Labor Statistics
- **Population / Households / Income** – Moody's Analytics
- **Population Growth / Household Growth / Income Growth** – Moody's Analytics
- **Population by Age** – Moody's Analytics, U.S. Census Bureau
- **Population Migration** – Internal Revenue Service, Moody's Analytics
- **Home Sales and Prices (new and resale)** – CoreLogic, Texas Real Estate Center, M.O.R.E, RB Intel, Various MLS's
- **Investor Activity** – CoreLogic
- **Permits** – U.S. Census Bureau
- **Listings** – Various MLS's, Altos Research, RB Intel, Texas Real Estate Center
- **Pre-foreclosure Notices / Foreclosures** – RealtyTrac, DataQuick, CoreLogic
- **Loan Delinquency (for shadow inventory)** – Mortgage Bankers Association
- **Apartment Rents / Occupancy** – RealFacts, Axiometrics, REIS
- **Businesses, Population, Crime, Net Worth, Income, Ethnicity** – ESRI
- **Consumer Segmentation** – Tapestry / ESRI
- **School Scores** – State Department of Education
- **Forecasts** – John Burns Real Estate Consulting, LLC (not including Population / Households / Income)

Our company is a national consulting and research firm (e.g., office locations and national assignment locations shown in map) designed to help real estate professionals make better decisions with their real estate investments. The following is a brief summary of the additional tools we can offer outside of this agreement. Please inquire for more information.



CONSULTING

- Strategic Direction & Planning
- Home Builder Operations Assessment
- Demand Analysis
- Consumer Research & Focus Groups
- Economic Analysis & Forecasting
- Litigation Support & Expert Witness
- Financial Modeling
- Project & Product Positioning

RESEARCH

- Exclusive Access to our Research & Consulting Executives
- Metro Analysis & Forecast
- Regional Analysis & Forecast
- Home Builder Analysis & Forecast
- Apartment Analysis & Forecast
- Exclusive Client Events
- Public Builder Call Summaries
- Weekly Insight
- Presentations & Webinars
- Consumer Research
- Proprietary Surveys

CONSUMER AND PRODUCT STRATEGY

- DesignLens
- Consumer Insights
- Custom Design Strategy
- Custom Consumer Research

From: [Woodman, Michael](#)
To: [Taylor, Elicia](#)
Subject: FW: Manning Project
Date: Tuesday, May 23, 2017 8:35:03 AM

FYI

From: Buddy Stovall [mailto:buddystovall@yahoo.com]
Sent: Monday, May 22, 2017 5:38 PM
To: Woodman, Michael <mwoodman@alpharetta.ga.us>
Subject: Manning Project

Mike, We would like for the City Planning Department to consider three houses on Manning Dr., instead of the six that is shown on the latest Site Plan from Taylor Morrison. My neighbors and I believe that three houses would be better and make the transition into our neighborhood a natural blend. We believe that a larger house on a bigger lot would blend very nicely and be less stark, leaving a natural blend or transition. The larger house would sell for a higher price I believe, but that my opinion.

The alternate plan dated (May 9th) by Taylor Morrison with the entrance/exit on Cumming Street is well received in our neighborhood. We would like to thank Taylor Morrison for listening to our ideas and concerns. We really appreciate it.

I believe, if Taylor Morrison reduces their plan from 69 to 66 attached and detached homes (3-on Manning Dr.). It can work. And our neighborhood will be least affected with a transition from Single family to Multi family. Not perfect though.

Think about this you are riding down Cumming St. and turn left on Manning Dr. you see 6 houses on the left that are jammed together and on the right you have Ranch style homes on large 1/2 acre lots. It would be very stark don't you think.

Several of my neighbors want as many specimen trees saved as possible.

Several of my neighbors truly want the Manning house preserved for Historic purposes.

Sincerely,

Buddy Stovall
770-664-5036 Cell

AMENDED CITIZEN PARTICIPATION FORM - PART B

This form must be completed and submitted to the City of Alpharetta Community Development Department a minimum of twenty (20) working days prior to the scheduled Public Hearing. Failure to do so will result in cancellation of the scheduled hearing.

Public Hearing or Project Name: CLUP-17-02 / Z-17-04 Taylor Morrison/40 Cumming St.

Contact Name: Dennis J. Webb, Jr.

Telephone: 404-815-3620

Please describe comments and concerns provided by any and all individuals contacted as part of the the Citizen Participation Program. If any individuals provided written correspondence, please attach copies of same to this report.

1) We met with an adjacent property owner, Justin Hershoran, on-site and reviewed the site plan. Mr. Hershoran seemed supportive of the project.

2) We spoke to Lee Williams, the president of Mannings Ridge Homeowners Association, and presented to the HOA Board on March 30, 2017. The HOA's only concern was potential impact to the HOA's detention pond, which the Applicant agreed to address.

3) We met with Councilman Don Mitchell who lives near the site and reviewed the plan. Our discussions with Mr. Mitchell will continue.

4) We mailed notice of the Amended Application on 4/17/17 and have notified the City of comments and concerns.

5) We held a meeting with the residents of Manning Estates on April 27, 2017. One of the primary concerns was curbcut access onto Manning Drive. The Applicant has since submitted an alternate site plan that moves the curbcut access off of Manning Drive and onto Cumming Street. The Applicant continues to correspondence with residents of Manning Estates.

Method by which these individuals were contacted. Please mark all that apply. Please provide samples of any and all written communications used to provide notification.



Letter



Personal Visits



Telephone



Group Meeting



Email

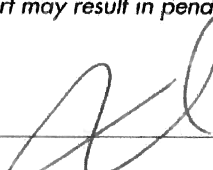


Other (Please Specify) _____

Attach a list of people who have been notified of this application and provided information describing the subject proposal. Please note that ALL adjoining property owners MUST be notified.

I, the undersigned, as an authorized representative of the applicant and Public Hearing item identified above, do solemnly swear and attest, subject to criminal penalties for false swearing, that the information provided in this Citizen Participation Form - Part B and in any and all documents provided in support of this report are true and accurate. I further understand that any false statements provided by representatives of the applicant as part of this report may result in penalties up to and including denial of the subject application.

Signature of Authorized Agent: _____



Date: 5/22/17

Print Form

From: [Woodman, Michael](#)
To: [Taylor, Elicia](#)
Subject: FW: Manning Project
Date: Tuesday, May 23, 2017 8:35:03 AM

FYI

From: Buddy Stovall [mailto:buddystovall@yahoo.com]
Sent: Monday, May 22, 2017 5:38 PM
To: Woodman, Michael <mwoodman@alpharetta.ga.us>
Subject: Manning Project

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Several of my neighbors truly want the Manning house preserved for Historic purposes.

Sincerely,

Buddy Stovall
770-664-5036 Cell

FIRST AMENDED

CITY OF ALPHARETTA

PUBLIC HEARING APPLICATION

FOR OFFICE USE ONLY

CLUP-17-02

Case #: Z-17-04

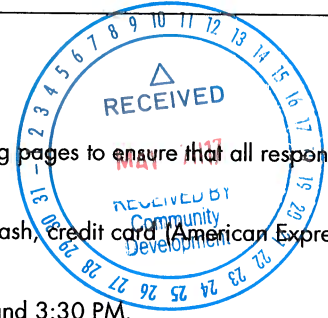
☐ Fee Paid Initial: _____

COMMUNITY DEVELOPMENT DEPARTMENT

2 PARK PLAZA

ALPHARETTA, GA 30009

1. This page should be the first page in each of your completed application packets.
2. It is preferred that all responses be typed. Illegible applications will not be accepted.
3. Prior to signing and submitting your application, please check all information supplied on the following pages to ensure that all responses are complete and accurate. Incomplete applications will not be accepted.
4. Payment of all applicable fees must be made at the time of application. Payment may be made via cash, credit card (American Express, Master Card or Visa), or check made payable to "City of Alpharetta."
5. Applications will be accepted only on the designated submittal dates between the hours of 8:30 AM and 3:30 PM.
6. If you have any questions regarding this form, please contact the Community Development Department by calling 678-297-6070.



Contact Information:

Contact Name: Taylor Morrison c/o Kathryn M. Zickert

Telephone: 404-815-3500

Address: 1230 Peachtree St., NE

Suite: 3100

City: Atlanta

State: GA

Zip: 30309

Fax: 404-685-7004

Mobile Tel: _____

Email: kmzickert@sgrlaw.com

Subject Property Information:

Address: 40 Cumming Street, 136 and 0 Manning Drive

Current Zoning: R-15

District: 2

Section: 2

Land Lot: 1253

Parcel ID: 22-498112530027; 22-498112530365;
22-498112530084

Proposed Zoning: DT-R/DT-LW

Current Use: Residential / vacant land

This Application For (Check All That Apply):

☐ Conditional Use

☐ Master Plan Amendment

☒ Rezoning

☐ Master Plan Review

☐ Variance

☐ Public Hearing

☒ Comprehensive Plan Amendment

☐ Other (Specify): _____

FIRST AMENDED
STATEMENT OF INTENT
(CLUP-17-02 / Z-17-04)

and

Other Material Required by
City of Alpharetta Zoning Ordinance
for the

Rezoning Application
Land Use Map Amendment Application

of

Taylor Morrison

related to

±11.705 Acres of Land located in
Land Lots 1196 and 1253, 2nd District, 2nd Section
City of Alpharetta

Submitted for Applicant by:

Kathryn M. Zickert
Dennis J. Webb, Jr.
Vickie B. Chung
Smith, Gambrell & Russell, LLP
Promenade, Suite 3100
1230 Peachtree Street, NE
Atlanta, Georgia 30309
404-815-3500

I. INTRODUCTION

This Application relates to ± 11.705 acres of land in Land Lots 1196 and 1253, 2nd District, 2nd Section of the City of Alpharetta and located at the northwest quadrant of the intersection of Cumming Street and Manning Drive (the “Subject Property”). The Subject Property consists of three (3) parcels: “Tract 1”, which is ± 10.235 acres; “Tract 2”, which is ± 0.457 acres; and “Tract 3”, which is ± 1.013 acres. Tract 1 is zoned R-15 (Dwelling, “For Sale”, Detached Residential). It is located within the Downtown Overlay and is designated as “Downtown Residential” on the City’s Future Land Use Map. Tracts 2 and 3 are zoned R-15 and designated as Low-Density Residential on the City’s Future Land Use Map.

Tract 1 contains a historic home known as the Lewis-Manning House. The Lewis-Manning House is a Queen Anne-style dwelling that dates back to 1895. It is constructed from bricks made in the pasture behind the residence. For many years, it sheltered members of the Manning Family, a number of whom were prominent citizens. The home is unoccupied today. Tract 2 is vacant and undeveloped. Tract 3 contains a 1960’s-era ranch home that is unoccupied.

The Applicant intends to preserve the Lewis-Manning House as a visual focal point for a new single-family community but convert it to office uses. The remainder of the Subject Property will contain 70 new residences, at a density of ± 5.98 units per acre. 30 of the homes will be detached residences and 40 attached.

The homes have been designed architecturally to both honor and compliment the historic residence that has existed on the Subject Property for well over a century. Similarly, and respecting the site's once pastoral setting, the Applicant has allowed for significant open space, with smaller green areas located throughout the development and a large, park-like space positioned at the northern end. A trail meanders through and around the Subject Property and connects the green spaces to the park.

The Applicant seeks the following to allow for this development:

1. **Rezoning** of the $\pm .837$ acres of the Subject Property from R-15 to DT-LW.
2. **Rezoning** of ± 10.868 acres of the Subject Property from R-15 to the "Downtown Residential" ("DT-R") zoning district.
3. **Land Use Map Amendment** to change the designation on ± 1.470 acres (Tracts 2 and 3) from "Low Density Residential" to "Downtown Residential."
4. **Land Use Map Amendment** to change the designation on $\pm .837$ acres of tract 1 to "Mixed-Use/Live-Work". The remaining ± 9.398 acres of Tract 1 already has a "Downtown Residential" designation.

The Applicant submits this Statement of Intent, a Survey Plat of the Subject Property, a Site Plan, Conceptual Renderings, and other material in support of these requests.

II. SUBJECT PROPERTY SPECIFICATIONS

The Subject Property consists of three (3) parcels: (a) Tract 1 (40 Cumming Street/22498112530029), which is ± 10.235 acres zoned R-15; (b) Tract 2 (0 Manning Drive/22498112530084), which is ± 0.457 acres zoned R-15; and (c) Tract 3 (136 Manning Drive/22498112530365), which is ± 1.013 acres zoned R-15. Tract 1 is in the Downtown Overlay and designated as “Downtown Residential” on the City’s Future Land Use Map. Tracts 2 and 3 have a “Low Density Residential” designation.

The Subject Property is located on the north side of Cumming Street in the northwest quadrant of its intersection with Manning Drive. Tract 1 contains the Lewis-Manning House, a historic home constructed around 1895 that is currently unoccupied. Tract 2 is vacant. Tract 3 contains an unoccupied single-family home.

III. JUSTIFICATION FOR APPLICATION

1. The proposed rezoning will permit a use that is suitable in view of the zoning, use and development of adjacent and nearby property.

The Subject Property has commercial and office uses to the west and single-family residential uses to the north and east. The proposed development represents

a logical transition, with the office and higher-density residential townhomes on the west and lower-density, single-family detached homes on the south and east. Further, in July of 2015, the City adopted the new Downtown Overlay, which includes ±10.235 acres of the ±11.705 acre Subject Property. The Downtown Overlay specifically states that properties designated as “Downtown Residential” on the City’s Future Land Use Map—like almost all of the Subject Property--should be rezoned to the DT-R district. Accordingly, the Applicant’s proposed use of the Subject Property for a higher density, single-family development is suitable, given the City’s future vision for both the Subject Property and the area in which it is located, and will further the intent of the Downtown Overlay.

2. The zoning proposal will not adversely affect the existing use or usability of adjacent or nearby property.

The proposed development will not adversely affect adjacent or nearby properties. As mentioned above, to the west, the Subject Property is bordered by office and commercial uses. To the north and east, it abuts single-family residences. The proposed development represents a logical transition between the two, particularly since the Applicant located single-family detached residences along the eastern and southern property boundary. It also appears to be a transition sanctioned by the City. As indicated above, the City placed roughly 90% of the Subject Property in the Downtown Overlay and designated it “Downtown Residential” on the City’s Future Land Use Map, which contemplates higher

densities. In doing so, the City signified that it considered whether the type of development proposed would be appropriate in light of adjacent and nearby properties and concluded that it was.

3. The proposed rezoning will not adversely affect the natural environment.

As with any undeveloped tract, the construction on the Subject Property will inevitably require the removal of trees and other land disturbance activities. That being said, there are no significant natural features on the Subject Property that require special protection and the stream on the northern side will be buffered as required by Code. Further, the Applicant will replant trees, grass, and other landscaping materials as part of its redevelopment of the site, and will preserve a historic structure.

4. There are substantial reasons why the property cannot or should not be used as currently zoned.

The City has codified a future identity for the Subject Property: Higher density residential developed in a style specified in the Downtown Overlay. The Subject Property cannot be developed in this manner as currently zoned.

5. The proposed rezoning will not result in a use that will or could cause an excessive or burdensome use of public facilities or services, such as existing streets and transportation facilities, schools, water or sewer utilities, and police or fire protection.

If approved, the proposed rezoning should not have a negative impact on any City services. There is adequate water and sewer capacity to service the site.

Transportation facilities will not be negatively impacted. The Applicant has located the single, curb-cut access point to the development on Manning Drive, as requested by the City's transportation engineer. This location allows for orderly ingress and egress at the Subject Property and minimizes disruption of the flow of traffic on the more heavily used Cumming Street. Further, trip generation is manageable. As to the office component, there is no study in the Institute of Transportation Engineers (ITE), Trip Generation Manual (9th Edition), for an old home adaptively re-used for a small-scale office. To provide perspective, however, the Applicant used the Single Tenant Office Buildings Code (715). It suggests that if the Lewis-Manning House officed 8 employees, then it would generate roughly 13 trips in the A.M. peak hour and 13 trips in the P.M. peak hour. Similarly, as to the single-family residences, the Subject Property will generate 45 trips in the weekday a.m. peak hour and 56 trips in the weekday p.m. peak hours.¹ Further, the Subject Property is served by Manning Oaks Elementary School, Hopewell Middle School, and Alpharetta High School. Both Manning Oaks Elementary School and Alpharetta High School are under capacity now. Further, Hopewell Middle School is projected to be under capacity by the 2018-2019 school years.

¹ The Applicant used ITE Codes (210) Single-Family Detached Housing and (231) Low-Rise Residential Condominium/Townhouse.

6. The proposed rezoning is supported by new and changing conditions not anticipated or reflected in the existing zoning on the property.

As more fully discussed above, the City has recently codified a vision for both the Subject Property and the area in which it is located, a vision reflected in the City's Downtown Overlay and on the City's Comprehensive Plan. The existing zoning on the overwhelming majority of the Subject Property conflicts with this vision.

7. The proposed rezoning reflects a reasonable balance between the promotion of the public health, safety, morality or general welfare against the right to unrestricted use of property.

The proposed rezoning allows for an appropriate use for this area and will further the goals of the City's Downtown Overlay. Further, it protects a historic asset, maximizes green space and provides an appropriate transition between the commercial uses to the west and the single-family uses to the east and north.

8. There are substantial reasons why the property cannot be used in accordance with the existing zoning.

Please see Subsection 4 above.

9. The zoning proposal is consistent with the City's Comprehensive Plan.

The Applicant has concurrently herewith filed an application to amend the Future Land Use Map for the office component from Downtown Residential to Mixed-Use/Live-Work. The designation is appropriate given that office uses abut the Subject Property to the west and the office component is part of a mixed

residential development, which creates by definition a “mixed-use/live-work” environment. Similarly, and as to the residential component, the proposed use is consistent with the City’s Comprehensive Plan. As noted above, virtually all of the Subject Property is identified as being in the “Downtown Residential District,” which encourages the exact land uses proposed.

IV. NOTICE OF CONSTITUTIONAL CHALLENGE AND PRESERVATION OF CONSTITUTIONAL RIGHTS

The Applicant respectfully submits the current Zoning and/or Land Use Map designations on the Subject Property are unconstitutional and that a refusal to approve the proposed Rezoning and Land Use Map Amendment, or any attempt to rezone the Subject Property or limit it to an intervening zoning or land use map classification, would be unlawful, arbitrary, capricious, irrational and a manifest abuse of discretion; all in violation of the Fifth Amendment and Fourteenth Amendment of the Constitution of the United States, and Article I, Section I, Paragraph I and Article I, Section III, Paragraph I of the Constitution of the State of Georgia.

A refusal to approve the proposed Rezoning and Land Use Map Amendment, or any attempt to rezone the Property or limit it to an intervening zoning or land use map classification, would discriminate unfairly between the owner of the Subject Property and other property owners similarly situated, in violation of the Fifth Amendment and Fourteenth Amendment of the Constitution

of the United States, and Article I, Section I, Paragraph II of the Constitution of the State of Georgia.

A refusal to approve the proposed Rezoning and Land Use Map Amendment, or any attempt to rezone the Property or limit it to an intervening zoning or land use map classification, would amount to a taking of property, in violation of the Fifth Amendment and Fourteenth Amendment of the Constitution of the United States, and Article I, Section I, Paragraph I and Article I, Section III, Paragraph I of the Constitution of the State of Georgia.

A refusal to approve the proposed Rezoning and Land Use Map Amendment, or any attempt to rezone the Subject Property or limit it to an intervening zoning or land use map classification, would be unjustified from a fact-based standpoint and instead would result only from constituent opposition, which would be an unlawful delegation of authority in violation of Article IX, Section II, Paragraph IV of the Constitution of the State of Georgia.

A refusal to approve the proposed Rezoning and Land Use Map Amendment, or any attempt to rezone the Subject Property or limit it to an intervening zoning or land use map classification, would be invalid inasmuch as the Unified Development Code of the City of Alpharetta is unlawful, null and void because its adoption and map adoption/maintenance did not and does not comply

with the requirements of its predecessor ordinance and/or the Zoning Procedures Law, O.C.G.A. § 36-66-1, *et seq.*

The City's Unified Development Code lacks adequate standards for the City Council to exercise its power to review this Application. Specifically, the "standards", including but not limited to those set out in Sections 4.2.3(A)(2), 4.2.3(B), and 4.5.4(B)(1), are not sufficient to contain the discretion of the Council and to provide the Courts with a reasonable basis for judicial review. Because the stated standards (individually and collectively) are too vague and uncertain to provide reasonable guidance, the Unified Development Code is unlawful and violates, among other things, the Fifth Amendment and Fourteenth Amendment of the Constitution of the United States and Article I, Section I, Paragraphs I and II of the Constitution of State of Georgia.

Any limitation on the time for presentation of the issues before the Council that has the power to zone and grant conditional use permits, variances and sign package approval is a violation of the guarantees of free speech under the First Amendment of the Constitution of the United States and Article I, Section I, Paragraph V of the Constitution of the State of Georgia. Further, said limitations are in violation of the right to petition and assemble, in violation of the First Amendment of the Constitution of the United States and Article I, Section I,

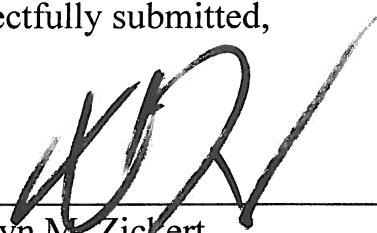
Paragraph IX of the Constitution of Georgia, as well as the due process clauses of the U.S. and Georgia Constitutions.

CONCLUSION

For the foregoing reasons, the Applicant respectfully requests that the proposed Rezoning and Land Use Map Amendments be approved. The Applicant also invites and welcomes any comments from Staff or other officials of the City of Alpharetta so that such recommendations or input might be incorporated as conditions of approval of this Application.

This 13TH day of April, 2017.

Respectfully submitted,



Kathryn M. Zickert
Dennis J. Webb, Jr.
Vickie B. Chung
Attorneys for Applicant

Smith, Gambrell & Russell, LLP
Promenade, Suite 3100
1230 Peachtree Street, NE
Atlanta, Georgia 30309
404-815-3500

Legal Description: Tract 1

All that tract or parcel of land lying and being in Land Lot 1253 of the 2nd District, 2nd Section of the City of Alpharetta, Fulton County, Georgia, and being more particularly described as follows:

BEGINNING at an iron pin found (1/2" rebar) located at the intersection of the western right-of-way line of Manning Drive (40' right-of-way width) with the northerly right-of-way line of Cumming Street (40' right-of-way width); thence leave said intersection and run southwesterly along the northerly right-of-way line of Cumming Street the following courses and distances: S78°32'46"W a distance of 78.17 feet to a point; along the arc of a curve to the left, an arc distance of 126.12 feet to a PK Nail found, said curve having a radius of 2,346.00 feet and being subtended by a chord bearing S77°00'21"W and a chord distance of 126.11 feet; along the arc of a curve to the left, an arc distance of 124.94 feet to a point, said curve having a radius of 2,346.00 feet and being subtended by a chord bearing S73°56'24"W and a chord distance of 124.92 feet; S72°24'52"W a distance of 21.89 feet to a point, said point being the **TRUE POINT OF BEGINNING**.

FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, thence continue to run southwesterly along the northerly right-of-way line of Cumming Street the following courses and distances: S72°24'52"W a distance of 53.37 feet to a point; along the arc of a curve to the right, an arc distance of 161.25 feet to a point, said curve having a radius of 1,081.10 feet and being subtended by a chord bearing S76°41'15"W and a chord distance of 161.10 feet; S80°57'38"W a distance of 30.98 feet to an iron pin found (1/2" rebar); thence leave the northerly right-of-way line of Cumming Street and run N00°58'03"E a distance of 174.43 feet to an iron pin found (1/2" rebar); thence run N00°42'07"E a distance of 12.02 feet to a point; thence run N90°00'00"E a distance of 208.86 feet to a point; thence run S11°34'37"E a distance of 131.00 feet to a point located on the northerly right-of-way line of Cumming Street, said point being the **TRUE POINT OF BEGINNING**.

Said tract or parcel of land containing 0.837 acre.

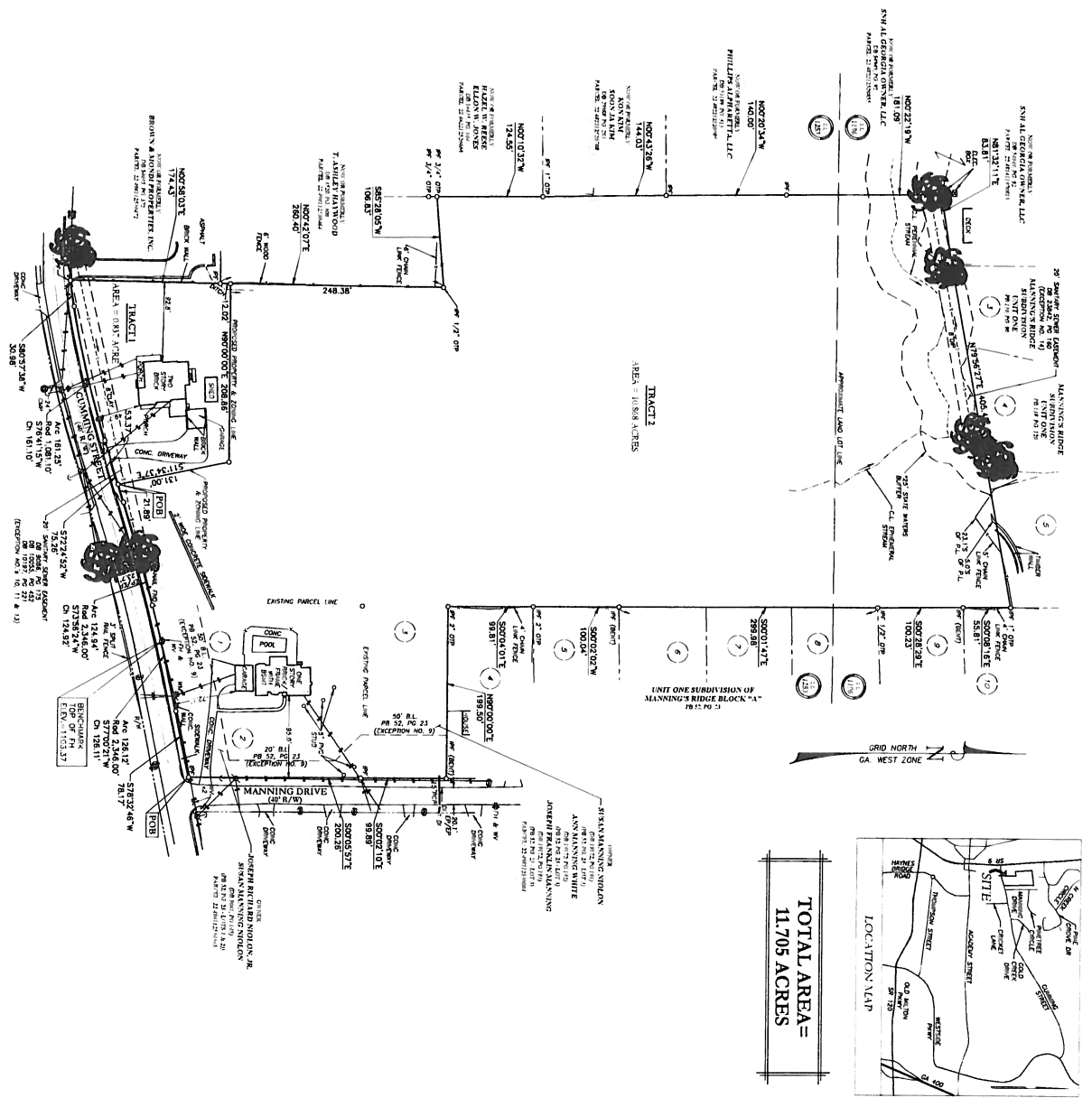
Legal Description: Tract 2

All that tract or parcel of land lying and being in Land Lots 1196 and 1253 of the 2nd District, 2nd Section of the City of Alpharetta, Fulton County, Georgia, and being more particularly described as follows:

BEGINNING at an iron pin found (1/2" rebar) located at the intersection of the western right-of-way line of Manning Drive (40' right-of-way width) with the northerly right-of-way line of Cumming Street (40' right-of-way width); thence leave said intersection and run southwesterly along the northerly right-of-way line of Cumming Street the following courses and distances: S78°32'46"W a distance of 78.17 feet to a point; along the arc of a curve to the left, an arc distance of 126.12 feet to a PK Nail found, said curve having a radius of 2,346.00 feet and being subtended by a chord bearing S77°00'21"W and a chord distance of 126.11 feet; along the arc of a curve to the left, an arc distance of 124.94 feet to a point, said curve having a radius of 2,346.00 feet and being subtended by a chord bearing S73°56'24"W and a chord distance of 124.92 feet; S72°24'52"W a distance of 21.89 feet to a point; thence leave the northerly right-of-way line of Cumming Street and run N11°34'37"W a distance of 131.00 feet to a point; thence run S00°00'00"W a distance of 208.86 feet a point; thence run N00°42'07"E a distance of 248.38 feet an iron pin found (1/2" open top pipe); thence run S85°28'05"W a distance of 106.83 feet to an iron pin found (3/4" open top pipe); thence run N00°10'32"W a distance of 124.55 feet to an iron pin found (1" open top pipe); thence run N00°43'26"W a distance of 144.03 feet to an iron pin found (1/2" rebar); thence run N00°20'34"W a distance of 140.00 feet to an iron pin found (1/2" rebar); thence run N00°22'19"W a distance of 181.09 feet to an iron pin found (1/2" rebar); thence run N81°32'11"E a distance of 83.81 feet to an iron pin found (1/2" rebar); thence run N79°56'27"E a distance of 405.48 feet to an iron pin found (1" open top pipe); thence run S00°08'16"E a distance of 55.81 feet to an iron pin found (1/2" rebar, bent); thence run S00°28'29"E a distance of 100.23 feet to an iron pin found (1/2" open top pipe); thence run S00°01'47"E a distance of 299.98 feet to an iron pin found (1/2" rebar, bent); thence run S00°02'02"W a distance of 100.04 feet to an iron pin found (2" open top pipe); thence run S00°04'01"E a distance of 99.81 feet to an iron pin found (2" open top pipe); thence run N90°00'00"E a distance of 199.50 feet to an iron pin found (1/2" rebar, bent) located on the western right-of-way line of Manning Drive; thence run south along the western right-of-way line of Manning Drive the following courses and distances: S00°02'10"E a distance of 99.89 feet to an iron pin found (1/2" rebar); S00°05'57"E a distance of 200.26 feet to an iron pin found (1/2" rebar), said iron pin found being the **TRUE POINT OF BEGINNING**.

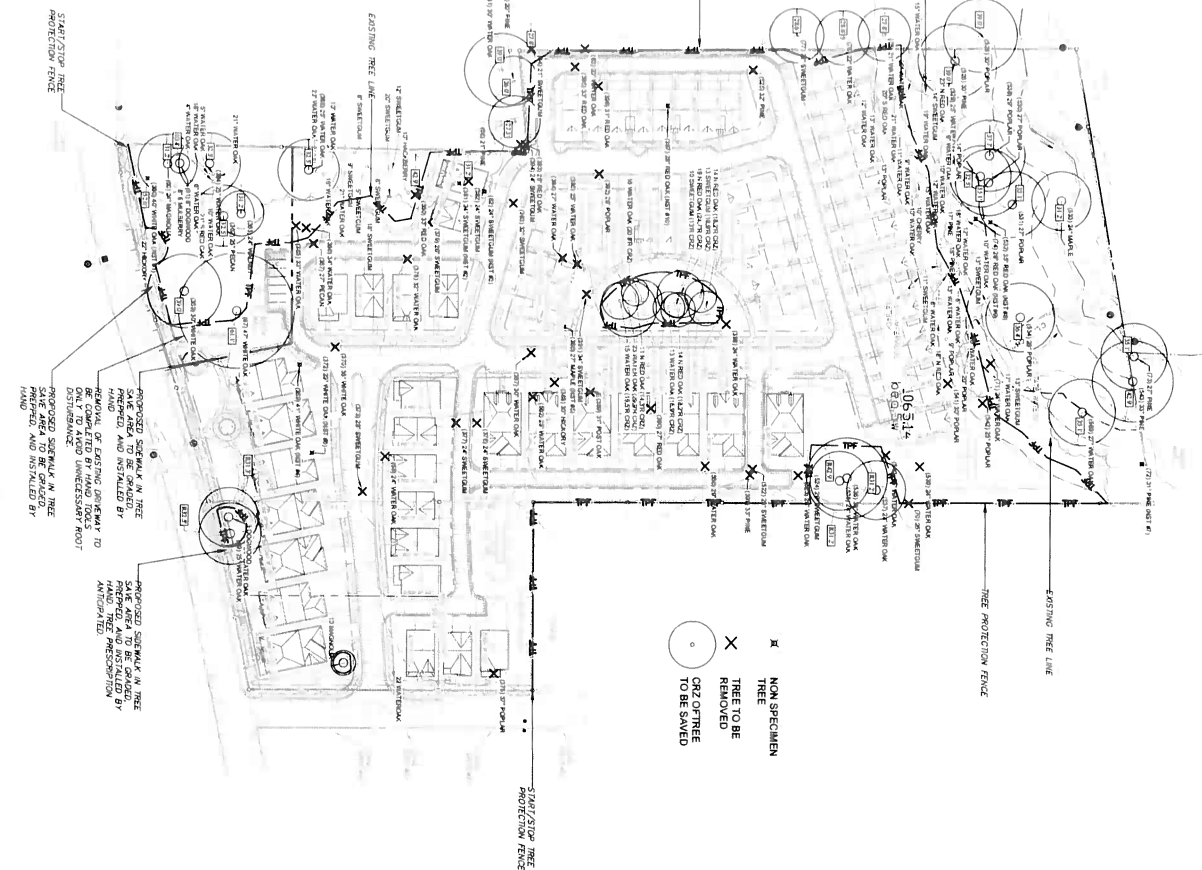
Said tract or parcel of land containing 10.868 acres.

LEGEND	
1	20' BUFFER ZONE
2	30' BUFFER ZONE
3	40' BUFFER ZONE
4	50' BUFFER ZONE
5	60' BUFFER ZONE
6	70' BUFFER ZONE
7	80' BUFFER ZONE
8	90' BUFFER ZONE
9	100' BUFFER ZONE
10	110' BUFFER ZONE
11	120' BUFFER ZONE
12	130' BUFFER ZONE
13	140' BUFFER ZONE
14	150' BUFFER ZONE
15	160' BUFFER ZONE
16	170' BUFFER ZONE
17	180' BUFFER ZONE
18	190' BUFFER ZONE
19	200' BUFFER ZONE
20	210' BUFFER ZONE
21	220' BUFFER ZONE
22	230' BUFFER ZONE
23	240' BUFFER ZONE
24	250' BUFFER ZONE
25	260' BUFFER ZONE
26	270' BUFFER ZONE
27	280' BUFFER ZONE
28	290' BUFFER ZONE
29	300' BUFFER ZONE
30	310' BUFFER ZONE
31	320' BUFFER ZONE
32	330' BUFFER ZONE
33	340' BUFFER ZONE
34	350' BUFFER ZONE
35	360' BUFFER ZONE
36	370' BUFFER ZONE
37	380' BUFFER ZONE
38	390' BUFFER ZONE
39	400' BUFFER ZONE
40	410' BUFFER ZONE
41	420' BUFFER ZONE
42	430' BUFFER ZONE
43	440' BUFFER ZONE
44	450' BUFFER ZONE
45	460' BUFFER ZONE
46	470' BUFFER ZONE
47	480' BUFFER ZONE
48	490' BUFFER ZONE
49	500' BUFFER ZONE
50	510' BUFFER ZONE
51	520' BUFFER ZONE
52	530' BUFFER ZONE
53	540' BUFFER ZONE
54	550' BUFFER ZONE
55	560' BUFFER ZONE
56	570' BUFFER ZONE
57	580' BUFFER ZONE
58	590' BUFFER ZONE
59	600' BUFFER ZONE
60	610' BUFFER ZONE
61	620' BUFFER ZONE
62	630' BUFFER ZONE
63	640' BUFFER ZONE
64	650' BUFFER ZONE
65	660' BUFFER ZONE
66	670' BUFFER ZONE
67	680' BUFFER ZONE
68	690' BUFFER ZONE
69	700' BUFFER ZONE
70	710' BUFFER ZONE
71	720' BUFFER ZONE
72	730' BUFFER ZONE
73	740' BUFFER ZONE
74	750' BUFFER ZONE
75	760' BUFFER ZONE
76	770' BUFFER ZONE
77	780' BUFFER ZONE
78	790' BUFFER ZONE
79	800' BUFFER ZONE
80	810' BUFFER ZONE
81	820' BUFFER ZONE
82	830' BUFFER ZONE
83	840' BUFFER ZONE
84	850' BUFFER ZONE
85	860' BUFFER ZONE
86	870' BUFFER ZONE
87	880' BUFFER ZONE
88	890' BUFFER ZONE
89	900' BUFFER ZONE
90	910' BUFFER ZONE
91	920' BUFFER ZONE
92	930' BUFFER ZONE
93	940' BUFFER ZONE
94	950' BUFFER ZONE
95	960' BUFFER ZONE
96	970' BUFFER ZONE
97	980' BUFFER ZONE
98	990' BUFFER ZONE
99	1000' BUFFER ZONE



FIELD NOTES: 01/08/14 07:28:15
DATE: 01/08/14 07:28:15
TIME: 07:28:15

Gunnin LAND SURVEYING, LLC 100 MOUNTAIN BROOK DRIVE, SUITE 104 CANTON, GA 30115 TEL: 478-880-7602 FAX: 478-880-7603 WWW.GUNNINLANDSURVEYING.COM		THIS SURVEY WAS PREPARED IN CONFORMANCE WITH THE TECHNICAL STANDARDS FOR PROPERTY SURVEYS IN GEORGIA AS SET FORTH IN CHAPTER 180-2 OF THE RULES OF THE GEORGIA BOARD OF SURVEYING AND MAPPING. PROFESSIONAL ENGINEERS AND LAND SURVEYORS AND ALL SET FORTH IN GEORGIA PRACTICE ACT O.C.G.A. 19-6-67.	DATE: _____ REVISION: _____ SURVEY FOR: TAYLOR MORRISON OF GEORGIA, LLC LOCATED IN LAND LOTS 1196 & 1211 2nd DISTRICT - 2nd SECTION CITY OF ALPHARETTA FULTON COUNTY, GEORGIA
---	--	--	---



TOTAL SITE AREA		11,700 ACRES
PARCEL 1		
PARCEL 2		10,664 ACRES
ZONING		
CUESTSET ZONING	R-15	
PROPOSED ZONING (PARCEL 1)	D-15M	
PROPOSED ZONING (PARCEL 2)	D-15	
ZONING JURISDICTION		
		CITY OF ALPHARETTA
		COUNTY OF FULTON
RESIDENTIAL LOT DENSITY		
TOTAL RESIDENTIAL UNITS	69 UNITS	
ST DETACHED HOMES	40 UNITS	
RESIDENTIAL DESIGN STANDARD PERIODIC	29 UNITS	
PERIODIC DESIGN STANDARD PERIODIC	8 UNIT/VACARE	
PERIODIC PROPOSED (0.0021/1,1702 ACRES)	5.89 UNIT/ACRE	
PERMANENT SETBACK SUMMARY (OT & D-15)		
FRONTAGE PROPERTY SETBACK	10 FEET MIN	
SIDE YARD SETBACK	3.00 FEET	
REAR YARD SETBACK	5 FEET	
TRANSITIONAL FRONT SETBACK		
LANDSCAPE STRIP (ADJUTING PRIORITIES TO THE WEST)		
PARCEL 1 LOT STANDARDS		
DETACHED LOTS	0 FEET	
FRONT SIDE REAR SETBACK	10 FEET	
BUILDING SEPARATION	2.50 SF MIN	
LOT WIDTH	25.11 MIN	
ATTACHED LOTS	0 FEET	
FRONT SIDE REAR SETBACK	0 FEET	
BUILDING SEPARATION	90.2 FEET	
LOT WIDTH	20 FT MIN	
LOT COVERAGE	70% MAX, 60% MIN	
PARCEL 1 PARKING SUMMARY (OT & D)		
RESIDENTIAL PARKING	20 SPACES	
OT GARAGE SPACES & DRIVEWAY SPACES PER UNIT + 16 CUEST SETBACK	09 SPACES	
RESIDENTIAL PARKING PROVIDED	27 HOME + 276 SPACES	
EXISTING PARKING PROVIDED	11.96 (1,969)	
EXISTING PARKING REQUIRED	10.92 (1,843)	
PARCEL 2 PARKING SUMMARY (OT & D)		
OFFICE PARKING PROVIDED	1,000 SF	
OFFICE PARKING REQUIRED	3,000 SF	
PARCEL 2 ADJUTING STREET BUILDING (OT & D)		
BUILDING SETBACK (PER FULTON COUNTY ACCESSION)	3,777 SQ. FT.	
PARCEL 2 LOT STANDARDS (OT & D)		
DETACHED LOTS	0 FEET	
FRONT SIDE REAR SETBACK	2.50 SF MIN	
BUILDING SEPARATION	27.11 MIN	
LOT WIDTH	70% MAX, 60% MIN	
LOT & ADJUTING SPACE SUMMARY		
OWNERS SPACE	7.94 ACRES	
OWNERS SPACE PER BUILDING	7.94 ACRES	
RESIDENTIAL SPACE PER BUILDING	7.94 ACRES	
ADJUTING SPACE PER BUILDING	7.94 ACRES	
TOTAL OWNERS SPACE PROVIDED	18.4% 18.4%	



24 HOUR CONTACT:
JONATHAN JONES
jojones@laylornorris.com

Z
SHEET

40 CUMMING STREET, 136 MANNING DRIVE
A MASTER PLANNED RESIDENTIAL COMMUNITY

FOR
TAYLOR MORRISON

4400 NORTH POINT PARKWAY

SUITE 295
ALPHARETTA, GA 30009
JOJONES@TAYLORMORRISON.COM

CITY OF ALPHARETTA,
FULTON COUNTY,
GEORGIA.

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PLANNERS AND ENGINEERS COLLABORATIVE

SITE PLANNING ■ LANDSCAPE ARCHITECTURE ■ CIVIL ENGINEERING ■ LAND SURVEYING
350 RESEARCH COURT ■ NORCROSS, GEORGIA 30092 ■ (770) 451-2741 ■ FAX (770) 451-3915 ■ WWW.PECATL.COM

DATE: _____ BY: _____

NO.	DATE	B1	DESCRIPTION

**TREE PROTECTION
PLAN**

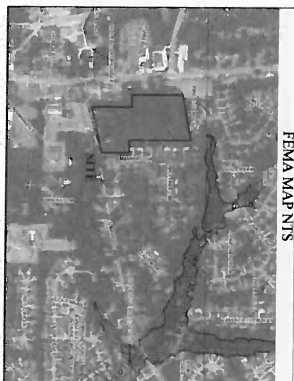
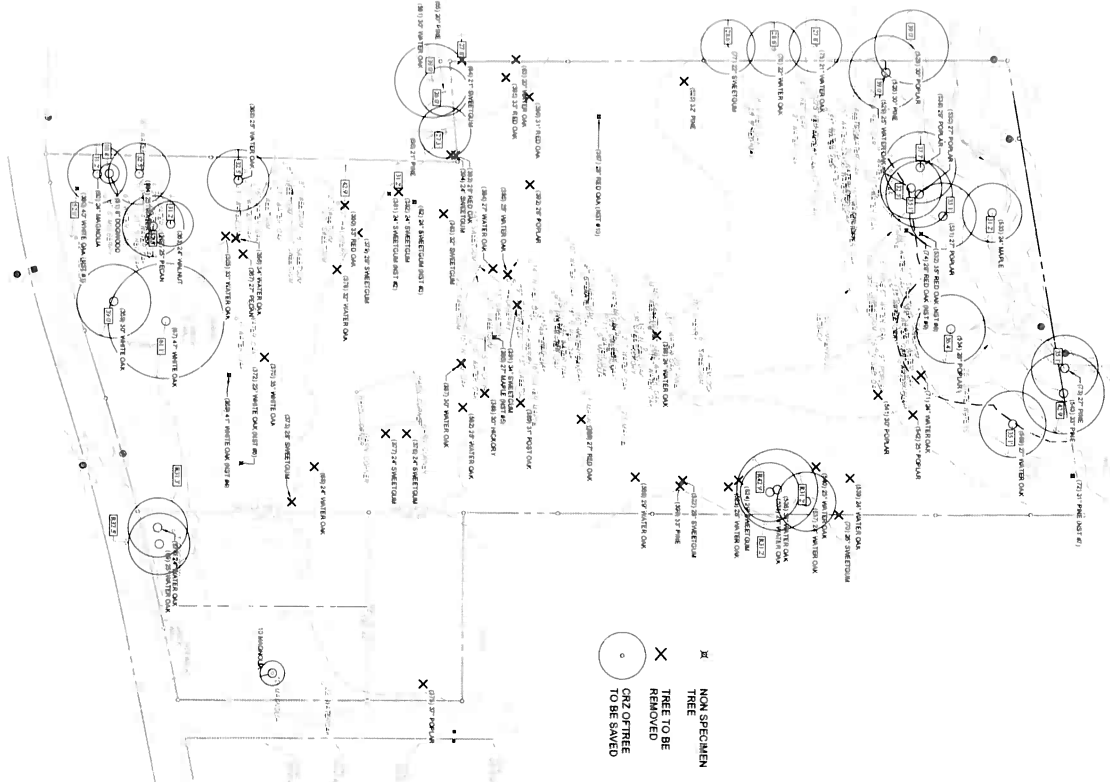
SCALE: 1" = 60'
DATE:
PROJECT: 16334.00

1. MODEL: 10334.00

AND DATED WITH AN ORIGINAL

1111





REVISIONS:			
NO.	DATE	BY	DESCRIPTION

40 CUMMING STREET, 136 MANNING DRIVE
 A MASTER PLANNED RESIDENTIAL COMMUNITY
 701
TAYLOR MORRISON
 4600 NORTH POST PARKWAY
 SUITE 201
 ALPHARETTA, GA 30009
 JOJOONES@TAYLORMORRISON.COM

811
Call before you dig.
1-800-4-A-DIGIT

24 HOUR CONTACT:
JONATHAN JONES
jojones@laylormorrison.com





40 CUMMING STREET, 136 MANNING DRIVE
A MASTER PLANNED RESIDENTIAL COMMUNITY
TAYLOR MORRISON
1400 NORTH POINT PARKWAY
SUITE 25
ALPHARETTA, GA 30009
404.255.1200
JOHN@STAYLORMORRISON.COM

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SHEET TITLE

TECHNICAL SITE PLAN

0 30' 60' 90' 180'

SCALE: 1" = 60'

DATE: MAY 09, 2017

PROJECT: 16334.00

THIS SEAL IS ONLY VALID IF COUNTER SIGNED
AND DATED WITH AN EXISTING LICENSEE

GEORGIA
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT
No. 10381
JENNIFER J. WOOD

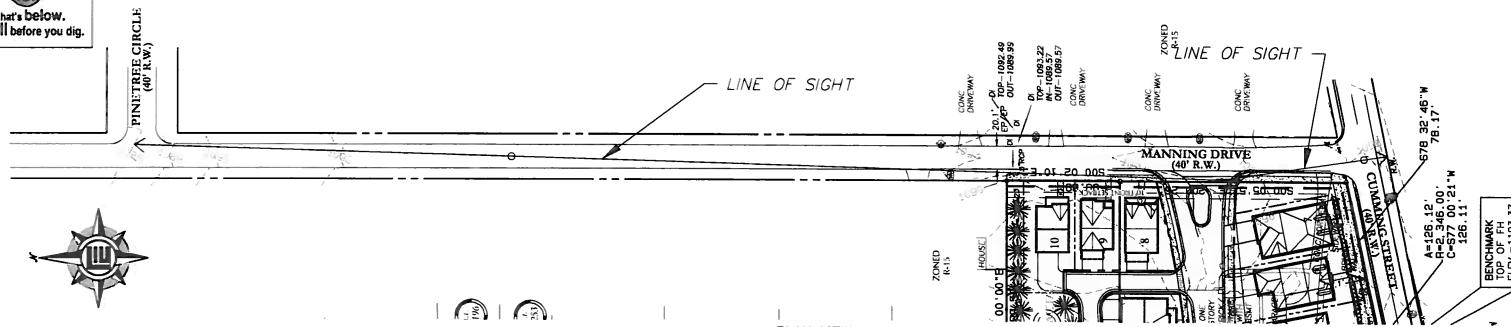
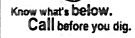
5-09-17

CIVIL LEVEL II DESIGN PRIOR TO ISSUANCE
CERTIFICATE OF A REGISTERED LANDSCAPE ARCHITECT



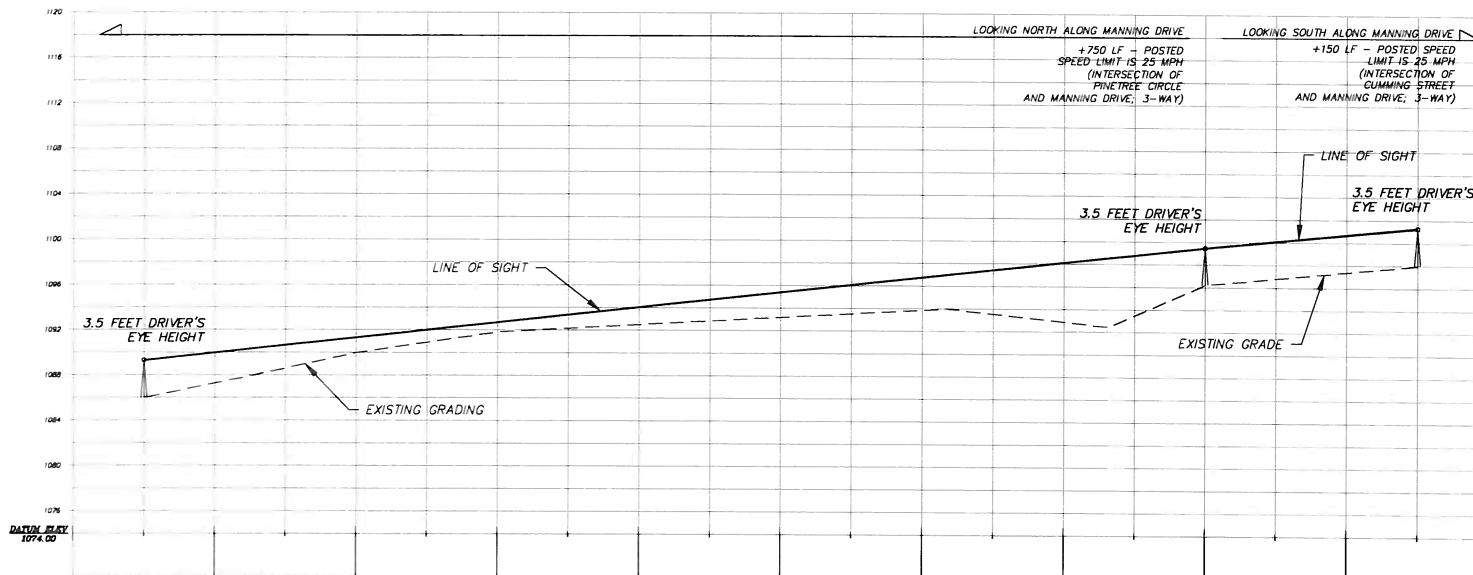
Z1

SHEET



PLAN VIEW
PEACHTREE VIEW ENTRANCE
SCALE: 1" = 50'

24 HOUR CONTACT:
JONATHAN JONES
jojones@taylormorrison.com



SIGHT DISTANCE PROFILE- PEACHTREE VIEW
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

40 CUMMING STREET, 136 MANNING DRIVE
A MASTER PLANNED RESIDENTIAL COMMUNITY
ESTD 1978

CITY OF ALPHARETTA,
FULTON COUNTY,
GEORGIA

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REVISIONS:

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SIGHT DISTANCE PROFILES

SCALE:
DATE: JANUARY 31, 2017
PROJECT: 16334.00

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AND DATED WITH AN ORIGINAL SIGNATURE.



GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000059389 EXP. 10/27/2018

SD

SHORT

SPECIMEN TREE REPORT

ALPHARETTA



Tree Report for:
Taylor Morrison
4400 North Point Parkway
Suite 295
Alpharetta, GA 30009

Property Address:
Manning House
40 Cumming St
Alpharetta
Fulton County

Project 16334.00

Survey Date 12/30/2016



TREE CONSULTANTS

350 RESEARCH CT. PEACHTREE CORNERS, GA 30092
PHONE: 770-451-3915
A PEC DIVISION

Consulting Arborist
Alex Phillips, ASLA
ISA Certified Arborist #MA-4868A
Tree Risk Assessment Qualified

Manning House

Specimen Tree Inventory

Some trees on a site warrant special consideration and encouragement for preservation. The intent of these specifications is to provide the necessary information to facilitate project design, plan review and enforcement processes. The City of Alpharetta Specimen tree specifications are organized by size:

- Deciduous Hardwood trees over 24" DBH

- Conifer Softwood trees over 30" DBH

- Flowering Understory trees over 8" DBH

Any tree that does not meet the following requirements as set forth by the International Society of Arboriculture shall be deemed poor in condition, a danger to human life and property and removed from the site.

- Life expectancy less than 15 years

- A trunk with visible decay

- More than one major and several minor dead limbs (hardwoods)

- Major insect or pathological problems

Landscape Tree Inventory

Landscape trees and trees of quality on a site may warrant consideration for preservation. Landscape trees include street trees, parking lot trees and boundary trees. Trees of quality include smaller non specimen trees that are in groupings or groves that have special interest and character.

Site Location

The site is located in a developed area of Alpharetta, near the historic downtown district. The property is surrounded by single family homes, a multi-family complex and single family residences converted to businesses. The site is a large wooded assemblage of three parcels. The main parcel is a historic single family home that is surrounded by very large and mature trees. The trees are in good health for their age with one tree showing decline and retrenchment. The rest of the property is heavily wooded with large Oaks and Poplars throughout. The trees in are generally in good health with some trees categorized as non-specimen due to splits and trunk wounds with rot and hollows.

The site drains from the south to the north terminating in a creek that runs from the East to the West across the North side of the property. There are some remnant trash areas on the property with some old appliances and farm equipment.



Manning House

Definitions

Tree Number: Trees are tagged with an aluminum disk that shows a unique number to identify the tree.

Species: Trees are listed by a regional common name and botanical name.

Diameter at Breast Height (DBH): The diameter of a trunk at 4.5' above ground level.
Measured in inches.

Condition:

Good: A specimen tree with healthy productive tip growth. A sound trunk with no visible damage or decay. No major limb loss and healthy branch unions. No visible insect or disease infestations. Life expectancy of more than 15 years.

Fair: A specimen tree with healthy but not vigorous tip growth. Less than 30% of crown is dead. No major dead limbs and no major trunk cavities or damage. Branch unions show some signs of stress. Tree is expected to live longer than 10 years.

Poor: More than 30% of the crown is dead or has significant tip die back. More than one major limb is dead and are large trunk cavities with visible decay. Severe insect or disease damage leading to immediate death. Roots are visible and show signs of decay and rot. Life expectancy is less than 5 years.

Dead: Tree has no bud or leaf production. All limbs are barren and rot is visible.

Invasive: Tree species whose native range is not within the Piedmont classification.

Hazardous: Severe or uncorrectable damage that will lead to a loss of property or life if there is tree failure.



Manning House

Specimen Tree Report

Tree #	Species	DBH	Condition	Comments
359	<i>Quercus alba</i> White Oak	30"	Specimen	Tree is in good health.
360	<i>Quercus alba</i> White Oak	40"	Non-Specimen	NST #1: Retrenchment and decline. Pic #1
362	<i>Carya illionosis</i> Pecan	25"	Specimen	Tree is in good health.
363	<i>Juglans nigra</i> Walnut	24"	Specimen	Tree is in good health.
364	<i>Quercus nigra</i> Water Oak	25"	Specimen	Tree is in good health.
365	<i>Quercus nigra</i> Water Oak	33"	Specimen	Tree is in good health.
366	<i>Quercus nigra</i> Water Oak	34"	Specimen	Tree is in good health.
367	<i>Carya illionosis</i> Pecan	27"	Specimen	Tree is in good health.
368	<i>Quercus nigra</i> Water Oak	25"	Specimen	Tree is in good health.
369	<i>Quercus alba</i> White Oak	41"	Non-Specimen	NST #4: Trunk wound with major hollow. Pic #4
370	<i>Quercus alba</i> White Oak	35"	Specimen	Tree is in good health.
372	<i>Quercus alba</i> White Oak	29"	Non-Specimen	NST #6: Trunk wound with major hollow. Pic #6
373	<i>Liquidambar styraciflua</i> Sweetgum	28"	Specimen	Tree is in good health.
374	<i>Quercus nigra</i> Water Oak	24"	Specimen	Tree is in good health.
375	<i>Liriodendron tulipifera</i> Poplar	37"	Specimen	Tree is in good health.
376	<i>Liquidambar styraciflua</i> Sweetgum	24"	Specimen	Tree is in good health.



Manning House

Tree #	Species	DBH	Condition	Comments
377	<i>Liquidambar styraciflua</i> Sweetgum	24"	Specimen	Tree is in good health.
378	<i>Quercus nigra</i> Water Oak	32"	Specimen	Tree is in good health.
379	<i>Liquidambar styraciflua</i> Sweetgum	26"	Specimen	Tree is in good health.
380	<i>Quercus rubra</i> Red Oak	33"	Specimen	Tree is in good health.
381	<i>Liquidambar styraciflua</i> Sweetgum	24"	Non-Specimen	NST #2: Major trunk wound with hollow. Pic #2
382	<i>Liquidambar styraciflua</i> Sweetgum	24"	Specimen	Tree is in good health.
383	<i>Liquidambar styraciflua</i> Sweetgum	32"	Specimen	Tree is in good health.
384	<i>Quercus nigra</i> Water Oak	27"	Specimen	Tree is in good health.
385	<i>Quercus nigra</i> Water Oak	25"	Specimen	Tree is in good health.
386	<i>Acer saccharinum</i> Silver Maple	27"	Non-Specimen	NST #5: Trunk wound with hollow and rot. Pic #5
387	<i>Quercus nigra</i> Water Oak	30"	Specimen	Tree is in good health.
388	<i>Caraya glabra</i> Hickory	30"	Specimen	Tree is in good health.
389	<i>Quercus stellata</i> Post Oak	31"	Specimen	Tree is in good health.
390	<i>Quercus rubra</i> Red Oak	27"	Specimen	Tree is in good health.
391	<i>Liquidambar styraciflua</i> Sweetgum	34"	Specimen	Tree is in good health.
392	<i>Liriodendron tulipifera</i> Poplar	26"	Specimen	Tree is in good health.

Manning House

Tree #	Species	DBH	Condition	Comments
395	<i>Quercus rubra</i> Red Oak	33"	Specimen	Tree is in good health.
396	<i>Quercus rubra</i> Red Oak	31"	Specimen	Tree is in good health.
397	<i>Quercus rubra</i> Red Oak	28"	Non-Specimen	NST #10: Dead. Pic #10
398	<i>Quercus nigra</i> Water Oak	24"	Specimen	Tree is in good health.
399	<i>Pinus spp</i> Pine	33"	Specimen	Tree is in good health.
522	<i>Liquidambar styraciflua</i> Sweetgum	28"	Specimen	Tree is in good health.
523	<i>Quercus nigra</i> Water Oak	26"	Specimen	Tree is in good health.
524	<i>Liquidambar styraciflua</i> Sweetgum	29"	Specimen	Tree is in good health.
525	<i>Pinus spp</i> Pine	32"	Specimen	Tree is in good health.
526	<i>Pinus spp</i> Pine	30"	Specimen	Tree is in good health.
529	<i>Quercus nigra</i> Water Oak	25"	Specimen	Tree is in good health.
530	<i>Liriodendron tulipifera</i> Poplar	27"	Specimen	Tree is in good health.
531	<i>Liriodendron tulipifera</i> Poplar	27"	Specimen	Tree is in good health.
532	<i>Quercus rubra</i> Red Oak	35"	Non-Specimen	NST #8: Split with included bark. Pic #8
533	<i>Acer saccharinum</i> Silver Maple	24"	Specimen	Tree is in good health.
534	<i>Liriodendron tulipifera</i> Poplar	28"	Specimen	Tree is in good health.

Manning House

Tree #	Species	DBH	Condition	Comments
535	<i>Quercus nigra</i> Water Oak	24"	Specimen	Tree is in good health.
536	<i>Quercus nigra</i> Water Oak	33"	Specimen	Tree is in good health.
537	<i>Quercus nigra</i> Water Oak	24"	Specimen	Tree is in good health.
538	<i>Liriodendron tulipifera</i> Poplar	29"	Specimen	Tree is in good health.
539	<i>Quercus nigra</i> Water Oak	24"	Specimen	Tree is in good health.
540	<i>Quercus nigra</i> Water Oak	25"	Specimen	Tree is in good health.
541	<i>Liriodendron tulipifera</i> Poplar	30"	Specimen	Tree is in good health.
542	<i>Liriodendron tulipifera</i> Poplar	25"	Specimen	Tree is in good health.
543	<i>Pinus spp</i> Pine	33"	Specimen	Tree is in good health.
559	<i>Quercus nigra</i> Water Oak	27"	Specimen	Tree is in good health.
562	<i>Quercus nigra</i> Water Oak	25"	Specimen	Tree is in good health.
566	<i>Quercus nigra</i> Water Oak	29"	Specimen	Tree is in good health.
60	<i>Magnolia grandifolia</i> S Magnolia	24"	Specimen	Tree is in good health.
61	<i>Cornus florida</i> Dogwood	8"	Specimen	Tree is in good health.
62	<i>Liquidambar styraciflua</i> Sweetgum	24"	Non-Specimen	NST #3: Lighting scar with trunk wounds. Pic #3
67	<i>Quercus alba</i> White Oak	47"	Specimen	Tree is in good health.

Manning House

Tree #	Species	DBH	Condition	Comments
68	<i>Quercus nigra</i> Water Oak	24"	Specimen	Tree is in good health.
69	<i>Quercus nigra</i> Water Oak	25"	Specimen	Tree is in good health.
70	<i>Liquidambar styraciflua</i> Sweetgum	26"	Specimen	Tree is in good health.
71	<i>Quercus nigra</i> Water Oak	24"	Specimen	Tree is in good health.
72	<i>Pinus spp</i> Pine	31"	Non-Specimen	NST #7: Major trunk wound with hollow. Pic #7
73	<i>Pinus spp</i> Pine	27"	Specimen	Tree is in good health.
74	<i>Quercus rubra</i> Red Oak	26"	Non-Specimen	NST #9: Split with included bark. Pic #9

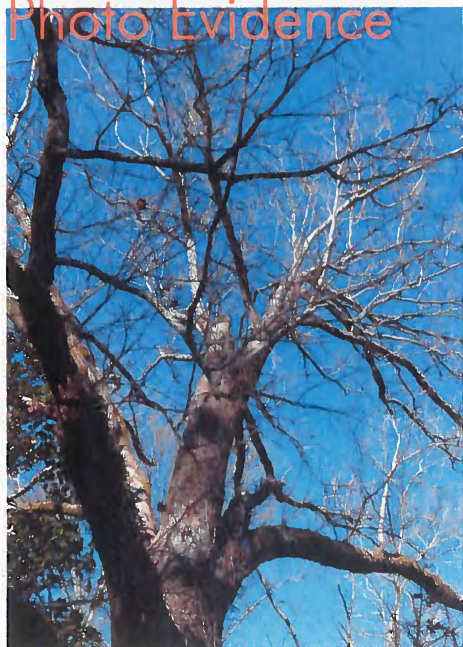
Specimen Tree Summary: Most of the specimen sized trees on site are in good condition. The non-specimen sized trees are typically hollow with major trunk wounds.

Total Specimen Sized Trees: 72
Specimen Condition: 62
Non-Specimen Condition: 10



Manning House

Photo Evidence



Pic # 1: Retrenchment and decline.
NST #1



Pic # 2: Major trunk wound with hollow.
NST #2



Pic # 3: Lightning scar with trunk wounds.
NST #3



Pic # 4: Trunk wound with major hollow.
NST #4



Manning House



Pic # 5: Trunk wound with hollow and rot.
NST #5



Pic # 6: Trunk wound with major hollow.
NST #6



Pic # 7: Major trunk wound with hollow.
NST #7

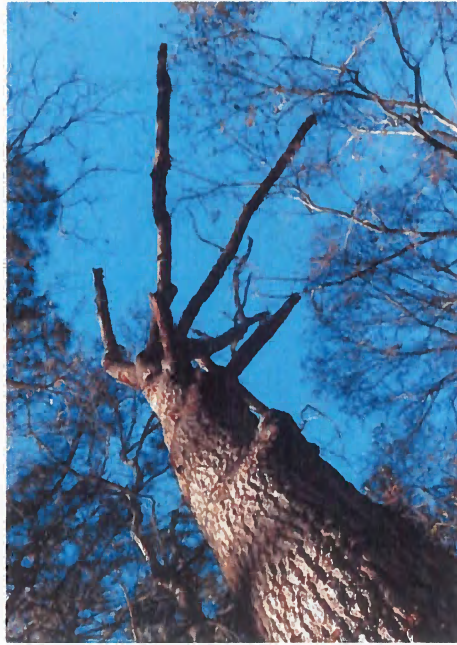


Pic # 8: Split with included bark. NST #8

Manning House



Pic # 9: Split with included bark.
NST #9



Pic # 10: Dead.
NST #10

Manning House

Landscape Tree Report

Tree #	Species	DBH	Condition	Comments
393	<i>Quercus rubra</i> Red Oak	25"	Good	Tree is in good health.
394	<i>Liquidambar styraciflua</i> Sweetgum	24"	Good	Tree is in good health.
529	<i>Liriodendron tulipifera</i> Poplar	30"	Good	Tree is in good health.
561	<i>Quercus nigra</i> Water Oak	30"	Good	Tree is in good health.
63	<i>Quercus nigra</i> Water Oak	20"	Good	Tree is in good health.
64	<i>Liquidambar styraciflua</i> Sweetgum	21"	Good	Tree is in good health.
65	<i>Pinus spp.</i> Pine	20"	Good	Tree is in good health.
66	<i>Pinus spp.</i> Pine	21"	Good	Tree is in good health.
75	<i>Quercus nigra</i> Water Oak	21"	Good	Tree is in good health.
76	<i>Quercus nigra</i> Water Oak	22"	Good	Tree is in good health.
77	<i>Liquidambar styraciflua</i> Sweetgum	22"	Good	Tree is in good health.

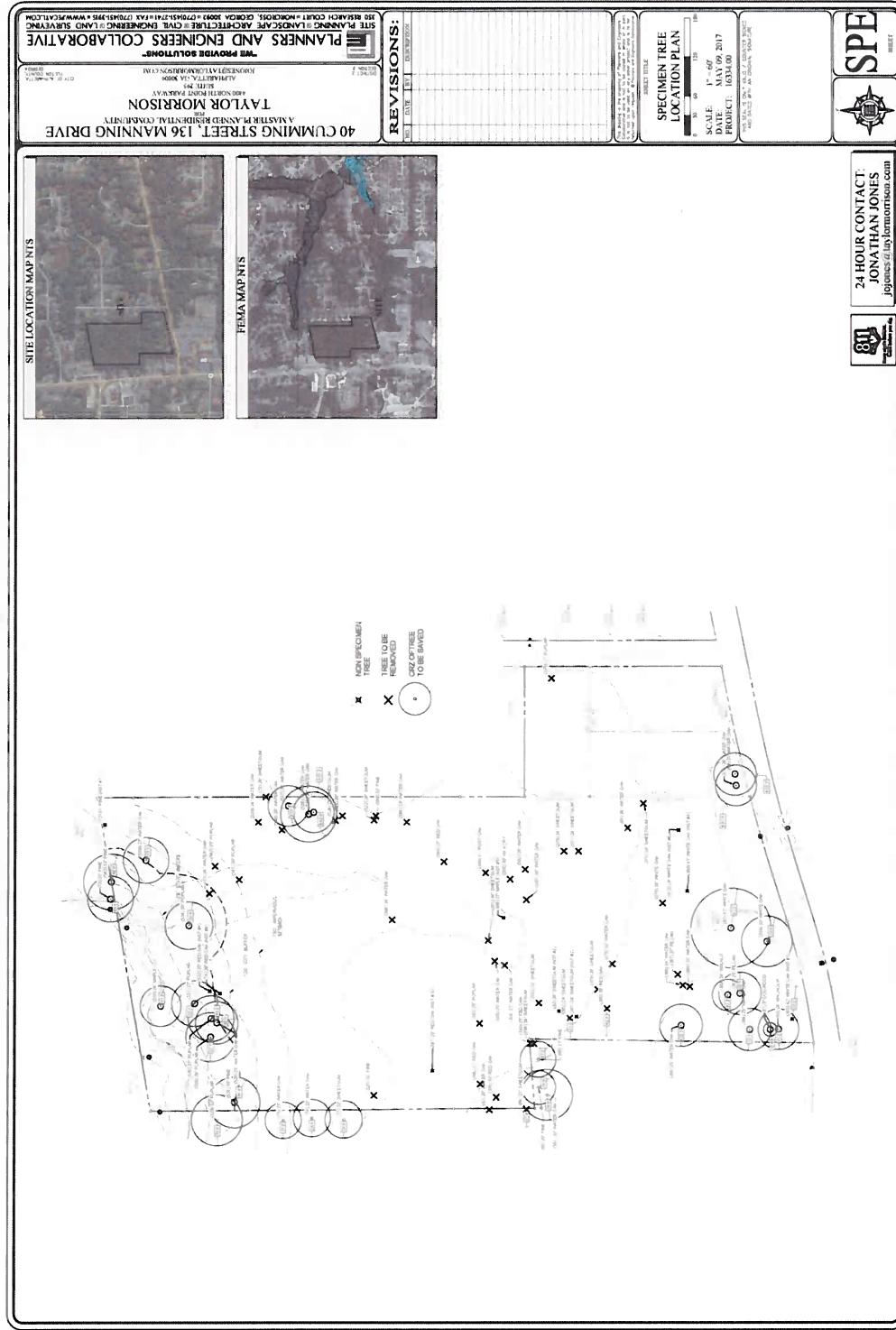
Landscape Tree Summary: All of the landscape trees on site are boundary trees and are in good condition.

Total Landscape Trees: 11



Manning House

Specimen Tree Location



Legal Description: Tract 1

All that tract or parcel of land lying and being in Land Lot 1253 of the 2nd District, 2nd Section of the City of Alpharetta, Fulton County, Georgia, and being more particularly described as follows:

BEGINNING at an iron pin found (1/2" rebar) located at the intersection of the western right-of-way line of Manning Drive (40' right-of-way width) with the northerly right-of-way line of Cumming Street (40' right-of-way width); thence leave said intersection and run southwesterly along the northerly right-of-way line of Cumming Street the following courses and distances: S78°32'46"W a distance of 78.17 feet to a point; along the arc of a curve to the left, an arc distance of 126.12 feet to a PK Nail found, said curve having a radius of 2,346.00 feet and being subtended by a chord bearing S77°00'21"W and a chord distance of 126.11 feet; along the arc of a curve to the left, an arc distance of 124.94 feet to a point, said curve having a radius of 2,346.00 feet and being subtended by a chord bearing S73°56'24"W and a chord distance of 124.92 feet; S72°24'52"W a distance of 21.89 feet to a point, said point being the **TRUE POINT OF BEGINNING**.

FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, thence continue to run southwesterly along the northerly right-of-way line of Cumming Street the following courses and distances: S72°24'52"W a distance of 53.37 feet to a point; along the arc of a curve to the right, an arc distance of 161.25 feet to a point, said curve having a radius of 1,081.10 feet and being subtended by a chord bearing S76°41'15"W and a chord distance of 161.10 feet; S80°57'38"W a distance of 30.98 feet to an iron pin found (1/2" rebar); thence leave the northerly right-of-way line of Cumming Street and run N00°58'03"E a distance of 174.43 feet to an iron pin found (1/2" rebar); thence run N00°42'07"E a distance of 12.02 feet to a point; thence run N90°00'00"E a distance of 208.86 feet to a point; thence run S11°34'37"E a distance of 131.00 feet to a point located on the northerly right-of-way line of Cumming Street, said point being the **TRUE POINT OF BEGINNING**.

Said tract or parcel of land containing 0.837 acre.



CITY COUNCIL MEETING STAFF REPORT

SUBMITTING DEPARTMENT: COMMUNITY DEVELOPMENT
SUBMITTED BY: KATHI COOK
DRAFTED BY: MICHAEL WOODMAN

I. **AGENDA ITEM TITLE:** CU-17-02/V-17-15 VILLAGE PARK AT WILLS ROAD/ASSISTED LIVING FACILITY

PLANNING COMMISSION: JUNE 1, 2017

CITY COUNCIL: JUNE 19, 2017

II. **RECOMMENDATION:**

Approve CU-17-06/V-17-15 Village Park at Wills Road/Assisted Living Facility subject to the following conditions:

1. 'Congregate Housing, Assisted Living Facility' shall be a permitted use on the subject property.
2. The site, consisting of approximately 7.01 acres, shall be developed substantially similar to site plan submitted by Foley Design, dated 5/10/2017, except for modifications required to comply with the conditions below. However, lot yield depicted is not guaranteed and subject to meeting all City code requirements and conditions of zoning.
3. Buildings shall be substantially similar to the renderings and photographic examples prepared by Foley Design, dated 5/8/2017, which depict a Modern Farmhouse style, with final approval by DRB. Site and landscape plans shall require approval by the DRB. Elevations shall be minimum 50% brick or stone.
4. Building setback shall be 50' on Wills Road, except for the theatre and dining buildings. Theatre and dining buildings shall be no more than 35' in height.
5. Maximum building height shall be limited to no greater than 45', as depicted on the conceptual elevation Sheets 1 and 2, prepared by Foley Design and dated 5/8/2017.
6. Drive entrances shall include stone entrance walls with final approval by Staff.
7. Decorative landscape and pedestrian street lights shall be required along South Main Street and Wills Road.
8. Decorative foundation plantings shall be required around all buildings, with final approval by the DRB.
9. Developer shall construct an 8' sidewalk with a minimum 5' planting strip, with trees in strip, along Wills Road.
10. Developer shall construct sidewalk along South Main Street, per GDOT improvement plans.
11. Street Trees of the proper size and locations shall be required along all internal roads as approved by staff.
12. A minimum 20' landscape strip shall be provided along South Main Street, outside of any utility easements. A minimum 10' landscape strip shall be provided along Wills Road, outside of any utility easements, and shall be heavily planted with a mix of hardwoods and evergreen plantings.
13. A minimum 15' revegetated (replanted where sparse) buffer shall be provided along the north property line adjacent to the City-owned parcel. A minimum 50' revegetated buffer, as approved by Staff, shall be provided along the north property line adjacent to 110 and 120 Wills Lane.
14. Outdoor amenity areas shall be provided as depicted on the site plan prepared by Foley Design, dated 5/10/2017.
15. Existing trees shall be saved as depicted on the plan submitted by Foley Design, dated 5/10/2017. Tree save areas near the intersection of South Main Street and Wills Road shall be enhanced with ornamental landscape, hardscape, seating area(s) and a decorative fountain or sculpture. Sculpture shall require approval by the local art committee. Landscape and hardscape shall be subject to DRB approval.

16. There shall be no encroachment into the CRZ of Tree #80 (51" Southern Red Oak). Tree #80 shall require a full risk assessment by a climbing Arborist with a resistograph. Removal of this tree shall be subject to approval by Staff. Developer shall also save Tree #85 (31" Post Oak), #86 (26" Post Oak), #94 (20" Water Oak) and #95 (21" Water Oak).
17. Generator and dumpster shall be contained within an enclosure with materials that match the building and shall include landscape screening as approved by the DRB.
18. Developer shall dedicate a sign easement to the City at the corner of Wills Road and South Main Street.
19. Power lines shall be placed underground.
20. Developer shall provide a bus shelter, with final approval by DRB.

III. REPORT IN BRIEF:

The applicant, Tim Gary on behalf of Village Park Senior Living, is requesting a conditional use permit to allow a 130-unit 'Assisted Living Facility' on 7.01 acres. Formerly known as the Sims Property, it is currently being used for a seasonal haunted house, a place of worship and a barn. Variances are requested to reduce the front setback requirement, increase the allowable building height and to reduce the undisturbed buffer requirement between non-residential and residential uses. The subject property is located at the northwest corner of Wills Road and South Main Street at 1650 South Main Street and 437 Wills Road.

DISCUSSION

The submitted request, if approved, will allow for the construction of a 130-unit 'Assisted Living Facility'. The development would include independent living units, assisted care units and memory care units in both detached and attached buildings, as well as a variety of amenities and services associated with a State-licensed assisted living facility. The subject property is located at the northwest corner of Wills Road and South Main Street at 1650 South Main Street and 437 Wills Road.

The 7.01-acre property consists of three (3) parcels of land, including a single-family detached home, a place of worship and an old barn. The zoning of the property is C-1 (Neighborhood Commercial), which allows 'Congregate Housing, Assisted Living Facility' as a conditional use. Surrounding properties are zoned R-15 to the north, O-I to the west, City of Roswell to the south and C-1 and SU to the east. A city-owned parcel and Arrowood subdivision are adjacent to the north, Wills Park and Exxon Gas Station is located to the east, Ferrari Dealership to the south, and Alpharetta Business Center to the west. The Comprehensive Land Use Plan designation of the property is 'Mixed Use'.

The applicant is constructing a similar assisted living facility at the northwest corner of Webb Bridge Road and Morris Road. The applicant's proposed assisted living facility is unique in that it allows residents to age in place. Independent seniors needing limited to no assistance may occupy the cottages, duplexes or independent living portion of the main building. As assistance needs increase, residents may move to the assisted living and memory care portion of the main building.

The applicant requests variances to reduce the front setback, increase the building height and to reduce the undisturbed buffer requirement. More specifically, the following variances are requested:

1. Unified Development Code (UDC) Subsection 2.2.14 (D) to reduce the front setback on Wills Road from 50' to 25'. The front setback reduction along Wills Road is limited to a portion of the theatre and dining buildings at the south end of the property.

2. UDC Subsection 2.2.14 (D) to increase the allowable building height from 35' to 55'. The main building varies in height from 39' (south) to 55' (midsection) and to 39' (north). The theatre and dining buildings, as well as the duplexes and cottages will be 1-story.
3. UDC Subsection 3.2.8(B)(1-2) to reduce the undisturbed buffer from 50' to a minimum 15' and to allow the buffer to be revegetated. The northern property line is approximately 364', of which under 50' is adjacent to two (2) existing single-family homes in the Arrowood subdivision. The buffer adjacent to the existing single-family homes ranges from 21' to 35'. The remainder of the property is adjacent to a City-owned parcel with residential zoning.

The nearest assisted living facility to the applicant's site is Hembree Senior Care Center, which is located at 1130 Upper Hembree Road. As shown in the tables below, there are currently ten (10) assisted living facilities operating in the City, consisting of approximately 1,171 units (or rooms). An additional 425 assisted living facility rooms are under construction at three (3) locations in the City, including the applicant's other project at the northwest corner of Webb Bridge Road and Morris Road.

Assisted Living/Senior Housing – Existing

Project Name	Location	Units
Atria of Alpharetta	100 Somerby Drive	282
Charter Senior Living	4125 North Point Parkway	70
Cottonwood Estates	255 Vaughan Drive	133
Morningside of Alpharetta	253 North Main Street	89
Addington Place of Alpharetta (F.K.A. Benton House)	762 North Main Street	97
Dogwood Square	555 Janis Square	100
Parc Alpharetta	1000 Fanfare Way	200
Hembree Senior Care Center	1130 Upper Hembree Road	22
The Mansions (Phase 1)	3700 Brookside Parkway	124
Autumn Leaves	3300 Webb Bridge Road	54
TOTAL		1,171 Units

Assisted Living/Senior Housing – Under Construction

Project Name	Location	Units
The Mansions (Phase 2)	Old Milton Parkway	92
Avanti Inspired Living	Old Milton Parkway @ GA 400	145
Village Park of Alpharetta	12300 Morris Rd	188
TOTAL		425 units

Presently, there are 21 parcels of land in the City where assisted living facility is permitted by right. Assisted living is less of a burden on traffic and schools; however, the use does have greater impacts on public safety services.

SITE PLAN

The submitted site plan depicts a 135,000 square foot main building and theatre building at the south end of the property near the corner of Wills Road and South Main Street. Cottages and duplexes are depicted on the northern portion of the property, near the existing residential neighborhood (Arrowood Subdivision). The main building is proposed to be 3-stories over parking and will include independent living units, assisted living units, memory care units, dining and amenities. The theatre, cottages and duplexes will be

1-story and will include outdoor amenity areas. The site plan depicts outdoor amenity areas throughout the site, including a pool area, parks, lawns, patios, pavilions and walking trails.

The main building is oriented to South Main Street and includes a circular driveway with a drop-off area, including a port-o-cochere. 63 surface parking spaces and 50 underground parking spaces are depicted at various locations throughout the development, which complies with the UDC requirement of one (1) space per two (2) sleeping rooms. One (1) project driveway from South Main Street and one (1) from Wills Road are depicted on the site plan. A secondary fire lane access is also depicted on Wills Road. Sidewalk improvements are shown along South Main Street and Wills Road. Building setbacks are as follows:

- South Main Street – 65'
- Wills Road – 25'
- Internal (Side and Rear) Setback – 15'

The applicant proposes a minimum 15' revegetated buffer along the north property line, except that the portion of the buffer adjacent to two (2) single-family homes in the Arrowood subdivision ranges in size from 21' to 35'. UDC Subsection 3.2.8(B)(1-2) requires a 50' undisturbed buffer between non-residential and residential uses maintained in its natural undisturbed state. The assisted living facility use is considered a non-residential use and therefore requires an undisturbed buffer along the north property line. There are three (3) adjacent properties to the north, all of which are zoned R-15. One (1) property is an undeveloped City-owned parcel with 314' of common property line with the applicant's property. And the others are two (2) existing single-family detached homes in the Arrowood subdivision with under 50' of common property line with the applicant's property.

There are several trees on the subject property, consisting mainly of Hardwoods (Oak, Tulip Poplar, Sweet Gum and Maple). Many of the identified trees do not qualify as specimen due to declining health, asymmetry and being located on slopes. The applicant's site plan incorporates tree save areas near the corner of Wills Road and South Main Street. If approved, staff recommends that perimeter trees of quality and tree groupings be saved, where possible. Stormwater will be addressed through an underground vault.

ELEVATIONS

The applicant submitted proposed elevations and photographic examples of the various buildings, which are described as Modern Farmhouse architectural style. Building materials are proposed to be stone, board and batten and siding with metal roof accents. Architectural elements will include cupolas, stone chimneys, port-o-cochere, porches and balconies, decorative railings, faux barn doors and feature windows.

The grade of the site drops from south to north. The finished floor elevations (FFE) of the main building will follow the grade of the property, with a 1135 FFE at South Main Street, 1120 FFE at the midsection of the building and 1108 FFE at the north end of the building. The main building height will vary from 39' on the south end of the building, 55' at the midsection of the building and 39' at the north end of the building.

TRAFFIC

The applicant submitted the trip generation figures below for the proposed project showing that the proposed 130 assisted living facility units would generate 24 PM Peak Hour trips.

DESCRIPTION / ITE CODE	UNITS	DAILY TOTAL	AM PEAK		PM PEAK	
			IN	OUT	IN	OUT
INDEPENDENT LIVING SENIOR -ATTACHED 251	20	74.2	2	3	3	2
INDEPENDENT LIVING SENIOR -DETACHED 252	48	252.28	4	5	5	4
ASSISTED LIVING SENIOR - 254	44	120.5	2	3	5	2
MEMORY CARE SENIOR	18	24	1	0	2	1

MARKET STUDY

A market study, prepared by JLL, was provided by the applicant and includes a supply and demand analysis for assisted living facilities. The market study identified a primary market area (PMA) of a 10-minute drive from the subject site. The target market are seniors aged 65+ with household incomes of \$35,000+. The study considered existing and proposed facilities in the City, as well as in the surrounding jurisdictions of Milton and Roswell. The supply and demand analysis indicates that the PMA has an undersupply of assisted living, memory care and independent living beds in the current year and through 2026. The study concludes that the market has potential demand to support the applicant's proposed development. However, the study does note that the development area is very active and that new senior living projects should be monitored closely. New projects could alter the conclusions of the report.

CONDITIONAL USE REVIEW CRITERIA

City staff has reviewed the applicant's request and compared it to the conditional use standards established in UDC Sec. 4.2.3 (B) which are as follows:

A conditional use otherwise permitted within a zoning district shall be considered to be compatible with other uses permitted in the district, provided that due consideration is given to the following objective criteria at a public hearing and satisfactory provisions or arrangements are made for:

1. Access into and out of the property with regard to traffic and pedestrian safety, volume of traffic flow, and emergency vehicles, as well as the type of street providing access;

Response: The applicant proposes two (2) project driveways, one from South Main Street and one from Wills Road. A secondary Fire Lane is provided on Wills Road. Staff believes that access has been properly addressed on the subject site. The proposed use is a low trip generator and would not have a significant impact on vehicular and pedestrian access or on traffic flow.

2. The extent to which refuse areas, loading and service areas, off street parking, and buffers and screening are provided on the property;

Response: The proposed site plan provides the above-mentioned items, except that the applicant requests a reduction of the 50' undisturbed buffer to a minimum of 15'. Staff recommends conditions to increase the size of the buffer adjacent to two (2) existing single-family homes and to enhance the buffer with evergreen plantings where sparse.

3. Ensuring that the conditional use will not be injurious to the use and enjoyment of the environment or of other property in the immediate vicinity or diminish and impair property values within the surrounding neighborhood;

Response: The proposed use and site plan layout provides a good transition between the existing non-residential and residential uses. Redevelopment of these properties would not be injurious or diminish the property values of surrounding properties. However, the buffer should be maintained adjacent to existing residential, setbacks and height should be in scale with the approach to the residential area.

4. Ensuring that the conditional use will not increase local or state expenditures in relation to the cost of servicing or maintaining neighboring properties;

Response: Not applicable.

5. Ensuring that the conditional use will not impede the normal and orderly development of surrounding property for uses predominant in the area; and

Response: The proposed use is consistent with the character of surrounding businesses and compatible with the adjacent residential neighborhood. The proposed use would not impede the normal and orderly development and redevelopment of surrounding properties.

6. Ensuring that the location and character of the conditional use is considered to be consistent with a desirable pattern of development for the city, in general.

Response: The proposed use is quasi-residential and is consistent with the character of surrounding businesses and compatible with the adjacent residential neighborhoods.

VARIANCE REVIEW CRITERIA

The City of Alpharetta Unified Development Code Article IV, Section 4.5.3 outlines the criteria set forth for granting a variance. The ordinance specifically states..."a variance may be granted in whole or in part, or with conditions, in such individual case of unnecessary hardship upon a finding that":

(1) There are extraordinary and exceptional conditions pertaining to the particular piece of property in question because of its size, shape or topography; or

Response: The subject property is located at the intersection of two (2) roadways and is adjacent to an existing residential neighborhood, which has impacts on the developable area of the site. The site plan has been laid out in such a way as to minimize the impacts on adjacent properties. Building heights decrease closest to the existing residential neighborhood. The front setback reduction only applies to the theatre and dining buildings located at the south end of the property. The buffer reduction varies, with the largest portion of the buffer (21' to 35') provided adjacent to the two (2) existing residential properties to the north. However, the 55' height would be tall on this parcel adjacent to Arrowood subdivision and Wills Park. The maximum height should be 45', similar to Cottonwood Estates on Hopewell Road. Also, the 50' buffer should be maintained adjacent to the two (2) residential properties.

(2) The application of the Ordinance to this particular piece of property would create an unnecessary hardship; or

Response: The applicant could develop the site in compliance with the required buffer, setbacks and building height. However, the site plan was laid out to minimize impacts to the existing residential neighborhood to the north.

(3) There are conditions that are peculiar to the property which adversely affect its reasonable use or usability as currently zoned; or

Response: The subject property is impacted by significant front setback requirements and a requirement for an undisturbed buffer. The property is situated between non-residential uses and an existing residential neighborhood.

(4) Relief, if granted, would not cause substantial detriment to the public good or impair the purpose and intent of the City of Alpharetta ordinances.

Response: Approval will not cause substantial detriment to the public good as the site plan has been laid out to minimize the impacts on the adjacent residential neighborhood to the north. Staff recommends conditions to increase the size of the buffer adjacent to the two (2) existing single-family homes, to enhance the buffer with evergreen plantings where sparse and a maximum height of 45'.

CONCURRENCES

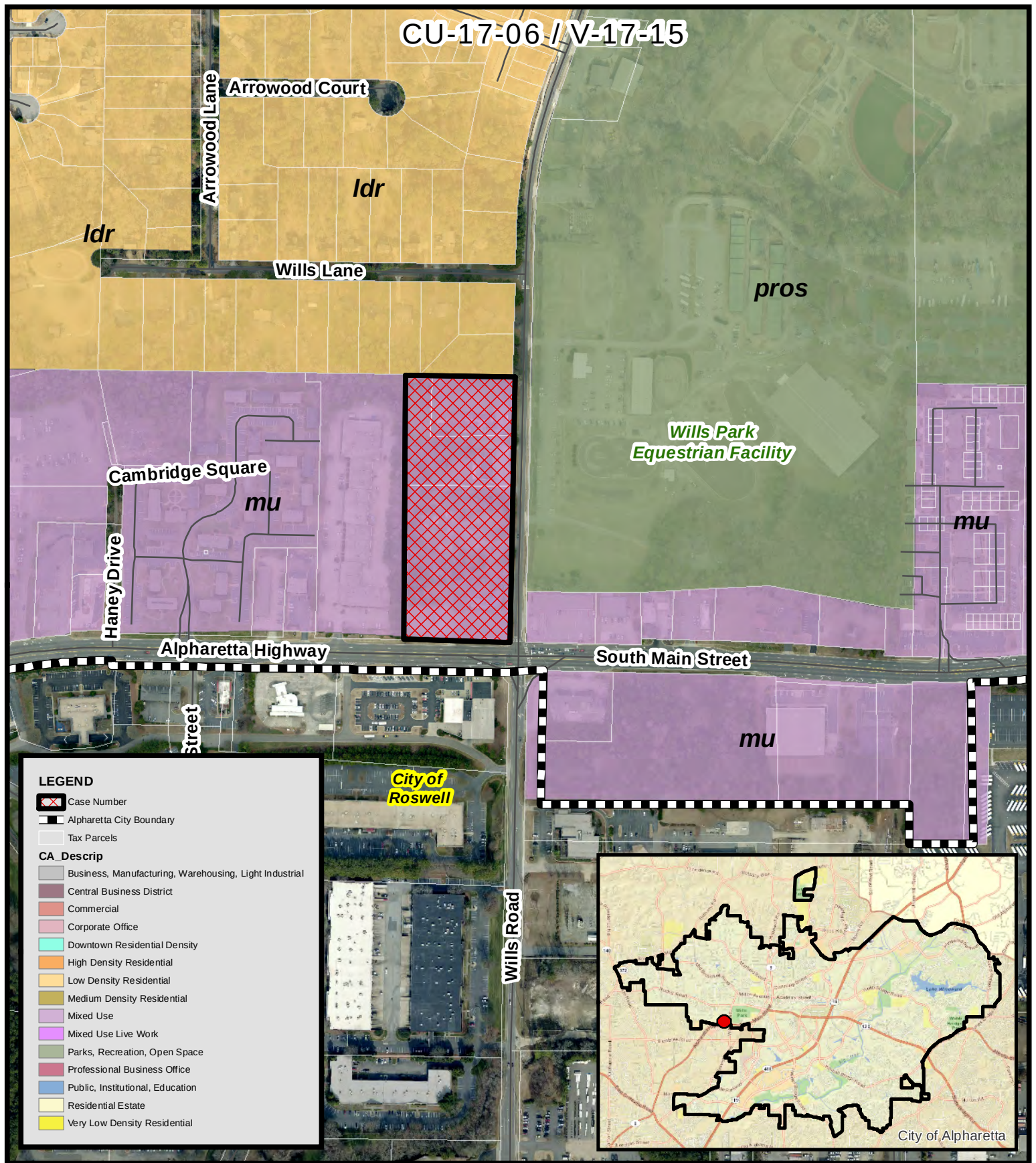
City Staff has reviewed the applicant's proposal and finds that it can generally support the request for conditional use and variances. The request is not in conflict with the established standards and should have little impact on the area. The proposed use is a low traffic generator and would represent a good transition between the adjacent residential and non-residential uses. While staff is concerned with the amount of assisted living facilities in the City, the subject property is an ideal location for the proposed use given the surrounding non-residential and residential uses. In addition, the applicant has provided a market study showing demand for assisted living facility through 2026. Conditions are recommended to regulate architecture, site layout, height, landscaping, screening and to minimize impacts to adjacent properties.

CITIZEN PARTICIPATION PLAN

The report submitted by the applicant states that property owners within 500' were contacted regarding the applicant's intent. The report states that the owner of 120 Wills Lane contacted the applicant regarding the proposed buffer reduction and indicated that he does not support the proposed buffer reduction. The applicant intends to provide a 21' – 35' buffer adjacent to this property. The report states that there were no other comments.

IV. ATTACHMENTS:

- Site Plan
- Renderings



Future Land Use
Village Park @ Wills Road
Assisted Living

CU-17-06 / V-17-15
 D/LL: 1/2/600
 PC: 6/01/17
 CC: 6/19/17



Location Map Provided by:
 Community Development - GIS

CU-17-06 / V-17-15

Arrowood Court

Wills Lane

Cambridge Square

Haney Drive

Alpharetta Highway

Wills Park
Equestrian Facility

Northfall Lane

South Main Street

Northmeadow Parkway

Unknown Street

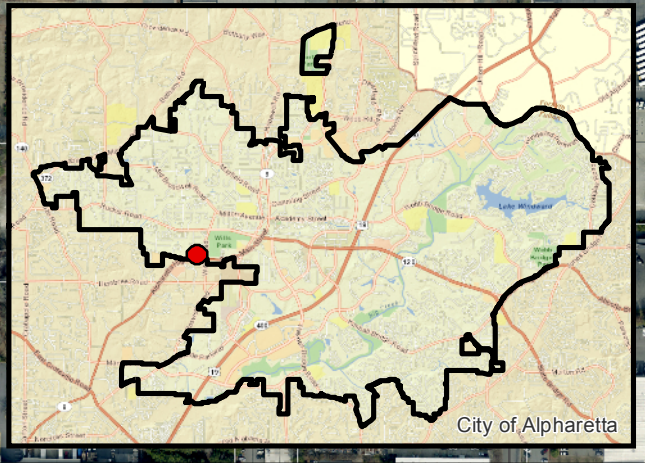
City of
Roswell

Wills Road

LEGEND

- Case Number
- Alpharetta City Boundary
- Tax Parcels

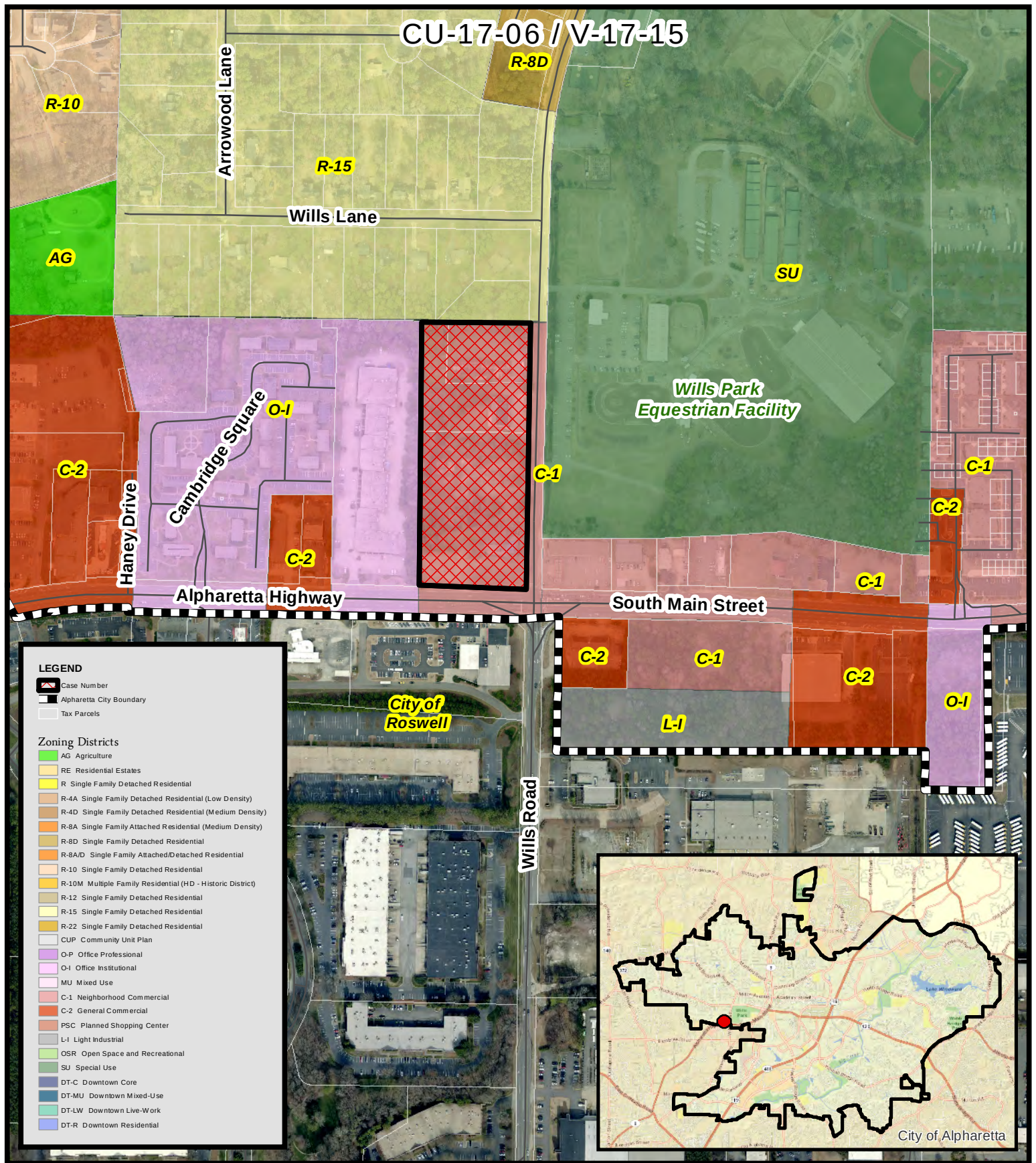
Alpharetta Hwy (9
120)



Aerial Map
Village Park @ Wills Road
Assisted Living

CU-17-06 / V-17-15
D/LL: 1/2/600
PC: 6/01/17
CC: 6/19/17

Location Map Provided by:
Community Development - GIS

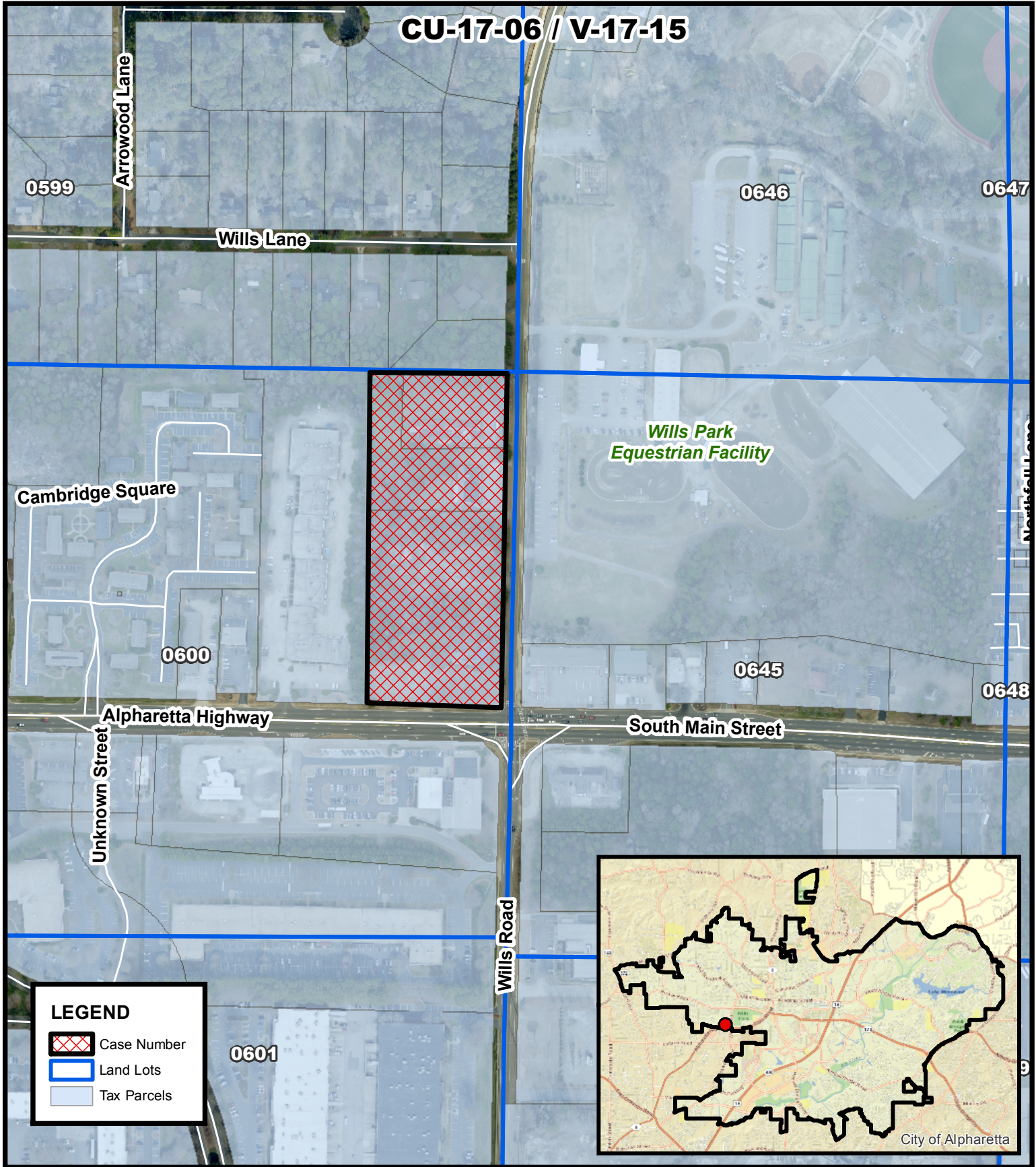


Zoning Map Village Park @ Wills Road Assisted Living

CU-17-06 / V-17-15
D/LL: 1/2/600
PC: 6/01/17
CC: 6/19/17

Location Map Provided by:
Community Development - GIS

CU-17-06 / V-17-15



Location Map
Village Park @ Wills Road
Assisted Living

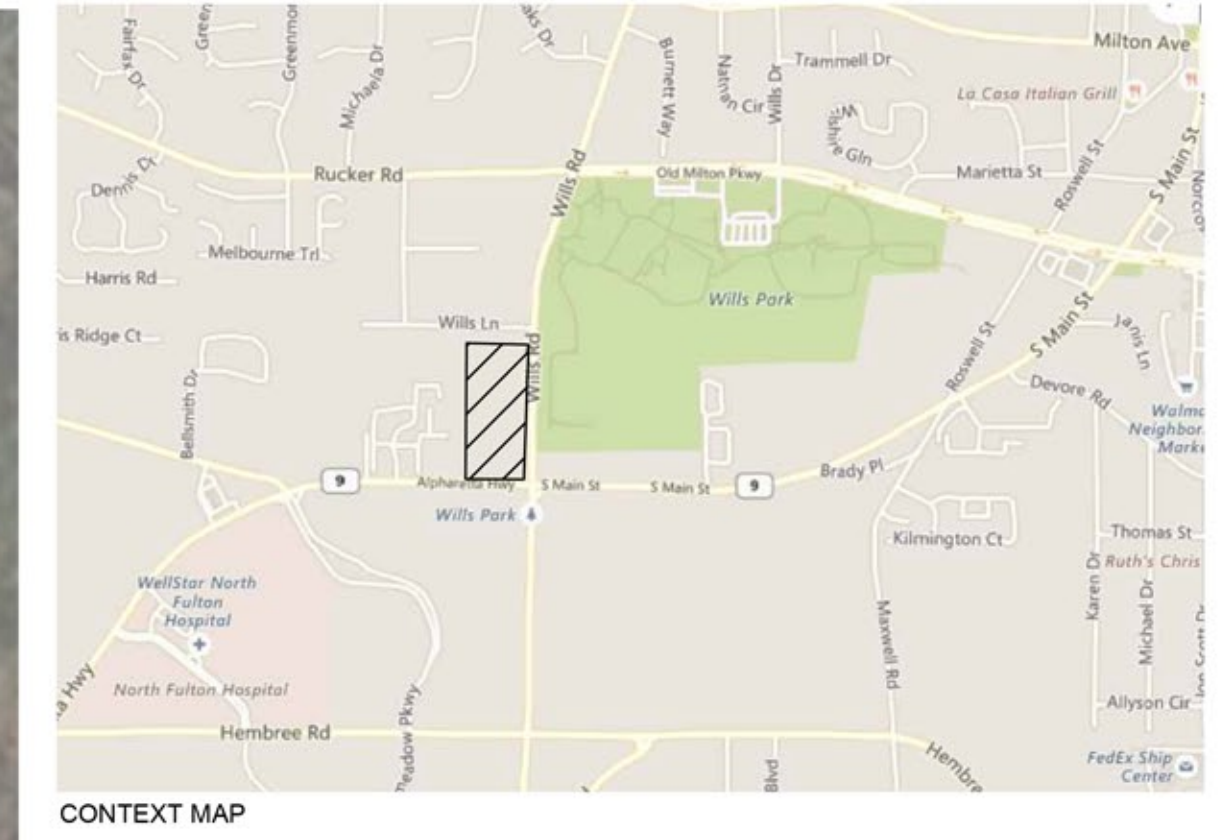
CU-17-06 / V-17-15

D/LL: 1/2/600

PC: 6/01/17

CC: 6/19/17

Location Map Provided by:
Community Development - GIS



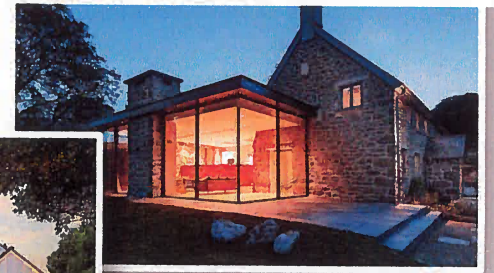
SITE PROPERTIES:

SITE ACREAGE =	7.01 ACRES
ZONED	C-1
130 TOTAL UNITS:	
MAIN BUILDING:	48 IL UNITS 44 AL UNITS 18 MC UNITS 13 UNITS
COTTAGES:	
PARKING:	
REQUIRED:	
	48 ATTACHED IL = 72 SPACES 44 ATTACHED AL = 22 SPACES 13 DETACHED = 26 SPACES 120 SPACES
TOTAL =	
PROPOSED:	
UNDERGROUND:	50 SPACES
SURFACE:	63 SPACES
COTTAGES:	26 SPACES (1 GARAGE/ 1 DRIVEWAY)
TOTAL:	139 SPACES
*BUILDING HEIGHT =	35' MAX AVERAGE HT PER ZONING *REQUEST FOR 55' MAX AVERAGE HT
*SETBACKS:	
FRONTAGE:	65' ON HWY 9 *50' ON WILLS ROAD (REQUEST FOR 25')
REAR:	15'
SIDE:	15'
BUILDINGS SF:	
IL/AL MAIN BLD =	135,000 SF
COTTAGES =	28,000 SF
PARKING UNDER BLDG =	30,000 SF
TOTAL =	163,000 SF
BUFFERS & LANDSCAPE STRIPS:	
HWY 9 =	20' LANDSCAPE STRIP
WILLS ROAD =	10' LANDSCAPE STRIP
*50' BUFFER NORTH PL (REQUEST FOR 15')	

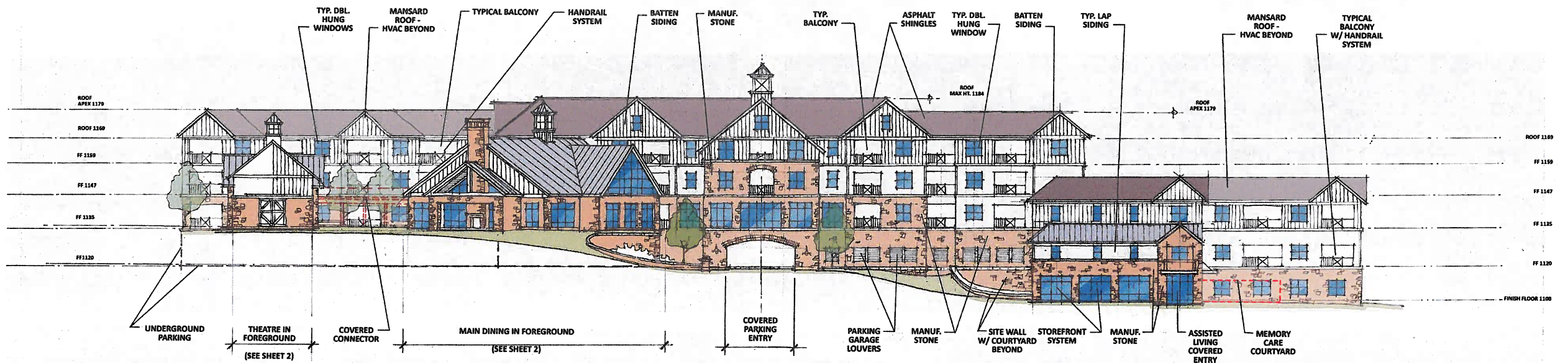
SITE CONDITIONS REQUESTS:

1. INCREASE THE AVERAGE HT. FROM 35' TO 55'.
2. REDUCE THE SETBACK ALONG WILL ROAD FROM 50' TO 25'.
3. REDUCE THE BUFFER REQUIREMENTS ALONG NORTH PROPERTY LINE AGAINST THE AREA ZONED R-15 FROM 50' TO 15'. (CITY OWNS PROPERTY)





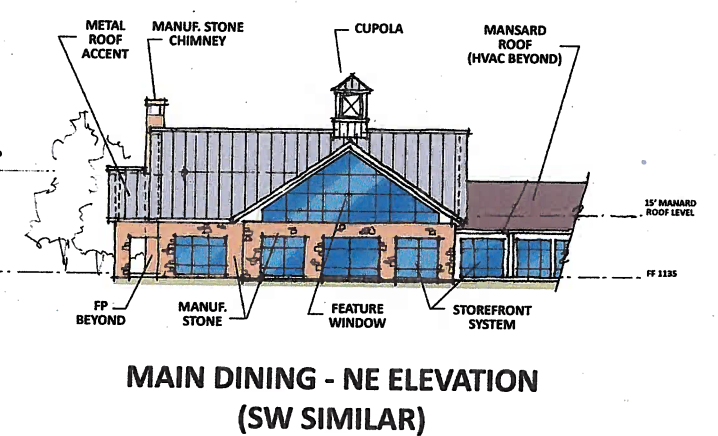
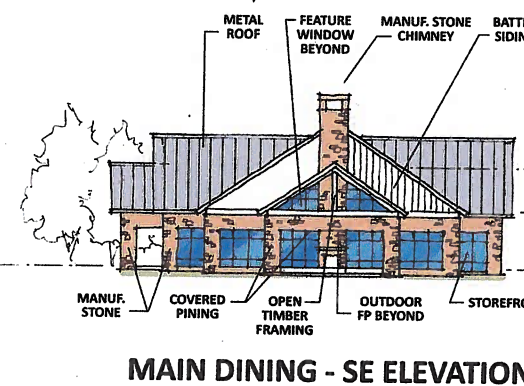
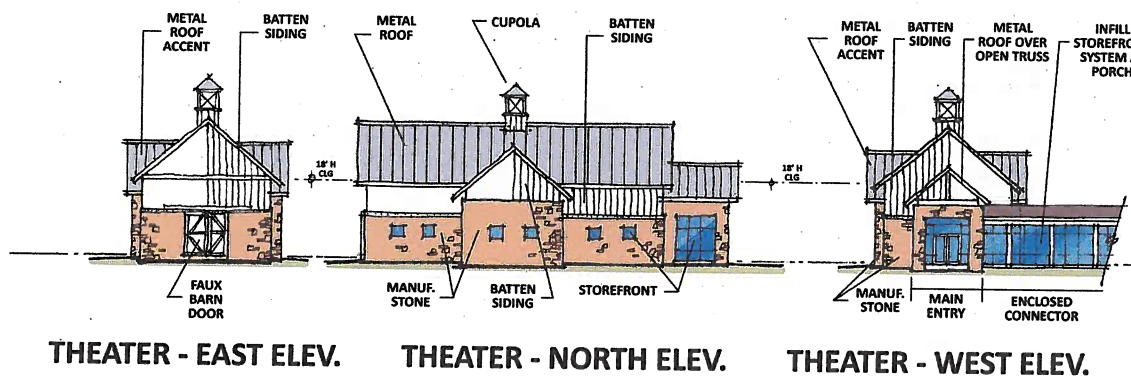
COMMUNITY CHARACTER



VIEW FROM WILLS ROAD - EAST ELEVATION



HOUSING CHARACTER



Phase I Preliminary Market Study:
Village Park Senior Living
1650 South Main Street
Alpharetta, Georgia 30009

Prepared for: Village Park Senior Living

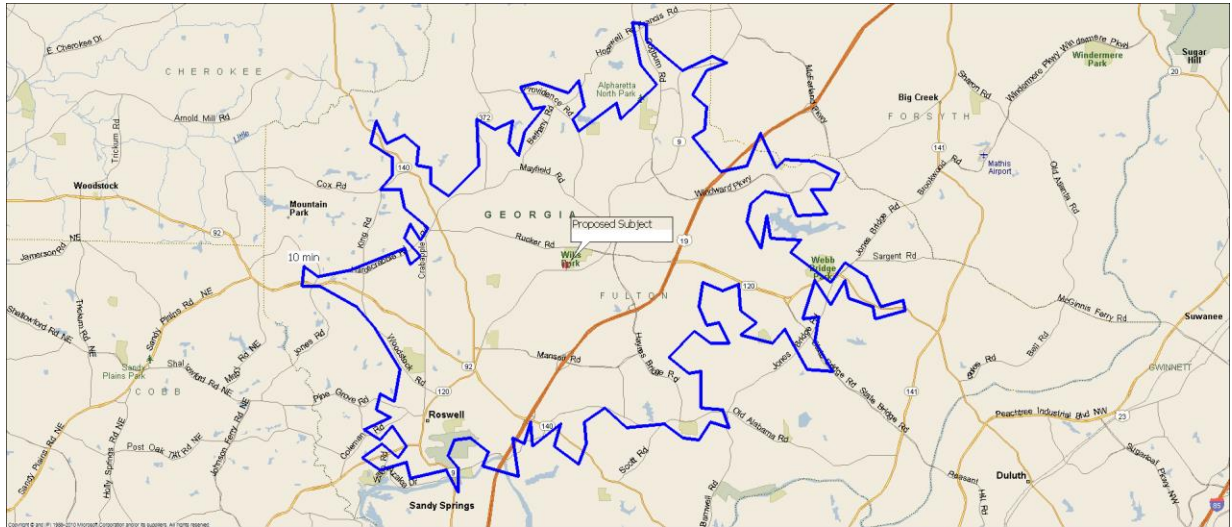
JLL File Number: 112-2017-0490



Supply and Demand Analysis

Delineation of Primary Market Area

Considering the lack of physical and psychological barriers and the number of competitive properties scattered throughout the area, we have concluded the appropriate primary market area (PMA) to be the area within a 10-minute drive time of the subject.



Target Market

The subject's target market group consists of the age qualified population that has adequate income to live in elderly housing and adult children who are caregivers for an elderly relative. Therefore, the subject's primary target market is seniors aged 65+ with household income of \$35,000+, as well as adult children who might relocate such a person to the market.

PMA Demographics

Demographics relevant to the seniors housing market are as follows:

Alpharetta Phase I

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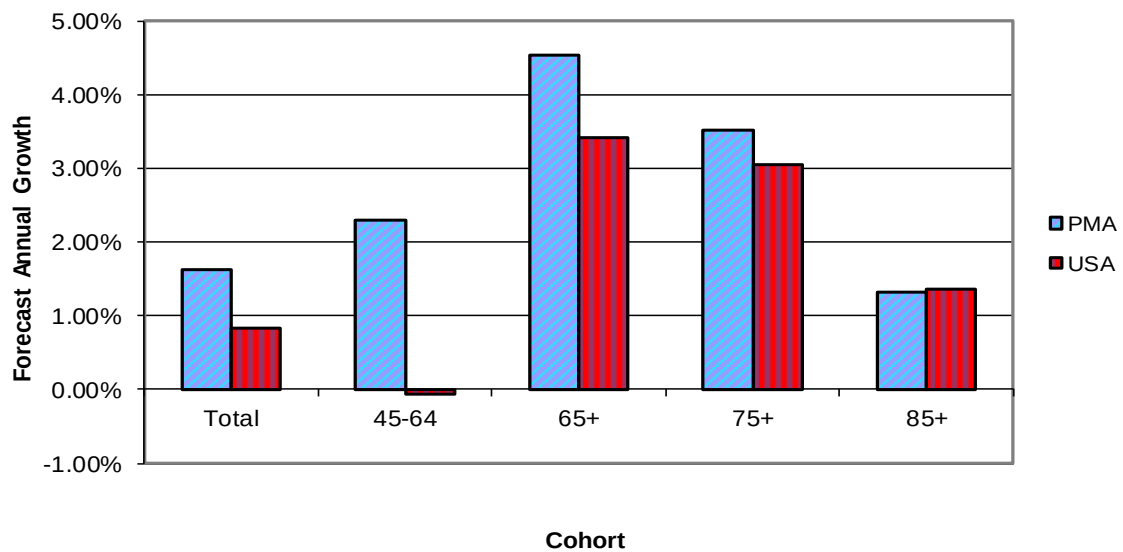
Market Area Characteristics		
Item	PMA	USA
Total Population		
2016 Population	63,196	323,580,626
Forecasted 2021 Population	68,489	337,326,118
Forecasted Annual Growth, 2016-2021	1.62%	0.84%
Adult Child (45-64) Population		
2016 Population 45-64	16,641	84,433,746
Forecasted 2021 Population 45-64	18,636	84,162,200
Forecasted Annual Growth, 2016-2021	2.29%	-0.06%
2016 Age 45-64 Pop. as % of Total Pop.	26.33%	26.09%
65 Plus Population		
2016 Population 65+	7,014	48,626,793
Forecasted 2021 Population 65+	8,754	57,497,878
Forecasted Annual Growth, 2016-2021	4.53%	3.41%
2016 Age 65+ Pop. as % of Total Pop.	11.10%	15.03%
75 Plus Population		
2016 Population 75+	3,048	20,296,404
Forecasted 2021 Population 75+	3,623	23,580,032
Forecasted Annual Growth, 2016-2021	3.52%	3.04%
2016 Age 75+ Pop. as % of Total Pop.	4.82%	6.27%
85 Plus Population		
2016 Population 85+	1,116	6,224,969
Forecasted 2021 Population 85+	1,192	6,660,406
Forecasted Annual Growth, 2016-2021	1.33%	1.36%
2016 Age 85+ Pop. as % of Total Pop.	1.77%	1.92%
Income Levels		
Median Household Income, All Ages	\$81,273	\$54,149
Median Income Level Age 65 to 74	\$94,552	\$62,296
Median Income Level Age 75 to 84	\$75,519	\$48,205
Median Income Level Age 85+	\$47,417	\$31,107
Source: Esri		

Alpharetta Phase I

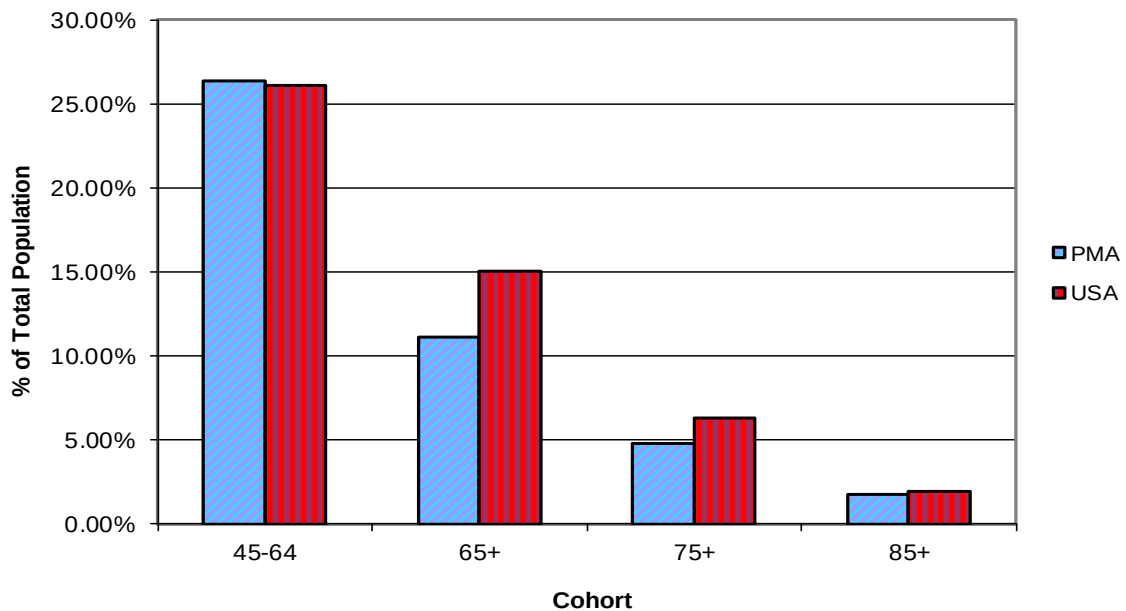
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Comparison of Growth Rate Forecasts



Comparison of Population Composition



Alpharetta Phase I

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Overall population growth is forecast to be greater than average in the PMA. Growth of persons in the “adult child” age bracket (45 to 64) is forecast to be greater than average, while the percent of total population that is within the 45 to 64 age group is greater than average. The percent of total population that is 65+ is less than average. Forecasted growth for the 65+ cohort is greater than average. The percent of total population that is 75+ is less than average. Forecasted growth for the 75+ cohort is greater than average. Lastly, the 85+ population is forecast to grow at a pace less than the national average, while representing a less than average percent of the total population base of the PMA. Senior income levels are above average.

Between 2016 and 2021, the market area is forecast to experience growth in demand for seniors housing at an average rate relative to the nation as a whole.

Methodology for Quantifying Supply

As discussed previously, a 10-minute drive from the subject site is considered to be the PMA. Drive time is a major factor for residents living in this area of Atlanta. Therefore, it is unlikely that potential residents would drive farther than 10-minutes for potential housing. The current inventory of competitive assisted living (including memory care) and independent living facilities are shown in the following sections. Considering the concluded PMA boundaries, which consists of the area within a 10-minute drive time from the subject, as well as the driving distances between the various facilities and the development site, an estimated competitive percentage was applied for each community for purposes of our supply and demand analysis.

Assisted Living Supply Analysis

We will now focus upon the assisted living segment of the market. Bed licenses are granted based upon double occupancy in many rooms. In practice, a lesser number of rooms are typically occupied by more than one person. For this reason, we will analyze operating beds as opposed to licensed beds. For purposes of this report, a facility’s operating beds are considered the optimal number of persons that the facility is designed to accommodate at one time. This figure is generally equal to or greater than the number of units and equal to or less than the number of licensed beds. Our analysis also disregards small board and care facilities in and around the market area, although we know such facilities to be present. Board and care facilities generally have less than 25 licensed beds, are operated by “mom and pop” type operators, and offer accommodations and services of lesser quality. For consistency, such facilities are also excluded from the penetration rates utilized in the demand analysis.

Alpharetta Phase I

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Existing Supply of Assisted Living

The following table is a list of the assisted living facilities serving the subject's market area.

Existing Supply of Assisted Living					
Property Name	Type	Number of Assisted Living Beds	Miles From Subject	Percent Beds Considered Competitive	Number of Competitive Beds
The Phoenix at Roswell 11725 Pointe Pl, Roswell, GA	ALF/MC	32	0.9	50%	16
Atria North Point 100 Somerby Dr, Alpharetta, GA	IALF/MC	73	1.1	50%	37
Morningside of Alpharetta 253 N Main St, Alpharetta, GA	ALF/MC	80	1.5	25%	20
Addington Place of Alpharetta 762 N Main St, Alpharetta, GA	ALF/MC	79	2.4	15%	12
Brookdale Roswell 1000 Applewood Dr, Roswell, GA	IALF/MC	59	2.4	15%	9
Brookdale Big Creek Roswell 655 Mansell Rd, Roswell, GA	ALF/MC	97	2.6	15%	15
Autumn Leaves of Winward 3300 Webb Bridge Road, Alpharetta, GA	ALF D/MC	53	2.7	15%	8
Bickford of Alpharetta 4125 Northpoint Pkwy, Alpharetta, GA	ALF/MC	71	2.8	15%	11
Arbor Terrace of Crabapple 12200 Crabapple Rd, Alpharetta, GA	ALF/MC	93	2.9	15%	14
Brickmont Senior Living 2925 Webb Road, Milton, GA	ALF/MC	124	3.0	15%	19
Ivey Ridge, Sunrise of 2950 Old Alabama Rd, Alpharetta, GA	ALF/MC	85	3.8	5%	5
Brookdale Historic Roswell 75 Magnolia St, Roswell, GA	ALF/MC	92	4.2	5%	5
St. George Village 11350 Woodstock Rd, Roswell, GA	CCRC	39	4.2	5%	2
The Phoenix at Milton 13943 Highway 9 North, Milton	ALF/MC	86	4.4	5%	5
Elmcroft of Roswell 400 Marietta Hwy, Roswell, GA	ALF/MC	68	4.7	5%	4
The Georgian Lakeside 1070 Hardscrabble Rd, Roswell, GA	ALF/MC	95	4.7	5%	5
Manor on the Square 550 Barrington Dr, Roswell, GA	ALF/MC	65	4.8	5%	4
Total Number of Existing Competitive Beds					191
Type Key					
NC: Nursing center		ALF/MC: Free-standing assisted living facility with memory care wing			
NC/ALF: Nursing center with assisted living		ALF D/MC: Free-standing assisted living facility, 100% memory care wing			
NC/ALF/MC: Nursing center with assisted living & memory care wing		ILF: Independent living facility			
NC/MC/ILF: Nursing center with independent living & memory care wing		IALF: Independent and assisted living facility			
NC/IL: Nursing center with independent living		IALF/MC: Independent and assisted living facility with memory care wing			
NC/MC: Nursing center with specialized memory care beds		ILF/MC: Independent living facility with memory care wing			
		CCRC: Continuing care retirement community			

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Occupancy of Competitive Supply

The occupancy and waiting list status of the competitive supply of assisted living are as follows:

Occupancy of Competitive Assisted Living		
Property Name	Current Occupancy %	Waiting List Status
The Phoenix at Roswell 11725 Pointe Pl, Roswell, GA	100%	Yes
Atria North Point 100 Somerby Dr, Alpharetta, GA	85%	No
Morningside of Alpharetta 253 N Main St, Alpharetta, GA	N/A	No
Addington Place of Alpharetta 762 N Main St, Alpharetta, GA	99%	No
Brookdale Roswell 1000 Applewood Dr, Roswell, GA	95%	No
Brookdale Big Creek Roswell 655 Mansell Rd, Roswell, GA	94%	No
Autumn Leaves of Winward 3300 Webb Bridge Road, Alpharetta, GA	N/A (Lease-Up)	No
Bickford of Alpharetta 4125 Northpoint Pkwy, Alpharetta, GA	97%	No
Arbor Terrace of Crabapple 12200 Crabapple Rd, Alpharetta, GA	95%	No
Brickmont Senior Living 2925 Webb Road, Milton, GA	N/A (Lease-Up)	No
Ivey Ridge, Sunrise of 2950 Old Alabama Rd, Alpharetta, GA	95%	Yes
Brookdale Historic Roswell 75 Magnolia St, Roswell, GA	95%	Yes
St. George Village 11350 Woodstock Rd, Roswell, GA	100%	Yes
The Phoenix at Milton 13943 Highway 9 North, Milton	N/A (Lease-Up)	No
Elmcroft of Roswell 400 Marietta Hwy, Roswell, GA	94%	No
The Georgian Lakeside 1070 Hardscrabble Rd, Roswell, GA	51% (Lease-Up)	No
Manor on the Square 550 Barrington Dr, Roswell, GA	85%	No

It is also noted that efforts were made to procure occupancy data at each of the competing facilities. However, in several cases, specific data was not available. These communities are noted with a N/A in the table above. Autumn Leaves of Winward (opened March 2017), The Phoenix at Milton, Brickmont Senior Living and The Georgian Lakeside (opened late 2016) are all in the midst of the initial lease-up period.

Based upon the reported occupancy levels, the weighted average occupancy for competitive beds is as follows:

Alpharetta Phase I

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Weighted Average Occupancy of Competitive Assisted Living			
Property Name	Number of Competitive		Number of Occupied
	Beds	Current Occupancy %	
The Phoenix at Roswell 11725 Pointe Pl, Roswell, GA	16	100%	16
Atria North Point 100 Somerby Dr, Alpharetta, GA	37	85%	31
Addington Place of Alpharetta 762 N Main St, Alpharetta, GA	12	99%	12
Brookdale Roswell 1000 Applewood Dr, Roswell, GA	9	95%	9
Brookdale Big Creek Roswell 655 Mansell Rd, Roswell, GA	15	94%	14
Bickford of Alpharetta 4125 Northpoint Pkwy, Alpharetta, GA	11	97%	11
Arbor Terrace of Crabapple 12200 Crabapple Rd, Alpharetta, GA	14	95%	13
Ivey Ridge, Sunrise of 2950 Old Alabama Rd, Alpharetta, GA	5	95%	5
Brookdale Historic Roswell 75 Magnolia St, Roswell, GA	5	95%	5
St. George Village 11350 Woodstock Rd, Roswell, GA	2	100%	2
Elmcroft of Roswell 400 Marietta Hwy, Roswell, GA	4	94%	4
Manor on the Square 550 Barrington Dr, Roswell, GA	4	85%	3
TOTALS	134	-	125
WEIGHTED AVERAGE OCCUPANCY		93%	-

Note that the facilities that are in the initial stage of lease-up have been excluded from the weighted average occupancy.

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Assisted Living under Construction or Proposed

Our research revealed the following competitive projects under construction or proposed:

Avanti Inspired Living – Atlanta Senior Care Services is constructing a 145 bed (128 unit) assisted living and memory care facility in Alpharetta. This project is currently under construction with an estimated completion date within the next 12 months.

Village Park Senior Living – Village Park Senior Living is constructing an independent living, assisted living and memory care facility in Alpharetta. Plans are to include 58 assisted living units, which includes 18 memory care units, and 42 independent living units. This facility is currently under construction with plans to open in the next 12 months.

Mansions at Alpharetta – Mansions Senior Living is constructing an independent living, assisted living and memory care facility in Alpharetta. The independent living care segment units opened in October of 2016 and are currently 50% occupied. The assisted living and memory care units are under construction with a completion date of August of 2017. The additional improvements will include 90 assisted living beds, including 36 memory care beds.

In our supply forecast, we will only include those facilities likely to be complete within the coming 24 months. These facilities are set forth in the following table.

Supply of Assisted Living Under Construction or Proposed					
Property Name	Current Status	Number of Assisted Living Beds	Miles From Subject	Percent Beds Considered Competitive	Number of Competitive Beds
Avanti Inspired Living 11450 Morris Road, Alpharetta	Under Construction	145	2.4	15%	22
Village Park Senior Living 12300 Morris Road, Alpharetta, GA	Under Construction	76	3.0	15%	12
Mansions at Alpharetta 3700 Brookside Parkway, Alpharetta, GA	Under Construction	90	3.3	5%	5
Relevant Supply Likely to be Complete Within 12 Months					39

Alpharetta Phase I

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Memory Care Supply Analysis

We will now focus upon the memory care segment of the assisted living market. Alzheimer's disease is a progressive, degenerative disease that attacks the brain and results in impaired memory, thinking, and behavior. It was first described by Dr. Alois Alzheimer in 1906 and has since been diagnosed in millions of people. The exact causes have yet to be discovered. Memory care is an umbrella term used to describe the loss of cognitive or intellectual function. Many conditions can cause memory care issues. Issues related to depression, drug interaction, thyroid, and other problems may be reversible if detected early. Several other diseases also cause memory care issues, such as Parkinson's, Creutzfeldt-Jakob, Huntington's, and Multi-Infarct or vascular disease, caused by multiple strokes in the brain.

The following statistics from the National Alzheimer's Association's *2017 Alzheimer's Disease Facts and Figures* report delineate the strong need for facilities that care for persons with memory care issues:

- Alzheimer's is a progressive, degenerative disease of the brain and the most common form of memory care disease.
- An estimated 5.5 million Americans of all ages have Alzheimer's dementia in 2017. This figure includes 5.3 million people aged 65 and older and 200,000 individuals under age 65 who have younger-onset memory care issues.
- One in ten people aged 65 and older (10%) has Alzheimer's dementia.
- Of those with Alzheimer's, an estimated 4% are under age 65, 16% are 65 to 74, 44% are 75 to 84, and 38% are 85 and older. It is noted that percentages do not total 100% due to rounding.
- More women than men have memory care issues. Almost two-thirds of all Americans living with Alzheimer's are women. Of the 5.3 million people over age 65 with Alzheimer's in the United States, 3.3 million are women and 2.0 million are men. Based on estimates from ADAMS, 16% of women aged 71 and older have memory care issues compared with 11% of men.
- The number of Americans surviving into their 80s and 90s and beyond is expected to grow dramatically due to advances in medicine and medical technology, as well as social and environmental conditions. Additionally, a very large segment of the American population – the baby boom generation – is reaching retirement age.
- By 2030, the segment of the U.S. population aged 65 years and older is expected to double, and the estimated 74 million older Americans will make up approximately 20% of the total population (up from 14% in 2012). As the number of older Americans grows rapidly, so too will the numbers of new and existing cases of memory care issues.
- In 2000, there were an estimated 411,000 new (incident) cases of Alzheimer's disease. For 2010, that number was estimated to be 454,000 (a 10% increase); by 2030, it is projected to be 615,000 (35% increase from 2010); and by 2050, 959,000 (110% increase from 2010).
- By 2025, the number of people aged 65 and older with Alzheimer's disease is estimated to be over 7.1 million. This is a 35% increase from the 5.3 million aged 65 and older currently affected in 2017.
- By 2050, the number of people aged 65 and older with Alzheimer's disease may nearly triple, from 5.3 million to a projected 13.8 million, barring the development of medical breakthroughs to prevent or more effectively treat the disease.

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In the past, most persons with memory care issues have been cared for in the home by informal caregivers (friends or relatives) or through home health care agencies or other providers. With the continuing increase in two-income households and the recognition that caring for a person with memory care issues can be physically and mentally taxing, many informal caregivers are seeking options outside the home. This led to growth in the number of facilities providing specialized care for persons with memory care issues.

Facilities providing specialized care for persons with memory care issues generally follow one of two models: the nursing care model or the assisted living model. Generally, the nursing care model can be characterized as being for patients who have relatively extensive health care needs in addition to requiring care for memory care issues. The nursing care model is a type of care subject to greater regulation than assisted living care. Staffing requirements for nursing care are typically greater, and the associated costs for care are higher. As many persons with memory care issues are otherwise healthy, the assisted living model is the leading model for the care of persons with memory care issues.

Existing Supply of Memory Care

The existing supply of memory care within the PMA is as follows.

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Existing Supply of Memory Care					
Property Name	Type	Number of Memory Care Beds	Miles From Subject	Percent Beds Considered Competitive	Number of Competitive Beds
The Phoenix at Roswell 11725 Pointe Pl, Roswell, GA	ALF/MC	16	0.9	50%	8
Atria North Point 100 Somerby Dr, Alpharetta, GA	IALF/MC	24	1.1	50%	12
Morningside of Alpharetta 253 N Main St, Alpharetta, GA	ALF/MC	24	1.5	25%	6
Addington Place of Alpharetta 762 N Main St, Alpharetta, GA	ALF/MC	28	2.4	15%	5
Brookdale Roswell 1000 Applewood Dr, Roswell, GA	IALF/MC	35	2.4	15%	6
Brookdale Big Creek Roswell 655 Mansell Rd, Roswell, GA	ALF/MC	19	2.6	15%	3
Autumn Leaves of Winward 3300 Webb Bridge Road, Alpharetta, GA	ALF D/MC	53	2.7	15%	8
Bickford of Alpharetta 4125 Northpoint Pkwy, Alpharetta, GA	ALF/MC	23	2.8	15%	4
Arbor Terrace of Crabapple 12200 Crabapple Rd, Alpharetta, GA	ALF/MC	26	2.9	15%	4
Brickmont Senior Living 2925 Webb Road, Milton, GA	ALF/MC	37	3.0	15%	6
Ivey Ridge, Sunrise of 2950 Old Alabama Rd, Alpharetta, GA	ALF/MC	20	3.8	5%	1
Brookdale Historic Roswell 75 Magnolia St, Roswell, GA	ALF/MC	34	4.2	5%	2
St. George Village 11350 Woodstock Rd, Roswell, GA	CCRC	14	4.2	5%	1
The Phoenix at Milton 13943 Highway 9 North, Milton	ALF/MC	19	4.4	5%	1
Elmcroft of Roswell 400 Marietta Hwy, Roswell, GA	ALF/MC	15	4.7	5%	1
The Georgian Lakeside 1070 Hardscrabble Rd, Roswell, GA	ALF/MC	25	4.7	5%	2
Manor on the Square 550 Barrington Dr, Roswell, GA	ALF/MC	20	4.8	5%	1
Total Number of Existing Competitive Beds					71
Type Key NC: Nursing center NC/ALF: Nursing center with assisted living NC/ALF/MC: Nursing center with assisted living & memory care wing NC/MC/ILF: Nursing center with independent living & memory care wing NC/IL: Nursing center with independent living NC/MC: Nursing center with specialized memory care beds ALF/MC: Free-standing assisted living facility with memory care wing ALF D/MC: Free-standing assisted living facility, 100% memory care wing ILF: Independent living facility IALF: Independent and assisted living facility IALF/MC: Independent and assisted living facility with memory care wing ILF/MC: Independent living facility with memory care wing CCRC: Continuing care retirement community					

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Occupancy of Competitive Supply

The occupancy and waiting list status of the competitive supply of memory care is as follows:

Occupancy of Competitive Memory Care		
Property Name	Current Occupancy %	Waiting List Status
The Phoenix at Roswell 11725 Pointe Pl, Roswell, GA	72% (Lease-Up)	No
Atria North Point 100 Somerby Dr, Alpharetta, GA	96%	No
Addington Place of Alpharetta 762 N Main St, Alpharetta, GA	99%	No
Brookdale Roswell 1000 Applewood Dr, Roswell, GA	95%	No
Brookdale Big Creek Roswell 655 Mansell Rd, Roswell, GA	90%	No
Autumn Leaves of Winward 3300 Webb Bridge Road, Alpharetta, GA	N/A (Lease-Up)	No
Bickford of Alpharetta 4125 Northpoint Pkwy, Alpharetta, GA	97%	No
Arbor Terrace of Crabapple 12200 Crabapple Rd, Alpharetta, GA	100%	Yes
Brickmont Senior Living 2925 Webb Road, Milton, GA	N/A (Lease-Up)	No
Ivey Ridge, Sunrise of 2950 Old Alabama Rd, Alpharetta, GA	100%	Yes
Brookdale Historic Roswell 75 Magnolia St, Roswell, GA	95%	Yes
St. George Village 11350 Woodstock Rd, Roswell, GA	100%	Yes
The Phoenix at Milton 13943 Highway 9 North, Milton	N/A (Lease-Up)	No
Elmcroft of Roswell 400 Marietta Hwy, Roswell, GA	100%	Yes
The Georgian Lakeside 1070 Hardscrabble Rd, Roswell, GA	65% (Lease-Up)	No
Manor on the Square 550 Barrington Dr, Roswell, GA	85%	No

It is also noted that efforts were made to procure occupancy data at each of the competing facilities. However, in several cases, specific data was not available. These communities are noted with a N/A in the table above. Autumn Leaves of Winward (opened March 2017), The Phoenix at Milton, Brickmont Senior Living and The Georgian Lakeside (opened late 2016) are all in the midst of the initial lease-up period.

Based upon the reported occupancy levels, the weighted average occupancy for competitive beds is as follows:

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Weighted Average Occupancy of Competitive Memory Care			
Property Name	Number of Competitive Beds	Current Occupancy %	Number of Occupied Beds
Atria North Point 100 Somerby Dr, Alpharetta, GA	12	96%	12
Addington Place of Alpharetta 762 N Main St, Alpharetta, GA	5	99%	5
Brookdale Roswell 1000 Applewood Dr, Roswell, GA	6	95%	6
Brookdale Big Creek Roswell 655 Mansell Rd, Roswell, GA	3	90%	3
Bickford of Alpharetta 4125 Northpoint Pkwy, Alpharetta, GA	4	97%	4
Arbor Terrace of Crabapple 12200 Crabapple Rd, Alpharetta, GA	4	100%	4
Ivey Ridge, Sunrise of 2950 Old Alabama Rd, Alpharetta, GA	1	100%	1
Brookdale Historic Roswell 75 Magnolia St, Roswell, GA	2	95%	2
St. George Village 11350 Woodstock Rd, Roswell, GA	1	100%	1
Elmcraft of Roswell 400 Marietta Hwy, Roswell, GA	1	100%	1
Manor on the Square 550 Barrington Dr, Roswell, GA	1	85%	1
TOTALS	40	-	39
WEIGHTED AVERAGE OCCUPANCY		98%	-

Note that the facilities that are in the initial stage of lease-up have been excluded from the weighted average occupancy.

Alpharetta Phase I

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Memory Care under Construction or Proposed

Our research revealed the following competitive projects under construction or proposed:

Avanti Inspired Living – Atlanta Senior Care Services is constructing a 145 bed (128 unit) assisted living and memory care facility in Alpharetta. This project is currently under construction with an estimated completion date within the next 12 months.

Village Park Senior Living – Village Park Senior Living is constructing an independent living, assisted living and memory care facility in Alpharetta. Plans are to include 58 assisted living units, which includes 18 memory care units, and 42 independent living units. This facility is currently under construction with plans to open in the next 12 months.

Mansions at Alpharetta – Mansions Senior Living is constructing an independent living, assisted living and memory care facility in Alpharetta. The independent living care segment units opened in October of 2016 and are currently 50% occupied. The assisted living and memory care units are under construction with a completion date of August of 2017. The additional improvements will include 90 assisted living beds, including 36 memory care beds.

In our supply forecast, we will only include those facilities likely to be complete within the coming 24 months. These facilities are set forth in the following table.

Supply of Memory Care Under Construction or Proposed					
Property Name	Current Status	Number of Memory Care Beds	Miles From Subject	Percent Beds Considered Competitive	Number of Competitive Beds
Avanti Inspired Living 11450 Morris Road, Alpharetta	Under Construction	54	2.4	15%	9
Village Park Senior Living 12300 Morris Road, Alpharetta, GA	Under Construction	18	3.0	15%	3
Mansions at Alpharetta 3700 Brookside Parkway, Alpharetta, GA	Under Construction	30	3.3	5%	2
Relevant Supply Likely to be Complete Within 12 Months					14

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Independent Living Supply Analysis

We will now focus upon the independent living segment of the market. In this analysis, the focus is upon living units, which can accommodate one to two persons.

Existing Supply of Independent Living

The following table is a list of independent living facilities serving the market area.

Existing Supply of Independent Living					
Property Name	Type	Number of Independent Living Units	Miles From Subject	Percent Units Considered Competitive	Number of Competitive Units
Atria North Point 100 Somerby Dr, Alpharetta, GA	IALF/MC	210	1.1	50%	105
Cottonwood Estates Gracious Retirement Living 255 Vaughan Dr, Alpharetta, GA	ILF	118	2.1	15%	18
Brookdale Roswell 1000 Applewood Dr, Roswell, GA	IALF/MC	256	2.4	15%	39
The Mansions at Alpharetta 3700 Brookside Pkwy, Alpharetta, GA	IALF/MC	130	3.3	5%	7
Sanford Estates Gracious Retirement Living 500 Walton Way, Roswell, GA	ILF	132	3.8	5%	7
St. George Village 11350 Woodstock Rd, Roswell, GA	CCRC	143	4.2	5%	8
Total Number of Existing Competitive Units					184
Type Key					
NC: Nursing center		ALF/MC: Free-standing assisted living facility with memory care wing			
NC/ALF: Nursing center with assisted living		ALF D/MC: Free-standing assisted living facility, 100% memory care wing			
NC/ALF/MC: Nursing center with assisted living & memory care wing		ILF: Independent living facility			
NC/MC/ILF: Nursing center with independent living & memory care wing		IALF: Independent and assisted living facility			
NC/IL: Nursing center with independent living		IALF/MC: Independent and assisted living facility with memory care wing			
NC/MC: Nursing center with specialized memory care beds		ILF/MC: Independent living facility with memory care wing			
		CCRC: Continuing care retirement community			

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Occupancy of Competitive Supply

The occupancy and waiting list status of the competitive supply of independent living is as follows:

Occupancy of Competitive Independent Living		
Property Name	Current Occupancy %	Waiting List Status
Atria North Point 100 Somerby Dr, Alpharetta, GA	86%	No
Cottonwood Estates Gracious Retirement Living 255 Vaughan Dr, Alpharetta, GA	81%	No
Brookdale Roswell 1000 Applewood Dr, Roswell, GA	98%	No
The Mansions at Alpharetta 3700 Brookside Pkwy, Alpharetta, GA	50% (Lease-Up)	No
Sanford Estates Gracious Retirement Living 500 Walton Way, Roswell, GA	32% (Lease-Up)	No
St. George Village 11350 Woodstock Rd, Roswell, GA	85%	No

It is also noted that efforts were made to procure occupancy data at each of the competing facilities. However, in several cases, specific data was not available. These communities are noted with a N/A in the table above. Mansions at Alpharetta (opened October 2016) and Sanford Estates Gracious Retirement Living (opened December 2016) are both in the midst of the initial lease-up period.

Based upon the reported occupancy levels, the weighted average occupancy for competitive units is as follows:

Weighted Average Occupancy of Competitive Independent Living			
Property Name	Number of Competitive	Current Occupancy %	Number of Occupied
	Units		Units
Atria North Point 100 Somerby Dr, Alpharetta, GA	105	86%	90
Cottonwood Estates Gracious Retirement Living 255 Vaughan Dr, Alpharetta, GA	18	81%	15
Brookdale Roswell 1000 Applewood Dr, Roswell, GA	39	98%	38
St. George Village 11350 Woodstock Rd, Roswell, GA	8	85%	7
TOTALS	170	-	150
WEIGHTED AVERAGE OCCUPANCY		88%	-

Note that the facilities that are in the initial stage of lease-up have been excluded from the weighted average occupancy.

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Independent Living under Construction or Proposed

Our research revealed the following competitive projects under construction or proposed:

Village Park Senior Living – Village Park Senior Living is constructing an independent living, assisted living and memory care facility in Alpharetta. Plans are to include 58 assisted living units, which includes 18 memory care units, and 42 independent living units. This facility is currently under construction with plans to open in the next 12 months.

Vickory Rose Resort Lifestyle Community – Resort Lifestyle Communities is constructing a 130-unit independent living facility in Roswell. This project is currently under construction with an estimated completion date within the next 12 months.

In our supply forecast, we will only include those facilities likely to be complete within the coming 24 months. These facilities are set forth in the following table.

Supply of Independent Living Under Construction or Proposed					
Property Name	Current Status	Number of Independent Living Units	Miles From Subject	Percent Units Considered Competitive	Number of Competitive Units
Village Park Senior Living 12300 Morris Road, Alpharetta, GA	Under Construction	42	3.0	15%	7
Vickory Rose Resort Lifestyle Community 245 East Crossville Road, Roswell	Under Construction	130	3.0	15%	20
Relevant Supply Likely to be Complete Within 12 Months					27

Barriers to Entry

The subject is in a market with limited barriers to entry. Vacant sites are plentiful and zoning and building permits are easily obtained. Thus, it is likely that future competition will be developed as warranted by demand.

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Seniors Housing Demand Analysis

We will now analyze demand for seniors housing. Our analysis will show demand estimates for the current year, each year for the following four, and 10 years from the current year.

The demand estimates will be based upon the quantity of four potential target groups who are likely users of seniors housing. Analysis of these four target groups will provide four separate indications of demand for seniors housing. We will then consider each one of them to derive our demand conclusions, much as the three approaches to value in an appraisal are reconciled into a single value estimate. The target groups are as follows:

Target Group 1

Although the vast majority of persons entering seniors housing are age 80 and over, some persons between the ages of 65 and 80 elect to live in seniors housing. Therefore, the broadest potential target group for seniors housing is persons age 65 and over. The number of persons age 65+ is often considered in bed need methodologies which are adopted by various state licensing agencies.

Target Group 2

The next potential target group typically examined in evaluating demand for seniors housing is the number of households headed by an individual age 75 and over. The vast majority of seniors housing residents fall into the 75+ range.

Target Group 3

The next target group consists of the age qualified population that has adequate income to live in seniors housing. Many operators consider \$35,000 to be the minimum qualifying income. Although research has shown that many seniors with lesser income levels can afford to reside in seniors housing due to having income from other sources or assets to spend down, \$35,000 is widely considered a benchmark for the private pay market. Due to the location of the subject, this target group consists of the number of households with a household income of \$35,000+ headed by an individual age 75+. Therefore, this target group has been utilized in this analysis.

Target Group 4

This group consists of a group referred to in the industry as adult children. Children and/or other relatives of seniors generally play a significant role in the placement of a senior in a seniors housing facility. Market areas where there are large concentrations of persons in the 45 to 64 age group can often support a significantly larger supply of seniors housing than would be indicated through analysis of seniors already residing in the area. This is because in-migration of seniors into markets with large adult child populations is common, as the elderly are often relocated to a facility near the home of their adult children or other relative. Many operators of seniors housing have recognized the importance of the adult child market. Thus, this target group is the number of persons in the age 45 to 64 age bracket.

Income and ADL Qualification

Some in the industry apply additional qualifications to further refine the potential target market before applying a penetration rate. These further qualifications might include quantification of seniors likely to require assistance with ADLs and quantification of seniors by living arrangements, restricting the market to those living alone under the assumption that few seniors living with spouses will choose seniors housing. However, there are no reliable local sources to accurately estimate these factors in a given market area, typically leading to the use of national statistics. These further qualifications tend to complicate the application and derivation of penetration rates, and

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are a futile exercise since the same national data is typically applied to each market area. For this reason, we will not attempt to further qualify the potential market.

Discussion of Achievable Penetration Rates

There are no industry standard definitions for penetration or capture rates. For purposes of this analysis, a penetration rate is considered to be the number of beds or units of a specific type that should be demanded at market equilibrium within a given market area, divided by the quantity of persons or households of a specific type in the same market area. For example, if 100 beds of assisted living should be demanded, and there are 1,000 persons age 65+ that reside in the PMA, the indicated penetration rate is 10%.

In order to determine appropriate penetration rates, we consulted national demand estimates provided in *The Case for Investing in Seniors Housing and Long Term Care Properties with Updated Projections*. We have also relied upon actual penetration rates being realized based upon data from NIC Map.

The penetration rates are based upon demand for public and private pay. The inclusion of public pay demand significantly impacts the nursing facility sector and has a lesser but still notable impact upon the other two sectors. It is important to note that in states where Medicaid waivers and/or other public pay alternatives are not available, these penetration rates may not be realized. These demand estimates, derived from the most complete and authoritative study of national demand in existence, will be used as the basis for estimating demand in the subject's market area.

JLL has been evaluating seniors housing facilities since the mid-1980s. Over the years, we have worked with many of the most prolific developers of seniors housing in the nation including Sunrise Senior Living, Holiday Retirement, Senior Resource Group, Brookdale, and Capital Senior Living. Most of the successful developers and operators of private pay seniors housing target the adult child population (persons age 45 to 64). In our tours of literally hundreds of facilities nationally, we always ask the source of residents and how often the decision is made by an adult child caregiver. In most instances, the adult child caregiver is noted as being the primary decision maker, and in many markets, more than 50% of the residents are brought in from outside the PMA by adult child caregivers that live in the PMA. Thus, in our analysis, the adult child market (Target Group 4) is given considerable weight.

We have also field tested the penetration rates, used herein, in the preparation of more than 3,000 market studies and appraisals of seniors housing assets prepared over the past 10+ years. We have found these penetration rates to be excellent predictors of actual market conditions. In other words, when our demand analysis indicated there to be an undersupply, we typically found high market occupancy levels indicating unmet demand. Alternatively, when our demand model showed an oversupply, we have typically seen low market occupancy levels.

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Demand Estimates

The following table shows the estimated number of persons or households in each target group for a number of time periods, and the indicated demand for each period based upon the penetration rates previously discussed.

Demand For Assisted Living						
Target Group 1 - Persons Age 65+						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. PMA Persons Age 65+	7,362	7,710	8,058	8,406	8,754	10,926
B. Achievable Penetration Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
C. Indicated Market Area Demand (A X B)	149	156	163	170	177	220
Target Group 2 - Households Age 75+						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. PMA HHs Age 75+	1,629	1,681	1,733	1,785	1,837	2,140
B. Achievable Penetration Rate	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
C. Indicated Market Area Demand (A X B)	108	111	115	118	122	142
Target Group 3 - Households Age 75+ With Income \$35,000+						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. PMA HHs Age 75+ W/Inc. \$35,000+	1,393	1,444	1,494	1,545	1,596	1,898
B. Achievable Penetration Rate	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%
C. Indicated Market Area Demand (A X B)	300	311	322	333	344	409
Target Group 4 - Persons Age 45-64 (Adult Children)						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. PMA Persons Age 45-64	17,040	17,439	17,838	18,237	18,636	20,870
B. Achievable Penetration Rate	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
C. Indicated Market Area Demand (A X B)	194	199	203	208	212	238
Demand Conclusions						
Item	Year					
	2017	2018	2019	2020	2021	2026
Indicated Demand	274	283	292	302	311	366
Adjustment for Local Market Conditions	0%	0%	0%	0%	0%	0%
Concluded Demand	274	283	292	302	311	366

The demand indication for each target group is independent of the other three demand indications. In this case, our final demand conclusions is weighted 75% to Target Group 3 - age and income qualified seniors, and 25% to Target Group 4 - adult children. These two indications of demand are the best indicators of demand for private pay seniors housing.

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Demand For Independent Living						
Target Group 1 - Persons Age 65+						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. PMA Persons Age 65+	7,362	7,710	8,058	8,406	8,754	10,926
B. Achievable Penetration Rate	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
C. Indicated Market Area Demand (A X B)	208	218	228	238	248	309
Target Group 2 - Households Age 75+						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. PMA HHs Age 75+	1,629	1,681	1,733	1,785	1,837	2,140
B. Achievable Penetration Rate	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%
C. Indicated Market Area Demand (A X B)	151	156	161	166	171	199
Target Group 3 - Households Age 75+ With Income \$35,000+						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. PMA HHs Age 75+ W/Inc. \$35,000+	1,393	1,444	1,494	1,545	1,596	1,898
B. Achievable Penetration Rate	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%
C. Indicated Market Area Demand (A X B)	421	436	451	467	482	573
Target Group 4 - Persons Age 45-64 (Adult Children)						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. PMA Persons Age 45-64	17,040	17,439	17,838	18,237	18,636	20,870
B. Achievable Penetration Rate	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
C. Indicated Market Area Demand (A X B)	272	279	285	291	298	333
Demand Conclusions						
Item	Year					
	2017	2018	2019	2020	2021	2026
Indicated Demand	384	397	410	423	436	513
Adjustment for Local Market Conditions	0%	0%	0%	0%	0%	0%
Concluded Demand	384	397	410	423	436	513

The demand indication for each target group is independent of the other three demand indications. In this case, our final demand conclusions is weighted 75% to Target Group 3 - age and income qualified seniors, and 25% to Target Group 4 - adult children. These two indications of demand are the best indicators of demand for private pay seniors housing.

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Comparison of Supply and Demand

The following table summarizes our conclusions of supply and demand for assisted living.

Comparison of Supply and Demand For Assisted Living						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. Indicated Demand	274	283	292	302	311	366
B. Less Existing Supply	191	230	230	230	230	230
C. Existing Unmet Demand or Oversupply	83	53	62	72	81	136
D. Additions/Subtractions to Supply	39	0	0	0	N.A.	N.A.
E. Unmet Demand After Additions	44	53	62	72	81	136

Our analysis indicates the PMA has an undersupply of assisted living in the current year. Four of the existing facilities are in the early stages of lease-up and another three projects are under construction and are scheduled to come online in the near term. Temporary saturation through 2019 may occur that could result in lower occupancies and extended absorption periods.

As noted previously, demand for memory care is a subset of overall assisted living demand. Memory care facilities are normally licensed the same as standard assisted living facilities. Furthermore, it is relatively easy for facilities to begin or cease providing specialized memory care since the physical plant requirements are not significantly different and the license is not different. We have previously determined demand for all assisted living, including memory care.

As of the 1st quarter of 2017, NIC MAP reported that there were 363,429 assisted living units and 111,124 memory care units in the top 140 metro markets. Thus, the combined assisted living supply count inclusive of memory care was 474,553 units. The memory care assisted living supply figure in turn equated to 30.58% of the total assisted living supply. The average occupancy was 88.2% for assisted living and 84.4% for memory care, indicating that demand between the two segments is near a balanced level.

However, we believe this provides just a starting point, and, in fact, understates potential demand for memory care for several reasons. Firstly, memory care units are much more likely to be semi-private than traditional assisted living, and the statistics noted above are based upon units, not beds. Therefore, the quantity of memory care units above has a much higher level of double occupancy, thus the demand on a bed, rather than unit basis, would be much higher as a percent of total demand. Furthermore, many residents of traditional assisted living have mild to moderate memory care issues and would be better suited for residency in a memory care facility, but the supply of memory care units is lacking in many markets.

According to the Alzheimer's Association, there are approximately 480,000 people age 65 or older that developed Alzheimer's disease in the United States in 2017. Also, the Alzheimer's Association provided the following data regarding projected change by state for those residents with Alzheimer's disease.

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TABLE 4

Projections of Total Numbers of Americans Age 65 and Older with Alzheimer's Dementia by State

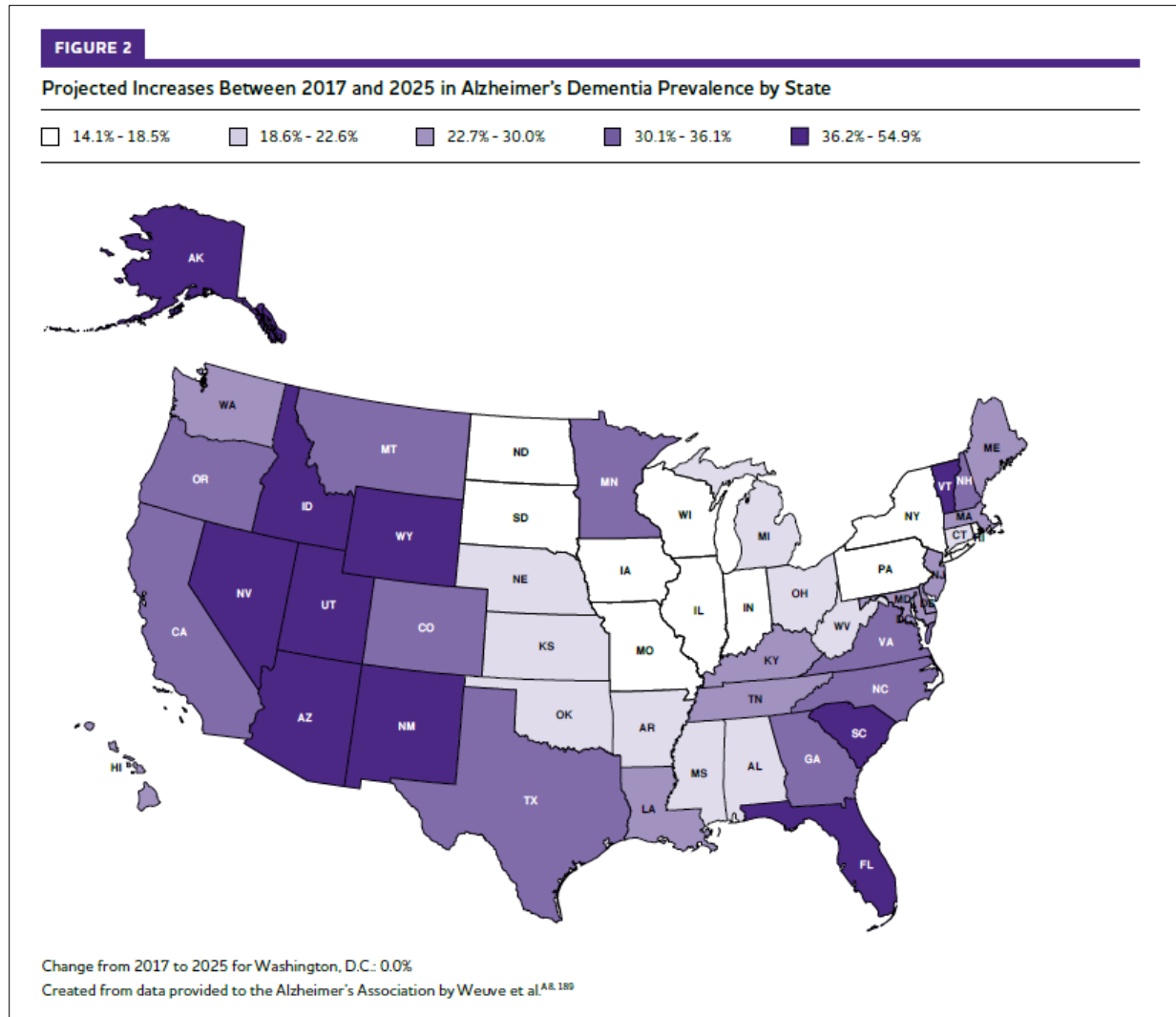
State	Projected Number with Alzheimer's (in thousands)		Percentage Change	State	Projected Number with Alzheimer's (in thousands)		Percentage Change
	2017	2025			2017	2025	
Alabama	90	110	22.2	Montana	20	27	35.0
Alaska	7.1	11	54.9	Nebraska	33	40	21.2
Arizona	130	200	53.8	Nevada	43	64	48.8
Arkansas	55	67	21.8	New Hampshire	24	32	33.3
California	630	840	33.3	New Jersey	170	210	23.5
Colorado	69	92	33.3	New Mexico	38	53	39.5
Connecticut	75	91	21.3	New York	390	460	17.9
Delaware	18	23	27.8	North Carolina	160	210	31.3
District of Columbia	9	9	0.0	North Dakota	14	16	14.3
Florida	520	720	38.5	Ohio	210	250	19.0
Georgia	140	190	35.7	Oklahoma	63	76	20.6
Hawaii	27	35	29.6	Oregon	63	84	33.3
Idaho	24	33	37.5	Pennsylvania	270	320	18.5
Illinois	220	260	18.2	Rhode Island	23	27	17.4
Indiana	110	130	18.2	South Carolina	86	120	39.5
Iowa	64	73	14.1	South Dakota	17	20	17.6
Kansas	52	62	19.2	Tennessee	110	140	27.3
Kentucky	70	86	22.9	Texas	360	490	36.1
Louisiana	85	110	29.4	Utah	30	42	40.0
Maine	27	35	29.6	Vermont	12	17	41.7
Maryland	100	130	30.0	Virginia	140	190	35.7
Massachusetts	120	150	25.0	Washington	110	140	27.3
Michigan	180	220	22.2	West Virginia	37	44	18.9
Minnesota	92	120	30.4	Wisconsin	110	130	18.2
Mississippi	53	65	22.6	Wyoming	9.4	13	38.3
Missouri	110	130	18.2				

Created from data provided to the Alzheimer's Association by Weuve et al.^{AR 189}

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As shown in the figures above, between 2017 and 2025, every state and region across the country is expected to experience double-digit percentage increases in the numbers of people with Alzheimer's due to increases in the proportion of the population 65 and older.

Major operators of memory care facilities such as Brookdale, Capital Senior Living, and Benchmark believe that demand for memory care is as high as 38% of total assisted living demand. Based upon this, we will estimate demand for memory care at 35% of total assisted living demand.

The following table summarizes our conclusions of supply and demand for memory care.

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Comparison of Supply and Demand For Memory Care						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. Indicated Demand	96	99	102	106	109	128
B. Less Existing Supply	71	85	85	85	85	85
C. Existing Unmet Demand or Oversupply	25	14	17	21	24	43
D. Additions/Subtractions to Supply	14	0	0	0	N.A.	N.A.
E. Unmet Demand After Additions	11	14	17	21	24	43

Our analysis indicates the PMA has a slight undersupply of memory care in the current year. Five of the existing facilities are in the early stages of lease-up and another three projects are under construction and are scheduled to come online in the near term. Temporary saturation through 2019 may occur that could result in lower occupancies and extended absorption periods.

The following table summarizes our conclusions of supply and demand for independent living:

Comparison of Supply and Demand For Independent Living						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. Indicated Demand	384	397	410	423	436	513
B. Less Existing Supply	184	211	211	211	211	211
C. Existing Unmet Demand or Oversupply	200	186	199	212	225	302
D. Additions/Subtractions to Supply	27	0	0	0	N.A.	N.A.
E. Unmet Demand After Additions	173	186	199	212	225	302

Our analysis shows that the PMA has an under-supply of independent living in the current year. There are two new projects that are forecasted to be added to the PMA and two facilities that are currently in the initial stages of lease-up.

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Supplemental Analysis

At the request of the client, we have provided a supplemental analysis for supply and demand within the PMA. The client requested that several facilities within the competitive set be removed. These communities are Brookdale Roswell, Brookdale Big Creek Roswell, Autumn Leaves of Winward, Bickford of Alpharetta, Brickmont Senior Living, Sunrise of Ivey Ridge, Brookdale Historical Roswell and Elmcroft of Roswell. The client does not think these facilities are directly competitive due to their location within the PMA. In addition, Autumn Leaves of Winward is exclusively a memory care facility and does not offer assisted living. Although these have been included in the supply and demand conclusions of this report, excluding these facilities, the PMA would show an undersupply of 120 beds for assisted living, 42 beds for memory care and 212 beds for independent living.

The following table summarizes the conclusions of supply and demand (excluding the competitive listed above) for assisted living:

Comparison of Supply and Demand For Assisted Living						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. Indicated Demand	274	283	292	302	311	366
B. Less Existing Supply	115	154	154	154	154	154
C. Existing Unmet Demand or Oversupply	159	129	138	148	157	212
D. Additions/Subtractions to Supply	39	0	0	0	N.A.	N.A.
E. Unmet Demand After Additions	120	129	138	148	157	212

The following table summarizes the conclusions of supply and demand (excluding the competitive listed above) for memory care:

Comparison of Supply and Demand For Memory Care						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. Indicated Demand	96	99	102	106	109	128
B. Less Existing Supply	40	54	54	54	54	54
C. Existing Unmet Demand or Oversupply	56	45	48	52	55	74
D. Additions/Subtractions to Supply	14	0	0	0	N.A.	N.A.
E. Unmet Demand After Additions	42	45	48	52	55	74

The following table summarizes the conclusions of supply and demand (excluding the competitive listed above) for independent living:

Comparison of Supply and Demand For Independent Living						
Item	Year					
	2017	2018	2019	2020	2021	2026
A. Indicated Demand	384	397	410	423	436	513
B. Less Existing Supply	184	211	211	211	211	211
C. Existing Unmet Demand or Oversupply	200	186	199	212	225	302
D. Additions/Subtractions to Supply	27	0	0	0	N.A.	N.A.
E. Unmet Demand After Additions	173	186	199	212	225	302

Alpharetta Phase I

This is a Phase I Preliminary Market Study to be used as an aid in determining if further due diligence of this site is warranted. The findings in this Phase I Study are based upon preliminary research and are subject to adjustment and refinement if a full market study is completed. This Phase I has not included a site inspection or inspection of the competing properties. A decision to proceed with development should not be solely based upon this preliminary analysis. A full market study should be completed prior to proceeding with land acquisition, development, or financing.



Conclusion

In conclusion, our analysis indicates the potential for this market to have potential demand to support the development of an independent living, assisted living and memory care facility. We note that this is a very active development area and pipeline projects should be monitored closely. Additional pipeline projects from what is included in this report may alter our conclusions. Temporary saturation through 2019 may occur that could result in lower occupancies and extended absorption periods. We recommend proceeding with further due diligence including a full market study.

Alpharetta Phase I

This is a Phase I Preliminary Market Study to be used as an aid in determining if further due diligence of this site is warranted. The findings in this Phase I Study are based upon preliminary research and are subject to adjustment and refinement if a full market study is completed. This Phase I has not included a site inspection or inspection of the competing properties. A decision to proceed with development should not be solely based upon this preliminary analysis. A full market study should be completed prior to proceeding with land acquisition, development, or financing.



LEGEND: ABBREVIATIONS AND SYMBOLS	
B.C.	BACK OF CURB
B.L.	BUILDING SETBACK LINE
B.L.W.	BUILDING LINE WIDTH
C & G	CURB AND GUTTER
C	CENTERLINE
CB	CATCH BASIN
CH	CHORD
C.M.P.	CORRUGATED METAL PIPE
C/T	CRIMP TOP PIPE
D.E.	DRAINAGE EASEMENT
DI	DROP INLET
DWCB	DOUBLE WING CB
FH	FIRE HYDRANT
HW	HEADWALL
I.P.S.	IRON PIN SET (1/2" R/B)
I.P.F.	IRON PIN FOUND
JB	JUNCTION BOX
L	LENGTH OF CURVE
L.F.E.	LOWEST FLOOR ELEVATION
L.L.L.	LAND LOT LINE
LP	LIGHT POLE
M.F.E.	MINIMUM FLOOR ELEVATION
MH	MANHOLE
M.S.L.	MEAN SEA LEVEL
O/T	OPEN TOP PIPE
PAV'T	PAVEMENT
P	PROPERTY LINE
PP	POWER POLE
PB	POWER BOX
R	RADIUS OF CURVE
R.B.L.	REAR BUILDING LINE
R.C.P.	REINFORCED CONCRETE PIPE
R/B	REINFORCING BAR
R/W	RIGHT OF WAY
S.B.L.	SIDE BUILDING LINE
S.S.	SANITARY SEWER
S.S.E.	SANITARY SEWER EASEMENT
SWCB	SINGLE WING CB
WM	WATER METER
—	STREAM
—	FLOOD LIMITS
—	POWER LINE
—	TELEPHONE LINE
—X—	FENCE LINE

TREE LEGEND

-  HICKORY
 OAK
 PINE
 POPLAR

NOTES:

1. THIS TREE LOCATION SURVEY IS LIMITED TO THE 3.500 ACRE TRACT FRONTING ON STATE ROUTE 9. ONLY SPECIMEN TREES AND OTHER TREES OF INTEREST ARE SHOWN.
2. THE RADIUS SHOWN AROUND EACH TREE IS 1.3 TIMES THE TREE DIAMETER (I.E. 29" DIAMETER = 37.7" RADIUS) WHICH IS THE CITY OF ALPHARETTA DEFINITION OF THE CRITICAL ROOT ZONE. THIS IS THE AREA TYPICALLY PROTECTED FROM LAND DISTURBANCE ACTIVITIES.

REFERENCE: BOUNDARY SURVEY FOR C.R. SIMS ESTATE BY BRUMBELOW-REESE & ASSOCIATES, INC., DATED JANUARY 20, 2003. (JOB# 2003-017)

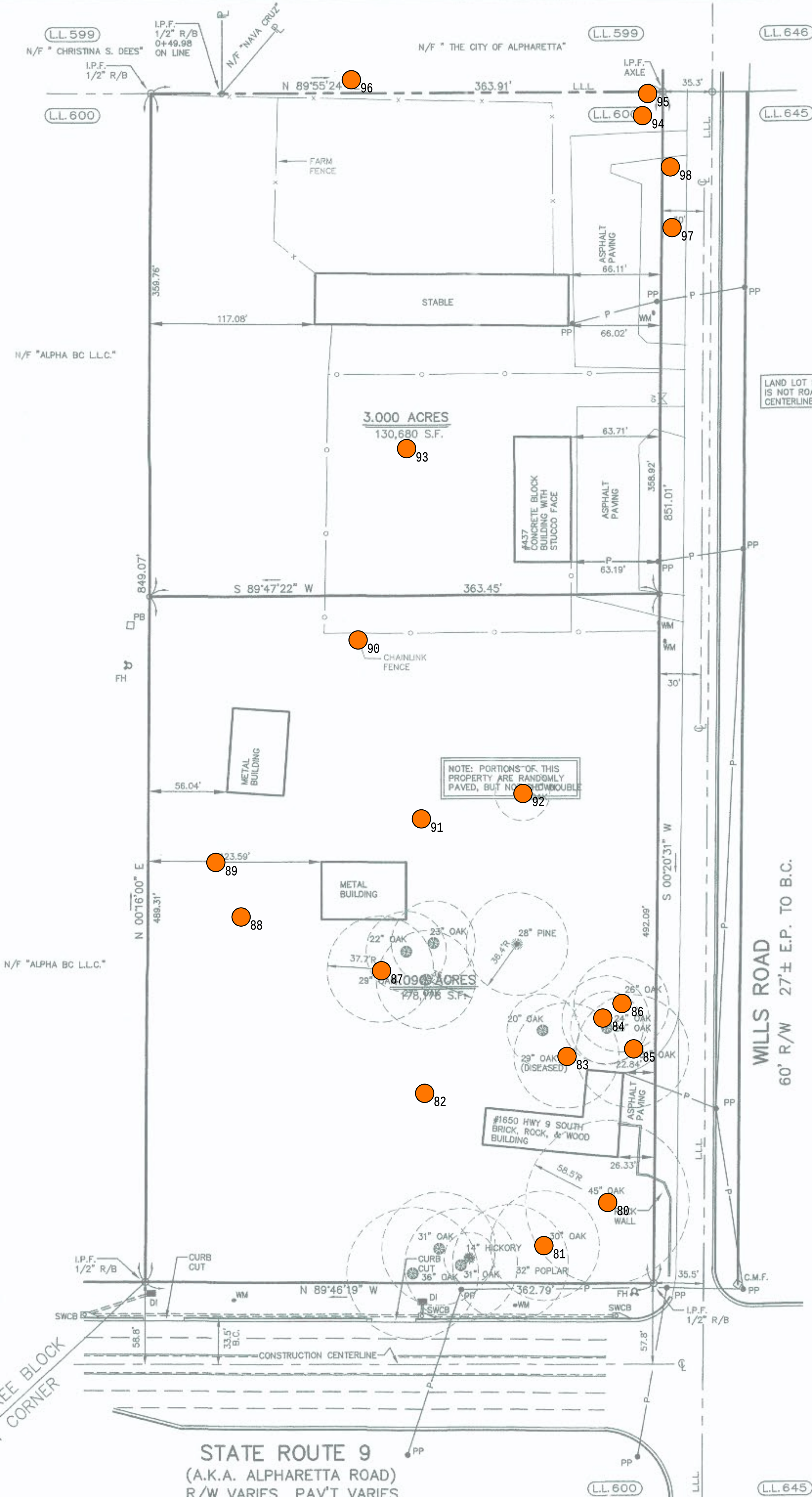
THE FIELD DATA UPON WHICH THIS PLAT IS BASED HAS A CLOSURE PRECISION OF ONE FOOT IN 19,688 FEET AND AN ANGULAR ERROR OF .03" PER ANGLE POINT AND WAS ADJUSTED USING THE COMPASS RULE.

THIS PLAT HAS BEEN CALCULATED FOR CLOSURE AND IS FOUND TO BE ACCURATE WITHIN ONE FOOT IN 174,236± FEET.

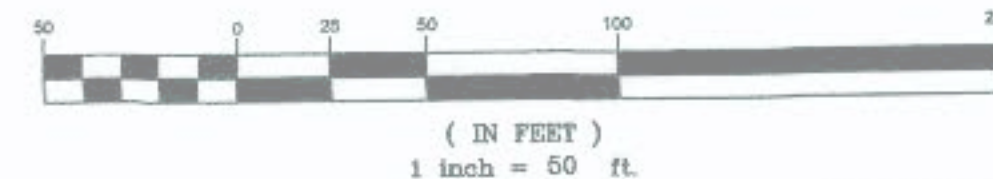
EQUIPMENT USED FOR MEASUREMENTS:
TOPCON GTS-303 - TOTAL STATION

THIS PROPERTY (IS NOT) LOCATED WITHIN THE 100 YEAR FLOOD AREA PER OFFICIAL FLOOD INSURANCE RATE MAPS. PANEL NO. 1312100054 E & 1312100059 E AS REVISED: JUNE 22, 1998

NO N.G.S. MONUMENT WAS FOUND WITHIN 500' OF PROPERTY.

TOTAL AREA
7.090 ACRES

GRAPHIC SCALE



REF: 6595, 7721, 7844, 97297

BRUMBELOW-REESE & ASSOC., INC.

LAND SURVEYING SERVICES
GEORGIA REGISTRATION NO. 2072P.O. BOX 713
ALPHARETTA, GEORGIA 30009-0713
PHONE (770) 475-6817
FAX (770) 569-4948
EMAIL --BRASST@MINDSPRING.COMREVISIONS:
05-29-2009, ADDED TREES OF INTEREST

LOCATED IN:

LAND LOT(S): 600
DISTRICT: 1, SECTION: 2
CITY OF: ALPHARETTA
COUNTY OF: FULTON
STATE OF: GEORGIA

SALES EXHIBIT FOR

C.R. SIMS ESTATE

EXHIBIT "B"

DATE: NOVEMBER 9, 2005

FIELD BY: SDR,JB

DRAWN BY: KRB,PPM

CHECKED BY: RHR

DRAWING: SIMS3

JOB NO. 2003-017

LEGEND: ABBREVIATIONS AND SYMBOLS	
B.C.	BACK OF CURB
B.L.	BUILDING SETBACK LINE
B.L.W.	BUILDING LINE WIDTH
C & G	CURB AND GUTTER
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—	FENCE LINE

TREE LEGEND

-  HICKORY
 OAK
 PINE
 POPLAR

NOTES:

1. THIS TREE LOCATION SURVEY IS LIMITED TO THE 3.500 ACRE TRACT FRONTING ON STATE ROUTE 9. ONLY SPECIMEN TREES AND OTHER TREES OF INTEREST ARE SHOWN.
2. THE RADIUS SHOWN AROUND EACH TREE IS 1.3 TIMES THE TREE DIAMETER (I.E. 29" DIAMETER = 37.7" RADIUS) WHICH IS THE CITY OF ALPHARETTA DEFINITION OF THE CRITICAL ROOT ZONE. THIS IS THE AREA TYPICALLY PROTECTED FROM LAND DISTURBANCE ACTIVITIES.

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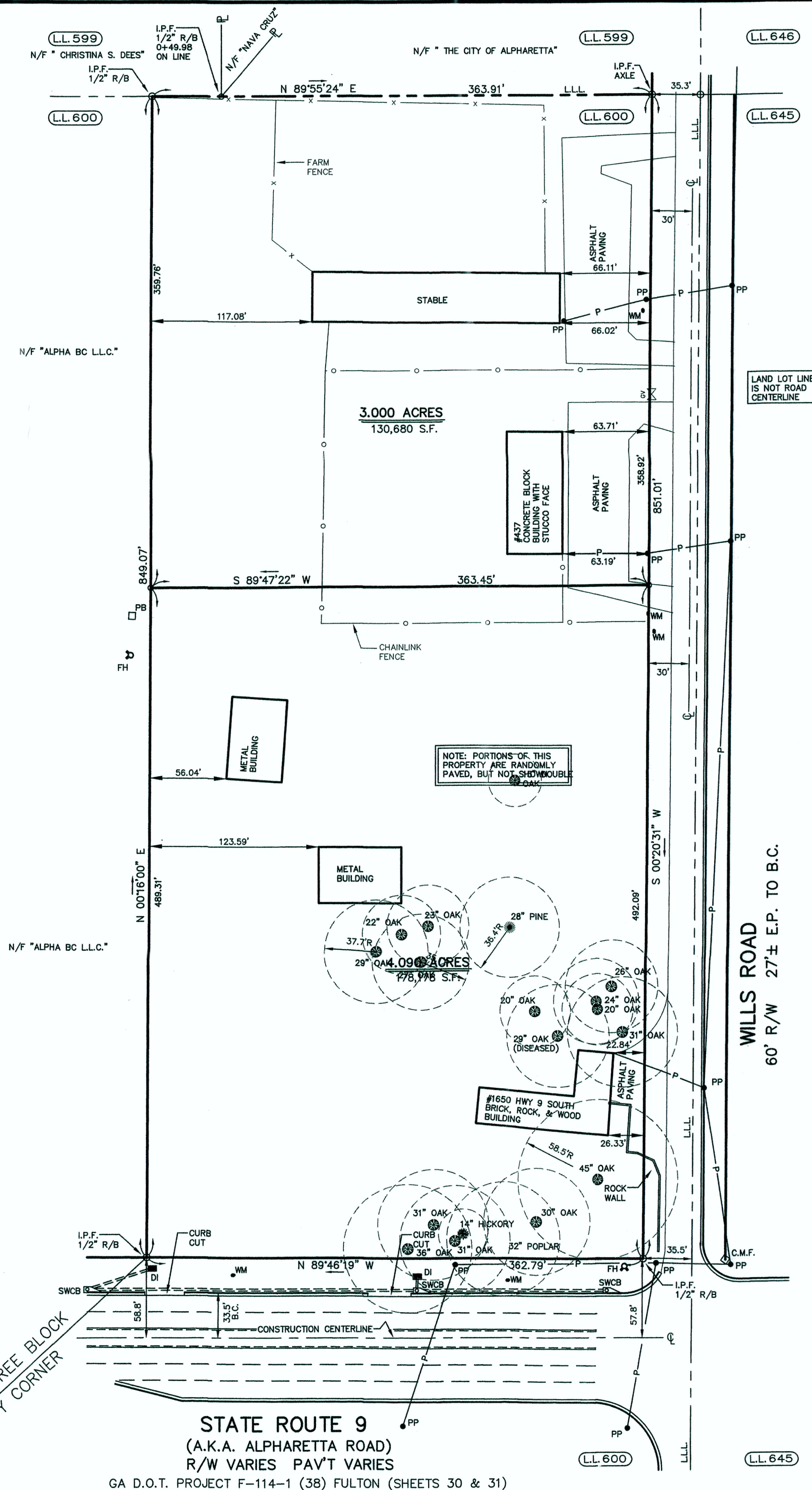
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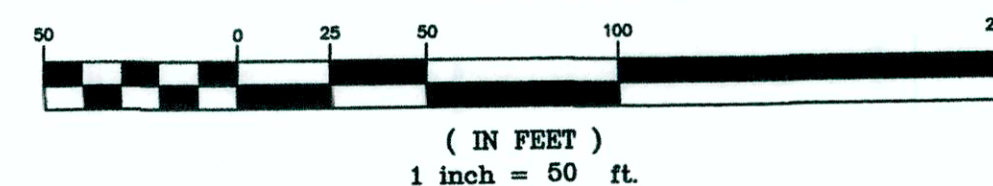
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NO N.G.S. MONUMENT WAS FOUND WITHIN 500' OF PROPERTY.

TOTAL AREA
7.096 ACRES

GRAPHIC SCALE



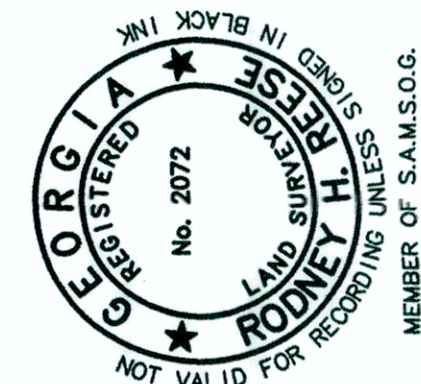
STATE ROUTE 9
(A.K.A. ALPHARETTA ROAD)
R/W VARIES PAV'T VARIES
GA D.O.T. PROJECT F-114-1 (38) FULTON (SHEETS 30 & 31)



BRUMBELOW-REESE & ASSOC., INC.

LAND SURVEYING SERVICES
GEORGIA REGISTRATION NO. 2072

P.O. BOX 713
ALPHARETTA, GEORGIA 30009-0713
PHONE (770) 475-6817
FAX (770) 569-4948
EMAIL --BRASST@MINDSPRING.COM



REVISIONS:
05-29-2009, ADDED TREES OF INTEREST

LOCATED IN:

LAND LOT(S): 600
DISTRICT: 1, SECTION: 2
CITY OF: ALPHARETTA
COUNTY OF: FULTON
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SALES EXHIBIT FOR

C.R. SIMS ESTATE

EXHIBIT "B"

DATE: NOVEMBER 9, 2005

FIELD BY: SDR,JB

DRAWN BY: KRB,PPM

CHECKED BY: RHR

DRAWING: SIMS3

JOB NO. 2003-017

REF: 6595,7721,7844,97297



Onebark LLC
PO BOX 870784
Stone Mountain GA 30087
p: 678-634-8878 www.onebark.com

Specimen Tree Report

437 Wills/1850 Hwy 9 Alpharetta GA 30004

Date of Inspection 4/19/2017

Inspector

Jesse Milton
ISA #SO-1170B
Email: jesse@onebark.com

Design Professional

Jeff Smith
JeffSmith@foleydesign.com

INTRODUCTION

This inspection was made to verify trees that meet Specimen Tree criteria.

METHODOLOGY

The project site was traversed to identify trees that meet the minimum size criteria for Specimen trees, including boundary trees within 30 feet outside of the parcel limits. Boundary trees can only be inspected at a distance, unless written permission is given by the neighboring parcel owner. Each tree was inspected using visual techniques and basic instruments standard for arboricultural inspection. The buttress roots, trunk, limbs, branches, twigs, leaves, and surrounding environment of the trees were reviewed. This inspection uses Level I and Level II assessment standards. Level III standards can be applied at the customers request.

The following criteria are used by the City of Alpharetta administrator to identify specimen trees. Both the size and condition criteria must be met for a tree to qualify.

Size Criteria

- Overstory Trees: 24-inches diameter or larger, pines 30-inches or larger
- Understory Trees: 8-inches diameter or larger

Condition Criteria

- Life expectancy of greater than fifteen (15) years
- Relatively sound and solid trunk with no extensive decay
- No more than one major and several minor dead limbs (hardwoods only). No major insect or pathological problem.

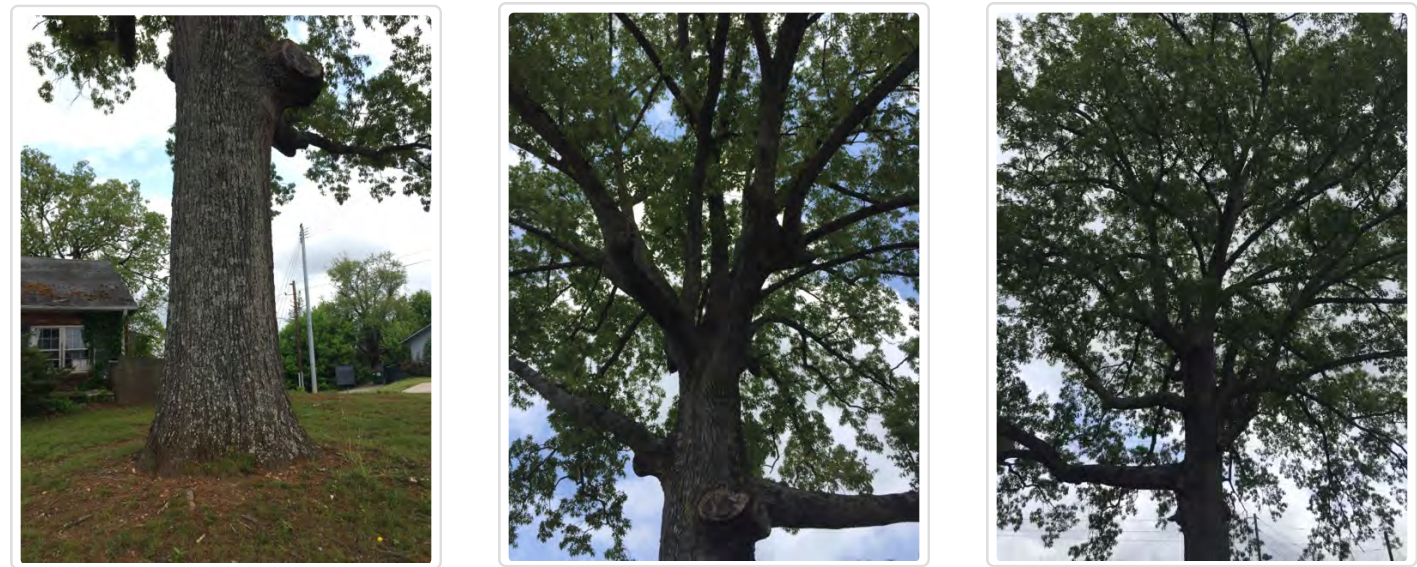
WHAT YOU NEED TO KNOW

This report is not meant to override any determination by the City of Alpharetta regarding the status of Specimen trees. Additional tree information may be required by the City once the Specimen Tree Report is submitted to Alpharetta, including but not limited to: Trees of Character, Level III assessments, site meetings with the City arborist, and Tree Maintenance Plan preparation.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments cannot be guaranteed. Clients may choose to accept or disregard the recommendations of the arborists, or to seek additional advice. This inspection was made without the expectation of a particular result.

Tree 80

Species	51 "	Oak, Southern red
Status	Not Specimen	
Health/Vigor	Fair	Trunk is significantly hollow. Sounding with a mallet produced resonance consistent with a thin shell wall
Structure	Single	Symmetrical wide canopy.
Other notes		



Tree 81

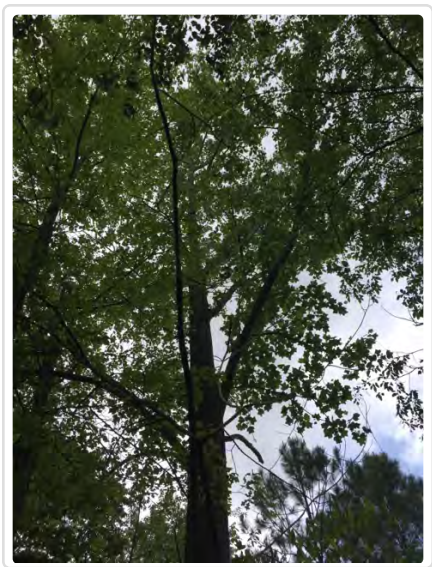
Species	35 "	Tuliptree
Status	Specimen	
Health/Vigor	Fair	
Structure	Single	
Other notes		



Tree 82

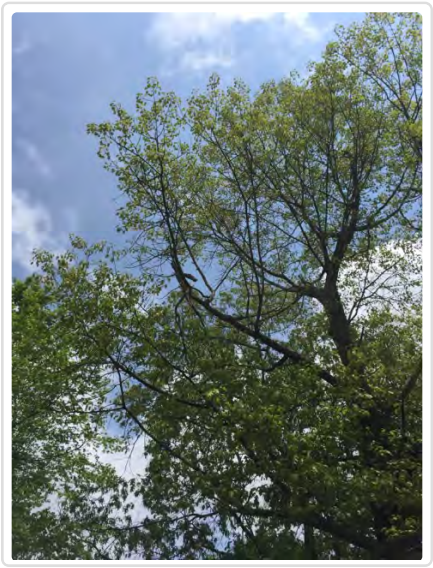
Species	23 "	Tuliptree
Status	DDH	
Health/Vigor	Poor	
Structure	Single	Trunk is on the sound. Open cavity at base; significant decay

Other notes



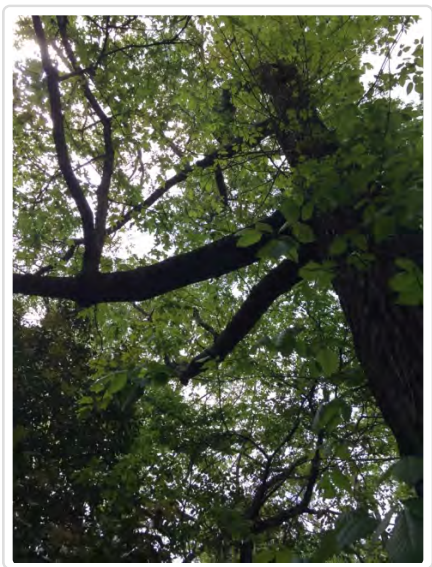
Tree 83

Species	26 "	Oak, scarlet
Status	Not Specimen	
Health/Vigor	Poor	Noticeable stress symptoms in canopy. Root zone is surrounded by asphalt. Root decay is likely. Active bacterial infection in lower trunk
Structure	Single	Sounded with mallet; trunk hollow
Other notes		



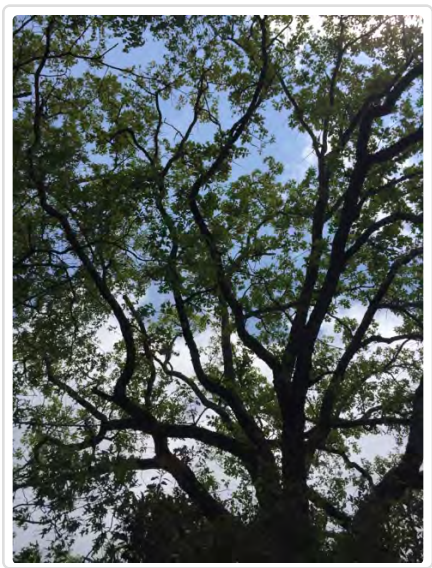
Tree 84

Species	22 "	Oak, Southern red
Status	Not Specimen	
Health/Vigor	Poor	Significant decay of root crown; sounded with mallet: Hollow at base. Buttresses visibly decayed
Structure	Single	
Other notes		



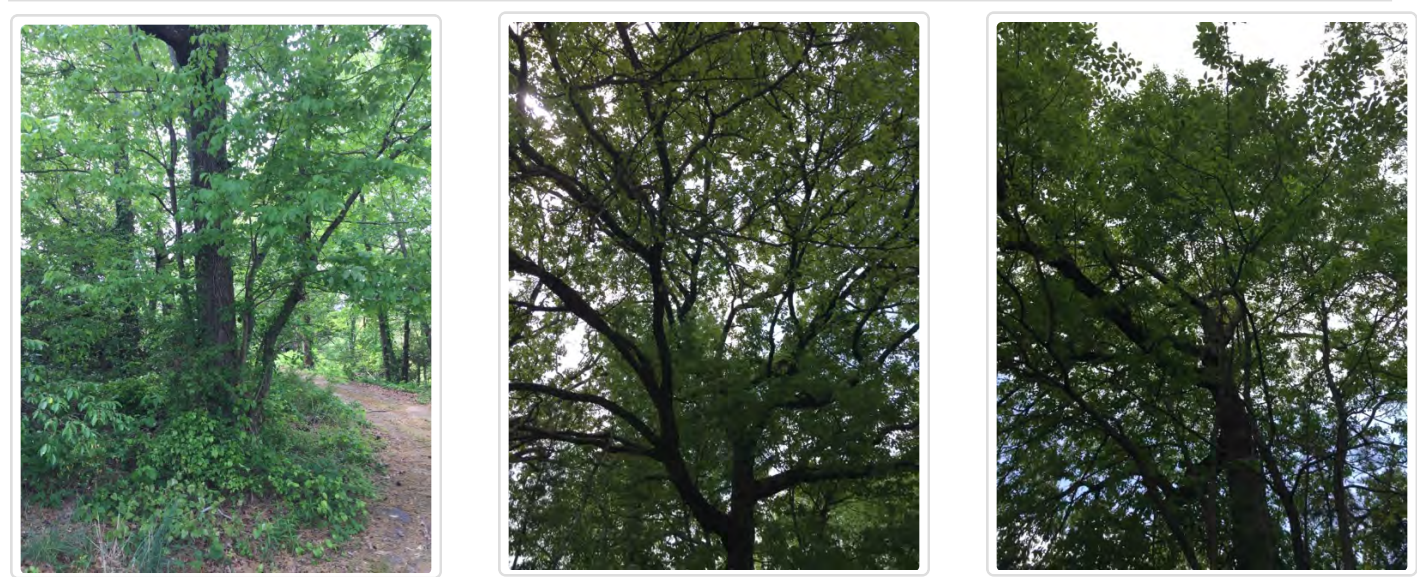
Tree 85

Species	31 "	Oak, post
Status	Specimen	
Health/Vigor	Fair	Tree is overmature. May be showing symptoms of decline, stress. With density below average in upper canopy
Structure	Single	
Other notes		



Tree 86

Species	26 " Oak, post
Status	Specimen
Health/Vigor	Fair
Structure	Asymmetric
Other notes	Poor candidate for conservation



Tree 87

Species	29 " Oak, red
Status	Not specimen
Health/Vigor	Dead
Structure	
Other notes	



Tree 88

Species 20 " Oak, white

Status **Unknown**

Health/Vigor Good

Structure Single Growing on edge of disturbed slope.

Other notes



Tree 89

Species 23 " Tuliptree

Status **Unknown**

Health/Vigor Fair

Structure Asymmetric Growing at an angle from slope; change in direction.

Other notes



Tree 90

Species	24 "	Maple, red
Status	Not Specimen	
Health/Vigor	Fair	
Structure	Multiple trunks	Group is actually three stems growing together; Weakly attached, structurally poor. Dominant stem is hollow
Other notes	Poor candidate for conservation	



Tree 91

Species	25 "	Tuliptree
Status	Specimen	
Health/Vigor	Fair	
Structure	Single	Trunk growing at an angle out of disturbed slope
Other notes		



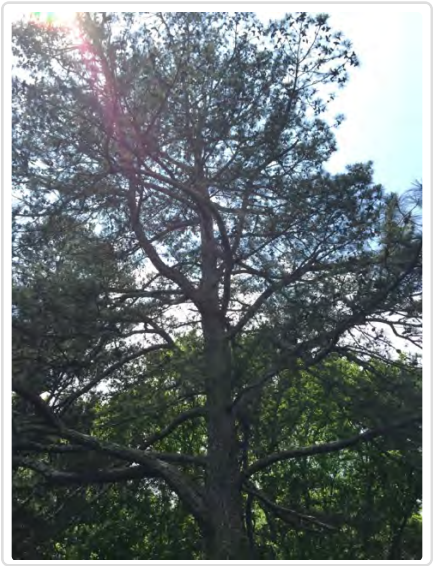
Tree 92

Species	28 " Sweetgum
Status	Not Specimen
Health/Vigor	Dead
Structure	Bifurcated
Other notes	



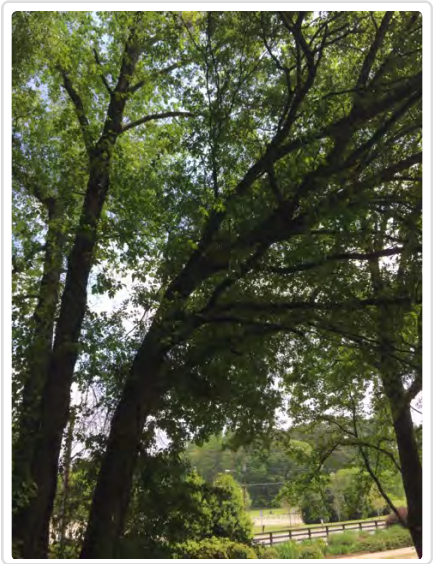
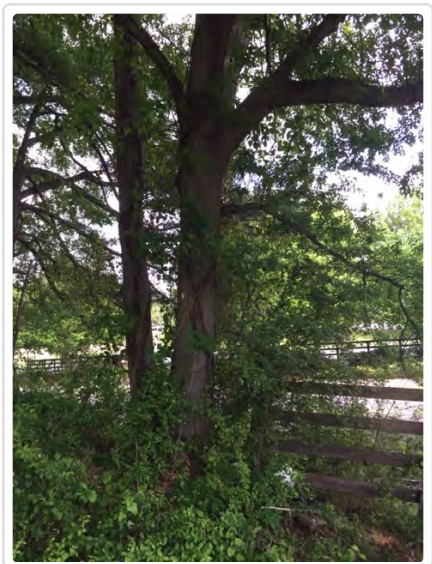
Tree 93

Species	32 " Pine, loblolly
Status	Specimen
Health/Vigor	Good
Structure	Single
Other notes	



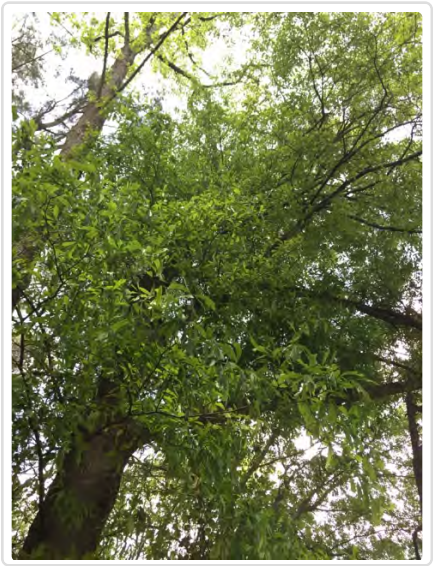
Tree 94

Species	20 "	Oak, water
Status	Unknown	
Health/Vigor	Good	
Structure	Asymmetric	Canopy is highly weighted to one side, slight lean
Other notes		



Tree 95

Species	21 "	Oak, water
Status	Unknown	
Health/Vigor	Good	
Structure	Asymmetric	Canopy is highly weighted towards one side
Other notes		



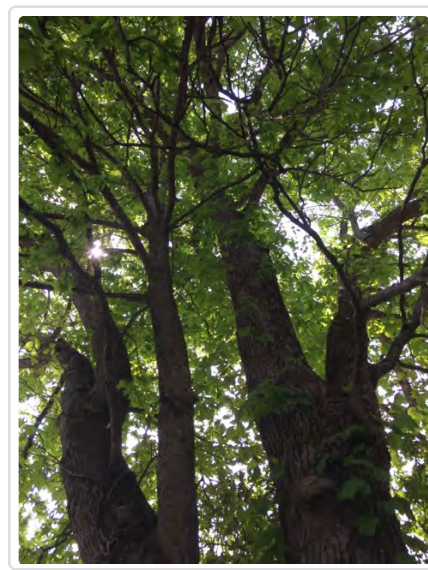
Tree 96

Species	26 "	Oak, Southern red
Status	Not Specimen	
Health/Vigor	Poor	
Structure	Single	Root system is undermined, somewhat damaged.
Other notes		



Tree 97

Species	24 "	Sweetgum
Status	Specimen	
Health/Vigor	Fair	
Structure	Multiple trunks	
Other notes		



Tree 98

Species	22 "	Sweetgum
Status	Unknown	
Health/Vigor	Fair	Nylon strap embedded in 40% of trunk. Not problematic
Structure	Single	

Other notes



Summary

Total specimen trees identified: 6

Additional Recommendations

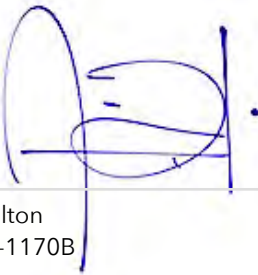
Revise site plan to reflect any differing size, species, and location verifications made in field.

The identification of any "Trees of Character" is performed prior to the submittal of any Land Disturbance permits. This is required by the City of Alpharetta. Trees of character are good quality trees that may not fit the definition of Specimen tree, but are desirable due to their shape, species, and condition.

Certification

Date Certified: 4/19/2017

I certify that all of the statements made in this report are true, complete and correct to the best of my knowledge and belief, and are made in good faith.



Jesse Milton
ISA #SO-1170B

CITY OF ALPHARETTA

PUBLIC HEARING APPLICATION

FOR OFFICE USE ONLY

Case #: _____

☐ Fee Paid Initial: _____

COMMUNITY DEVELOPMENT DEPARTMENT

2 PARK PLAZA

ALPHARETTA, GA 30009

1. This page should be the first page in each of your completed application packets.
2. It is preferred that all responses be typed. Illegible applications will not be accepted.
3. Prior to signing and submitting your application, please check all information supplied on the following pages to ensure that all responses are complete and accurate. Incomplete applications will not be accepted.
4. Payment of all applicable fees must be made at the time of application. Payment may be made via cash, credit card (American Express, Master Card or Visa), or check made payable to "City of Alpharetta."
5. Applications will be accepted only on the designated submittal dates between the hours of 8:30 AM and 3:30 PM.
6. If you have any questions regarding this form, please contact the Community Development Department by calling 678-297-6070.

Contact Information:

Contact Name: Tim Gary

Telephone: 678-776-7129

Address: 3414 Peachtree Road Ne,

Suite: 730

City Atlanta

State: GA

Zip: 30326

Fax: _____

Mobile Tel: 678-776-7129

Email: tim@villageparkseniorliving.com

Subject Property Information:

Address: 437 Wills Road and 1650 South Main

Current Zoning: C-1

District: 1

Section: 2

Land Lot: 600

Parcel ID: 12-2340-0600-019-4 and 12-2340-0600-254-7

Proposed Zoning: C-1

Current Use: abandoned

This Application For (Check All That Apply):☐ Conditional Use☐ Master Plan Amendment☐ Rezoning☒ Master Plan Review☐ Variance☒ Public Hearing☐ Comprehensive Plan Amendment☐ Other (Specify): _____

AMENDED LOI 5.2.17

APPLICANT REQUEST AND INTENT

What is the proposed use(s) of the property?

Senior living community with dining, full service kitchen, fitness facility and outdoor amenities. Includes 2-4 stories of attached units for Independent living, Assisted living and Memory Care. Also, there are some detached Independent living cottages and duplex units.

Applicant's Request (Please itemize the proposal):

1. Request an increase in the 35' max height plane. Desire for a 4th story will require our max height to be 55' ht. The main building sets back more than 50 plus feet from Wills Road, and the increase in height will not impact much at street level. The height increase is the only way to get enough units on this property to make it financially feasible.
2. Request for a 25' reduction in the Wills Road frontage setback requirement. This is not for the main building structure. This is for a community theater structure. The majority of the building sets back more than 75' from Wills Road.
3. Request for a reduction in the 50' buffer required against single family residential to 15' with a planted Vegetative Buffer of Evergreen material that will act more as a buffer than the large pine trees currently on the site. Those trees do not screen much anything. This property is currently owned by the City of Alpharetta, and is being considered for a future park. One other residential property runs approximately 50' off the back corner of the property as well.

Applicant's Intent (Please describe what the proposal would facilitate):

Intent is create a senior community that fits the needs and desires of existing Alpharetta seniors that need this type of housing. It helps the people stay in their community, while also creating a nice feature on a blighted corner, with great access to city park.

ALPHARETTA PLANNING COMMISSION REVIEW CRITERIA

How will this proposal be compatible with surrounding properties?

The proposed use will fit in with the surrounding uses. This clientele does not create much traffic for a busy area, and its residents will utilize the park quite often, which is in walking distance.

How will this proposal affect the use and value of the surrounding properties?

This property will definitely increase property values in surrounding area, and also create a tax incentive for Alpharetta with 130 units.

Can the property be developed for a reasonable economic use as currently zoned? Please explain why or why not.

It can be developed zoned as is, and we propose to keep the zoning with conditions. Setbacks and Building heights hinder great development on this corner.

What would be the increase to population and traffic if the proposal were approved?

There would be an increase in senior population, however they would mostly be residents in the area that want, or need to move into a facility like this. It will not create any major traffic issues. If anything, this use will create much less traffic counts, on off peak timing than any other use because of senior component. Plus many assisted living and all memory care residents do

What would be the impact to schools and utilities if the proposal were approved?

Mild impact to utilities and no impact to the schools.

How is the proposal consistent with the Alpharetta Comprehensive Plan; particularly the Future Land Use Map?

This type of development should fit in fine with future land use plans.

Are there existing or changing conditions which affect the development of the property and support the proposed request?

The proposed request for this use on this property stems directly from the senior housing need in the area. The baby boom generation produces 10,000 people a day turning 65 in the US currently. These people need a different type of housing option for their needs than typical apartment living.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

CU-17-06/V-17-15

VILLAGE PARK @ WILLS RD ASSISTED LIVING

LETTER OF INTENT

Village Park at Wills Road
Special Use Request

Village Park at Wills Road is a proposed senior living community on 7 acres located on the corner of Highway 9 and Wills Road in Alpharetta, Ga. The site is currently zoned C-1, and allows for the senior living use. The site currently houses an abandoned single family home with lots of yard debris, a commercial building and a barn. This is a major intersection that connects to Wills Park and downtown Alpharetta.

The new use is allowable under the C-1 zoning, however there is a height restriction set at 35' for mean average roof height, and a setback requirement of 50' along Wills Road. The setback and the height restriction really limit the developable area of property and really hinders opportunity to get the appropriate amount of units on this site, to be feasible for development. There is also a 50' landscape buffer required along the north property line, which borders a single family R-15 subdivision. However, the parcel directly adjacent to this property is owned by the city, and was supposed to be utilized as park space.

Our specific requests are to ask for the following:

1. Reduction in the frontage setback on Wills Road from 50' to 25' just for our Theater building. We are keeping all of our attached senior living units back outside of the 50' setback, averaging around 85'.
2. Increase in the average roof height from 35' to 55' ht. In order to build enough units and create a financially feasible project, the building needs to be 4 stories. This will limit the impact on the land and allow units to go up. The 4 story building is actually averaging around 85' setback away from Wills Road to limit the impact of height.
3. Reduction in the 50' landscape buffer to 15' revegetated buffer. The north end of the site sits adjacent to an empty single family lot, which is owned by the city of Alpharetta. The current site plan drops density down to single story cottages in this area. Request would be to plant a real evergreen buffer of large conifer trees in a 15' buffer that will actually buffer the views. Also, the city has plans to turn that parcel into a park area. The single family homes would then look onto a park space, and this development could tie a sidewalk system into the park area for use by residents.

Proposed Use: The property will be developed as a 130 unit senior living community, with a mix of detached, and attached housing, full service dining, theater, and a fitness club with pool.

Size of Tract: The site combines 2 former tracts into one property at 7.01 acres.

Zoning Classification Requested: No change in zoning is requested, the existing use is allowed under C-1 zoning.

Building and Unit Size: The buildings will provide for 130 senior independent living units, assisted care units, and memory care units, ranging in sizes from 317-1029 square feet, plus amenities areas and service functions for a total of approximately 184,811 square feet of conditioned space.

Development Density: 18.5 D.U./Acre

VILLAGE PARK @ WILLS RD ASSISTED LIVING
BOARD OF ZONING APPEALS REVIEW CRITERIA

Please respond to the following ONLY if you are applying for a zoning variance.

Are there extraordinary and exceptional conditions pertaining to the subject property because of its size, shape, or topography? Please describe them.

There is a slope of approximately 40 across the entire site, which doesn't give us much opportunity flatten out for more sprawling footprint. This is why we are asking for a height variance. The setback requirements on this current parcel do not make it easy to develop a usable footprint without forcing a large parking lot in the front yards. This is something we know City of Alpharetta frowns upon.

Would the application of the Zoning Code standards as they relate to the subject property create an unnecessary hardship? Please explain.

Yes, due to the height restriction, this project would not be possible to build in order to make the feasibility work.

Are there conditions that are peculiar to the subject property? Please describe them in detail.

Would relief, if granted, cause substantial detriment to the public good or impair the purpose and intent of the Zoning Code? Please defend your response.

Relief would not cause any detriment to public good or impair zoning. The relief would help gain a valuable asset to the community, and a use that acts as community watch for the neighborhood. This particular community will have a theater that could be used for community functions. Senior housing has many residents that are great contributors to their communities.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

CU-17-06/V-17-15

VILLAGE PARK @ WILLS RD ASSISTED LIVING

DISCLOSURE FORM

The Official Code of Georgia Annotated requires disclosure of campaign contributions to government officials by an applicant or opponent of a rezoning or public hearing petition (O.C.G.A. 36-67 A-1).

Applicants must file this form with the City of Alpharetta Community Development Department within ten (10) days after filing for rezoning or public hearing. Opponents to a rezoning or public hearing petition must file this form five (5) days prior to the Planning Commission meeting at which the subject rezoning or public hearing petition is scheduled to be heard.

Name of Applicant or Opponent: Tim Gary

Subject Public Hearing Case:

Campaign Contribution Information:

Please provide the requested information for each contribution with a dollar amount or value of \$250 or more made within the past two (2) years to an Alpharetta Official by the individual identified above. Please use a separate form for each Alpharetta Official to whom such a contribution as been made.

If the individual identified above has made no such contributions to an Alpharetta Official within the past two (2) years, please indicate this by entering "N/A" on the appropriate lines below.

Name of Official: N/A

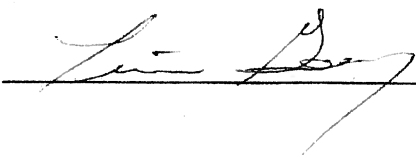
Position: N/A

Description of Contribution:	Value:
Description of Contribution:	Value:
Description of Contribution:	Value:
Description of Contribution:	Value:
Description of Contribution:	Value:

Campaign Contribution Information:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that the information provided in this Disclosure Form is true and accurate and that I have disclosed herein any and all campaign contributions made to an Official of the City of Alpharetta, Georgia in accordance with O.C.G.A. 36-67 A-1.

Signature:



Date:

4-17-17

VILLAGE PARK @ WILLS RD ASSISTED LIVING

PROPERTY OWNER AUTHORIZATION

Property Owner Information:

Contact Name: Gonzalo JesusTelephone: 678 662 6222Address: 3050 Francis

Suite: _____

City MILTONState: GAZip: 30004

Authorization:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that I am the legal owner, as reflected in the records of Fulton County, Georgia, of the property identified below, which is the subject of the attached Application for Public Hearing before the City of Alpharetta, Georgia.

As the legal owner of record of the subject property, I hereby authorize the individual named below to act as the applicant in the pursuit of the Application for Public Hearing in request of the items indicated below.

- | | |
|---|---|
| ☐ Annexation | ☐ Special Use |
| ☐ Rezoning | ☒ Conditional Use |
| ☒ Variance | ☐ Master Plan |
| ☐ Land Use Application | ☐ Other _____ |

Identify Authorized Applicant:

Name of Authorized Applicant: Tim GossyTelephone: 770-309-0294Address: Village Park.

Suite: _____

City ALPHARETTAState: GAZip: 30009

So Sworn and Attested:

Owner Signature: [Signature]Date: 4/21/17

Notary:

Notary Signature: [Signature]Date: 4/21/17

CU-17-06/V-17-15
VILLAGE PARK @ WILLS RD ASSISTED LIVING

PROPERTY OWNER AUTHORIZATION

Property Owner Information:

Contact Name: Divresh Shah, Koki Enterprise LLC Telephone: 404-667-3825
Address: 3445 Webb bridge Road Suite: NIA
City: Alpharetta State: GA Zip: 30005

Authorization:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that I am the legal owner, as reflected in the records of Fulton County, Georgia, of the property identified below, which is the subject of the attached Application for Public Hearing before the City of Alpharetta, Georgia.

As the legal owner of record of the subject property, I hereby authorize the individual named below to act as the applicant in the pursuit of the Application for Public Hearing in request of the items indicated below.

- | | |
|---|---|
| ☐ Annexation | ☐ Special Use |
| ☐ Rezoning | ☒ Conditional Use |
| ☒ Variance | ☐ Master Plan |
| ☐ Land Use Application | ☐ Other <u>NIA</u> |

Identify Authorized Applicant:

Name of Authorized Applicant: Tim Gray Telephone: 770-309-0294
Address: Village Park Suite: NIA
City: Alpharetta State: GA Zip: 30004

So Sworn and Attested:

Owner Signature: [Signature]

Date: April 20th 2017

Notary:

Notary Signature: [Signature]

MATTHEW QUINN
Notary Public - State of Georgia
Fulton County
My Commission Expires Mar 26, 2021

Date: 04/20/2017

CU-17-06/V-17-15
VILLAGE PARK @ WILLS RD ASSISTED LIVING

CITIZEN PARTICIPATION FORM

Name	Address	Parcel Number
DAMAGHI KAMBIZ TR	80 Cuttermill Rd. Ste. 500 Great Neck, NY 11021	12 246006450344
CHRISTIAN CHURCH THE ROCK INC	3050 Francis Road Alpharetta, GA 30004	12 234006002828
CITY OF ALPHARETTA	2 South Main St. Alpharetta, GA 30004	12 234105990014
LEFLER GREGORY W. & JACKIE G	100 Wills Lane Alpharetta, GA 30004	12 234105990022
PROCTOR JOHN	110 Wills Lane Alpharetta, GA 30004	12 234105990030
HERTLING JEFFERY P	111 Wills Lane Alpharetta, GA 30004	12 234105990485
PETRAKOPOULOS CHARLES G	371 Jon Scott Dr. Alpharetta, GA 30009	12 234105990048
PETRAKOPOULOS ANGELOS G	121 Wills Lane Alpharetta, GA 30009	12 234105990477
HUDSON STEPHEN D	130 Wills Lane Alpharetta, GA 30004-1837	12 234105990055
HUDSON ANN D	131 Wills Lane Alpharetta, GA 30004	12 234105990469
MORGAN RICHARD & PAMELA D	140 Wills Lane Alpharetta, GA 30009	12 234105990063
HARNER CHARLES W & LETITIA T	141 Wills Lane Alpharetta, GA 30009	12 234105990451
JONES SUSAN T & JAMES E	150 Wills Lane Alpharetta, GA 30004	12 234105990071
ELASSAR ABDELKADER & HASSIN NASHWA	151 Wills Lane Alpharetta, GA 30004	12 234105990444
ESCALANTE JAVIER S	160 Wills Lane	12 234105990618
HULL LORI		
GAITO EDWARD P & BROWN JANET L		

VILLAGE PARK @ WILLS RD ASSISTED LIVING

CITIZEN PARTICIPATION FORM - PART A

This form must be completed and submitted with the applicant's completed Public Hearing Application. Applications submitted to the City of Alpharetta without a completed Citizen Participation Form - Part A will not be accepted.

Public Hearing or Project Name: Village PArk at Wills Road

Contact Name: Tim Gary

Telephone: 678-776-7129

The following people will be notified of this application and provided information describing the subject proposal. Please note that ALL adjoining property owners MUST be notified. Use additional pages as needed.

see attached list

Method by which these individuals will be contacted. Please mark all that apply. If you select "Other," please provide a description of the method of contact that will be used.



Letter



Personal Visits



Telephone



Group Meeting



Email



Other (Please Specify) _____

Please describe the method(s) by which these individuals will have the opportunity to respond or contact the applicant with questions or concerns about the proposal.

Individuals will be given an email address and phone number to respond with questions or concerns.

CU-17-06/V-17-15
VILLAGE PARK @ WILLS RD ASSISTED LIVING

CITIZEN PARTICIPATION FORM

HENSEL TERRY L & JOAN M	Alpharetta, GA 30004	12 234105990105
	180 Wills Lane	
	Alpharetta, GA 30004	
CROUSE JASON R	190 Wills Lane	12 234105990113
	Alpharetta, GA 30004	
CHRISTIAN CHURCH THE ROCK INC	3050 Francis Rd.	12 234006002547
	Alpharetta, GA 30004	
SHAH D N	1670 Hwy 9 South	12 246006450237
	Alpharetta, GA 30009	
O CALLAGHAN JAS P III & JUDITH	1395 Berea Rd.	12 246006450062
	Commerce, GA 30530	
KOKIL ENTERPRISE LLC	653 Citation Trl.	12 23400600994
	Alpharetta, GA 30004	
WILLS ROAD LLC	5481 Morton Rd.	12 246006450336
	Alpharetta, GA 30022	
AUTO-BRITE INC	1710 Alpharetta Hwy.	12 246006450245
	Alpharetta, GA 30009	
G E T REAL PARTNERS LP	915 W. Francis St.	12 234006000343
	Aspen, CO 81611	
S & D HOLDING COMPANY LLC	11865 Alpharetta Hwy	12 234006001747
	Roswell, GA 30076	
WETTACH EDWARD III & ELEANOR H.	P.O. Box 3507 Suite 640	12 234006001788
	Jackson, MS 39203	
CITY OF ALPHARETTA	2 South Main St.	12 246006450187
	Alpharetta, GA 30004	
JW ELLIS & CO LLC	1250 Cox Rd.	12 234006000467
	Roswell, GA 30075	
ALPHA BC LLC	3520 Piedmont Rd. NE Ste 410	12 234006000566
	Atlanta, GA 30305	

Trip Generation Report

DESCRIPTION / ITE CODE	UNITS	DAILY TOTAL	AM PEAK		PM PEAK	
			IN	OUT	IN	OUT
INDEPENDENT LIVING SENIOR - ATTACHED 251	20	74.2	2	3	3	2
INDEPENDENT LIVING SENIOR - DETACHED 252	48	252.28	4	5	5	4
ASSISTED LIVING SENIOR - 254	44	120.5	2	3	5	2
MEMORY CARE SENIOR	18	24	1	0	2	1

CITIZEN PARTICIPATION FORM - PART B

This form must be completed and submitted to the City of Alpharetta Community Development Department a minimum of twenty (20) working days prior to the scheduled Public Hearing. Failure to do so will result in cancellation of the scheduled hearing.

Public Hearing or Project Name: Village Park at Wills

Contact Name: Tim Gary

Telephone: 7687767129Se

Please describe comments and concerns provided by any and all individuals contacted as part of the the Citizen Participation Program. If any individuals provided written correspondence, please attach copies of same to this report.

See attached e-mail

Method by which these individuals were contacted. Please mark all that apply. Please provide samples of any and all written communications used to provide notification.

- | | |
|--|---|
| ☒ Letter | ☐ Personal Visits |
| ☐ Telephone | ☐ Group Meeting |
| ☒ Email | ☐ Other (Please Specify) _____ |

Attach a list of people who have been notified of this application and provided information describing the subject proposal. Please note that ALL adjoining property owners MUST be notified.

I, the undersigned, as an authorized representative of the applicant and Public Hearing item identified above, do solemnly swear and attest, subject to criminal penalties for false swearing, that the information provided in this Citizen Participation Form - Part B and in any and all documents provided in support of this report are true and accurate. I further understand that any false statements provided by representatives of the applicant as part of this report may result in penalties up to and including denial of the subject application.

Signature of Authorized Agent: Tim Gary

Date: 5/17

Print Form

5/22/2017

Village Park Senior Living Mail - Village Park at Wills Road



Tim Gary <tim@villageparkseniorliving.com>

Village Park at Wills Road

1 message

Chuck Petrakopoulos <info@susconllc.com>

To: "tim@villageparkseniorliving.com" <tim@villageparkseniorliving.com>

Thu, May 11, 2017 at 2:55 PM

Tim Gary,

We spoke yesterday about my property 120 Wills Lane that abuts your development.

Will the rear road/driveways servicing the cottages be in the 50' buffer?

Will the cottages have rear garages? Will the cottages main entrance face the park/pavilion or the rear buffer?

Any more detailed information will be helpful.

Thanks

Charles Petrakopoulos

770-778-9954

From: [Woodman, Michael](#)
To: [Taylor, Elicia](#)
Subject: FW: Village Park at Wills Road
Date: Wednesday, May 24, 2017 8:33:17 AM

Public participation results below.

From: Tim Gary [mailto:tim@villageparkseniorliving.com]
Sent: Tuesday, May 23, 2017 5:10 PM
To: Woodman, Michael <mwoodman@alpharetta.ga.us>
Subject: Fwd: Village Park at Wills Road

Michael

The property owner finally replied. He is not in favor. See below. We still would like to enhance the buffer. He is a landlord and doesn't live there. We don't want to see his back yard.

Tim

Village Park Senior Living

Begin forwarded message:

From: Chuck Petrakopoulos <info@susconllc.com>
Date: May 23, 2017 at 4:56:39 PM EDT
To: Tim Gary <tim@villageparkseniorliving.com>
Cc: Chuck Petrakopoulos <info@susconllc.com>
Subject: RE: Village Park at Wills Road

Tim Gary,

I do not approve of encroaching on the 50ft buffer, for any reason.

There is no benefit to my property and it devalues my property.

I will not encourage the city to agree with your proposal.

My cell number is below.

Thank You

Charles Petrakopoulos

<image003.png>

371 Jon Scott Drive Alpharetta GA 30009
info@susconllc.com
www.susconllc.com
phone 770-778-9954 fax 770-442-0065

The information contained in this email is consultant - client privileged and confidential information intended only for the use of the individual or entity named above. If the reader of this transmittal is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify Charles G Petrakopoulos via telephone at 770-778-9954 (collect if outside of Metropolitan Atlanta) promptly or via return facsimile to 770-442-0065 and DELETE IT FROM YOUR SYSTEM.

The city has made these suggestions.

Okay, just let me know. The City's Code does require an undisturbed buffer to be replanted where sparse. No matter how large the buffer is, we will propose a condition of zoning requiring heavy evergreen plantings in the buffer. You may also want to consider providing a wall, fence, berm or other means to supplement the landscaping in order to provide an opaque screen between the 2 properties. Just a thought. Park Senior Living

If you agree with the current site plan I will happen to implement everything recommended.

A simply reply will be very helpful. Thanks. I lost you phone number but feel free to give me a call.

678 776 7129

Tim Gary

On May 11, 2017, at 2:55 PM, Chuck Petrakopoulos <info@susconllc.com> wrote:

Tim Gary,

We spoke yesterday about my property 120 Wills Lane that abuts your development.

Will the rear road/driveways servicing the cottages be in the 50' buffer?

Will the cottages have rear garages? Will the cottages main entrance face the park/pavilion or the rear buffer?

Any more detailed information will be helpful.

Thanks

Charles Petrakopoulos

770-778-9954

Chuck

Great to talk yesterday. The cottages will face the park and have rear entry. The drive does go into the 50 foot buffer. However there are very few trees there now so should be a much better buffer. Feel free to ask anything about the project.

Tim

Village Park Senior Living

On May 11, 2017, at 2:55 PM, Chuck Petrakopoulos <info@susconllc.com> wrote:

Tim Gary,

We spoke yesterday about my property 120 Wills Lane that abuts your development.

Will the rear road/driveways servicing the cottages be in the 50' buffer?

Will the cottages have rear garages? Will the cottages main entrance face the park/pavilion or the rear buffer?

Any more detailed information will be helpful.

Thanks

Charles Petrakopoulos
770-778-9954



CITY COUNCIL MEETING STAFF REPORT

SUBMITTING DEPARTMENT: COMMUNITY DEVELOPMENT
SUBMITTED BY: KATHI COOK
DRAFTED BY: MICHAEL WOODMAN

I. AGENDA ITEM TITLE: CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/V-17-16 NORTHWINDS SUMMIT/POPE AND LAND

PLANNING COMMISSION: JUNE 1, 2017

CITY COUNCIL: JUNE 19, 2017

II. RECOMMENDATION:

Approve CLUP-17-03/MP-17-05/Z-17-05/V-17-16 Northwinds Summit/Pope and Land, subject to the following conditions:

Conditions ending with GRTA are conditions recommended by the Georgia Regional Transportation Authority. All GRTA recommendations are incorporated in a document dated April 27, 2017, RE: DRI 2669 – Northwinds Summit.

1. The 24.547-acre property shall be zoned MU and the site shall be developed substantially similar to the plan by Haines Gipson & Associates, dated 5/23/2017, except for modifications required to comply with the conditions below. However, lot yield depicted is not guaranteed and subject to meeting all City code requirements and conditions of zoning.
2. The comprehensive land use plan designation of the property shall be Mixed Use.
3. The maximum residential density shall be restricted to no more than 7.00 dwelling units per acre.
4. Architectural style shall be representative of a traditional style common in Alpharetta and material shall be primarily masonry with non-residential buildings approved by the DRB and 'For-Sale' residential buildings approved by Staff.
5. Development regulations shall be as follows:
 - a. Office – 1,230,000 square foot maximum. Entitlement shall be deducted from the existing Northwinds Master Plan entitlement for office. Building heights shall be limited as depicted on the site plan prepared by Haines Gipson & Associates, dated 5/23/2017.
 - b. 172 'For-Sale' condominium units shall be permitted in up to 4-story buildings with a maximum height of 50'. No more than 10% shall be rented as stated in the HOA documents. 800 square feet of existing office density per residential unit shall be exchanged.
 - c. Retail/Restaurant –Maximum of 30,000 square feet and height of 2 stories or 24', whichever is less. Entitlement shall be deducted from the existing Northwinds Master Plan entitlement for office/accessory retail. Mixed use buildings shall be limited to a maximum of 4 stories. Two (2) jewel box buildings shall be permitted within the median of the new private road, as depicted on the site plan. All restaurant uses shall include outdoor dining areas.
 - d. Hotel – One boutique or full-service hotel as approved by staff with a maximum of 140 rooms and 5 stories shall be permitted. Hotel entitlement shall be deducted from the existing Northwinds Master Plan entitlement for hotel, which will require an exchange of 12,800 SF of office for 16 additional hotel rooms. Hotel may not be an extended stay facility.
 - e. Parking Decks – Maximum of 8 levels, as depicted on the site plan prepared by Haines Gipson & Associates, dated 5/23/2017. With the exception of the parking decks serving office buildings, all parking decks shall be wrapped with residential or non-residential uses where visible from the road.

Parking decks visible from Haynes Bridge Road and Northwinds Parkway shall be treated with comparable materials and finishes as the buildings they serve. Parking decks visible from Georgia 400 and the interchange, as well as the 2 parking decks immediately adjacent to Haynes Bridge Road and Northwinds Parkway shall be screened from view with evergreen landscaping of sufficient size, as approved by Staff. Suitability of parking deck elevation, visibility and landscape screening shall be approved by the DRB.

6. The Master Plan area shall be limited to the following uses and further restricted by conditions of zoning:
 - a. Office
 - b. Retail
 - c. restaurant (no drive thru)
 - d. hotel
 - e. residential
7. Retail uses shall be those uses customarily accessory to or amenities for office uses, restricted to the following uses:
 - a. Art Gallery
 - b. Bakery
 - c. Barber Shop
 - d. Beauty Shop
 - e. Book Store
 - f. Brewery
 - g. Computer Supply Store
 - h. Copy Center/Print Shop
 - i. Drug Store (not to exceed 2,000 SF)
 - j. Dry Cleaning Pick-up Station
 - k. Fitness Studio
 - l. Florist, Retail without Greenhouse
 - m. Neighborhood Grocery (min. 3,000 SF)
 - n. Office Supply Store (not to exceed 2,000 SF)
 - o. Package Shipping/Mail Box Store
 - p. Restaurant (no drive-thru)
 - q. Retail Sales and Services Establishment
 - r. Shop or Studio, Craftsman/Artist
 - s. School, Commercial
 - t. Spa Services (with approval of a conditional use permit)
8. Building setbacks shall be 50' along Haynes Bridge Road and 40' along Northwinds Parkway. Side and rear setbacks shall be 15' and shall be in addition to required buffers.
9. Building setbacks along internal streets shall be 0' for the first 60' of building height. Above 60' in height, a 10' setback shall be provided from back of curb. Sidewalks and street trees shall be incorporated throughout the development. Pedestrian bridges, stairs, elevators and escalators may encroach over and into public spaces provided that they don't impede pedestrian circulation or safety.
10. A building permit shall not be issued for any free-standing retail building before a building permit is issued for the 30,000 square foot office use.
11. Parking shall be provided at 3.0 spaces/1,000 SF for office and retail uses. Bicycle parking shall be provided at 1 space per 50 parking spaces. Electric vehicle charging stations shall be provided at 1 space per 50 parking spaces.
12. Specimen trees, tree groupings and trees of quality shall be given special consideration and every attempt to incorporate them into the site plan shall be made as stipulated in the Tree Protection Ordinance, as approved by Staff.
13. Existing landscape trees, determined to be in good condition, depicted to be removed shall be spaded and relocated on-site.

14. A minimum 3.17 acres of public space and a minimum 8.29 acres of greenspace shall be provided as depicted on the 5/23/2017 zoning plan. A bocce ball court, or an alternative outdoor recreational feature, shall be required within an area designated public space as approved by Staff.
15. Delete Condition #6 on Northwinds Master Plan Table A – Revised October 1998, which required 20 stories or 300' buildings directly adjacent to the Georgia 400 Tree Buffer.

Design Conditions:

16. An irrevocable public access easement shall be provided over the new private street connecting Haynes Bridge Road to Northwinds Parkway.
17. At-grade pedestrian and bicycle connections shall be provided throughout the site, including between buildings and recreational facilities within the development and across Northwinds Parkway. Pedestrian crossings throughout development shall be ramped and the surface materials shall be brick pavers, cobblestones or architecturally treated concrete products as approved by Staff. Bicycle facilities shall be provided throughout the development including a bicycle rental station.
18. Detention facilities shall not be visible from a public right-of-way, except a decorative water feature approved by Staff. The developer shall work with the adjacent property owner to install a decorative fountain in the detention pond.
19. Each entrance off Northwinds Parkway and Haynes Bridge Road shall be designed to incorporate a water feature, sculpture or similar focal point feature, as approved by Staff and prior to an LDP.
20. Parking decks and retaining walls shall receive architectural façade treatment or be heavily landscaped. Retaining walls visible from developed areas exceeding 16' in height shall be terraced. In areas where the parking decks are visible to the public, the decks will be screened by over-sized landscaping (12" – 15" caliper trees) or materials approved by DRB or other materials as approved by Staff.
21. The developer shall provide bicycle racks, benches, trash receptacles, decorative crosswalks, planters, kiosks and other street furniture, where appropriate, throughout the development. A bus drop-off area with shelter and dedicated lane shall be incorporated into the plan design along Haynes Bridge Road, Northwinds Parkway or at an alternative location acceptable to MARTA. Developer shall work in good faith with MARTA to add the development to city bus routes in order to assist with transportation service for employees. The public shall be permitted to park in the office parking lots on evenings and weekends.
22. Prior to LDP, the applicant shall submit for approval a document to be entitled 'Northwinds Summit Design Standards'. This document shall include elevations or architectural themes of buildings, specifications for street furniture including benches, trash receptacles, lighting, fountains, bicycle racks, bus shelter, signage landscaping themes and focal point features and shall be substantially similar to the renderings filed with the 2017 application, as amended. Design standards will be presented to Staff and the DRB for review and approval. This document also shall detail entrance treatment for the Haynes Bridge Road and Northwinds Parkway intersections with the new private road.
23. Plans for buildings, landscaping and signage (in the form of a 'sign package') shall be subject to review and approval by the DRB.
24. Awnings shall be provided on buildings at street level in commercial areas where reasonably appropriate in order to protect pedestrians from inclement weather.
25. Surface parking areas other than on-street parking shall be screened from the right-of-way in compliance with the UDC. A decorative, short wall shall be located along Haynes Bridge Road where necessary to obscure views of surface parking near the hotel and along Northwinds Parkway where necessary to obscure views of loading area for Office Site/Parking Deck E.
26. All buildings along Haynes Bridge Road and Northwinds Parkway must face those streets or appear to face those streets. Backside of buildings or 'back of house' functions (such as loading or dumpster area) shall not be visible from those streets. Parapet walls shall be used as needed to screen roof-top mechanical equipment and views.
27. Streets within the development shall be private and shall include a planted median with sufficient space for tree plantings.

28. A view corridor shall be created from Haynes Bridge Road to the detention pond, along the new private road. A structure for seating or gathering, such as a gazebo or similar structure, shall be provided at the end of the boulevard near the detention pond as approved by Staff.
29. Corner of Haynes Bridge Road shall be designed with a minimum 5,000 square foot green space and shall incorporate existing wall and landscaping with a focal point feature (sculpture), final approval by the local arts committee. Applicant shall provide a minimum 3 original sculptures located at prominent locations throughout the development, including the corner of Haynes Bridge Road and in the roundabout, as approved by the local arts committee. Approval and construction of 1 sculpture shall be required concurrent with the first CO. A minimum of 1 additional sculpture shall be required concurrent with the first CO of each subsequent phase of development. All sculptures shall be completed prior to final site CO.
30. In order to further 2035 Comprehensive Plan strategy LU 6.2, no stand-alone retail development shall be located within 500' of the GA 400 interchange.
31. Prior to the first LDP, applicant shall submit a construction phasing plan that shall demonstrate how construction will be staged and implemented in a manner that screens construction views from adjacent roadways.
32. Prior to the first LDP, applicant shall submit a revised master plan for the entire parcel to the City, which shall incorporate the approved conditions, as well as the following:
 - a. Approved specifications and standards identified for each use within the total development.
 - b. Pedestrian network.
 - c. Overall planned green space areas.
33. Every plan submitted for an LDP shall include an on-going density and acreage tabulation.
34. Alcohol license distance requirements from residential development shall be waived.
35. Rooftop signs shall be permitted as approved by the DRB.
36. All site plans and civil design plans hereafter submitted to the City of Alpharetta shall state as the first note:
"This plan reflects conditions stipulated through public hearing regarding case CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/V-17-11 Northwinds Summit/Pope and Land"

Landscape Conditions:

37. A 20' landscape strip with trees and shrubs shall be provided along Haynes Bridge Road and Northwinds Parkway. All new utilities shall be located underground. Existing landscape strips along Northwinds Parkway and Haynes Bridge Road shall be replanted where needed, as approved by Staff.
38. Landscaping areas shall not contain any parking, water detention area or buildings, or portion thereof, except that a detention pond or ponds may be located within the landscaping area if decorative and will provide an amenity. However, there shall be no encroachment into the Georgia 400 tree buffer, except for the Alpha Loop as approved by Staff.
39. At least 1 roof-top amenity shall be required within the development. In addition, at least 25% of the space occupied by restaurant uses shall be located in open air dining areas. Outdoor dining areas will not count against the 30,000 SF of retail/restaurant use.
40. Provide detailed street planting for Haynes Bridge Road, Northwinds Parkway and new private road. Landscape plan shall be approved prior to issuance of a LDP and shall retain the current mature street trees, except at curb cuts along Northwinds Parkway and Haynes Bridge Road with final approval by Staff.
41. The developer and/or property owner shall be responsible for the planting and maintenance of medians within the development site. Planting and maintenance shall be in accordance with a plan approved by Staff.
42. Parking lot islands shall be planted with trees, shrubs and ground covers. Provide sufficient green space to screen parking decks. Investigate, as directed by Staff, the possibility of adding shade structures on the top floor of parking decks to cover a minimum 15% of this surface.
43. The developer shall dedicate a permanent easement to the City and construct a 12' concrete, accessible multi-use trail from Northwinds Parkway, through the site, next to the detention pond and through the Georgia 400 buffer and along Haynes Bridge Road, with final alignment/design/materials approved by Staff and construction completed prior to the first CO for residential units. A hawk signal and crossing shall be provided across Northwinds Parkway and shall be constructed of paver material approved by Staff. Alpha Loop shall

including seating/gathering areas, lighting (pedestrian and bollards), landscape and hardscape. Trail entrance gateways/arches shall be provided on Northwinds Parkway and Haynes Bridge Road. The applicant shall hand clear undergrowth, invasive species and dead materials within the Georgia 400 buffer; maintain such condition to the City's satisfaction; and promote use of the area to the public by providing parking, access and trails for public enjoyment. A bike share station shall be provided at a location(s) along the trail as approved by Staff. Wayfinding signage shall be placed at key locations along the trail.

44. The detention pond shall include a minimum 12' wide multi-use trail and gathering areas and/or exercise stations, as approved by Staff. The width of the multi-use trail may be reduced to save trees, as approved by Staff.
45. Public spaces shall include landscape and hardscape for recreation, entertainment, and/or civic purposes as approved by Staff.

General Conditions of Approval to GRTA Notice of Decision:

Haynes Bridge Road at GA 400 Southbound Ramps

46. Restripe the westbound approach (Site Driveway 1) to operate with two dedicated left turn lanes, one dedicated through lane and one shared through/right turn lane, as shown on plan.
47. Install permissive + overlap signal phasing for the southbound right turn movement.

Haynes Bridge Road at Northwinds Parkway/Lakeview Parkway

48. Convert the existing yield-controlled northbound right turn movement to a free-flow movement.
49. Construct a second westbound right turn lane on Northwinds Parkway, per local standards.

Northwinds Parkway at Site Driveway 2

50. Signalize, if and when warranted.

III. REPORT IN BRIEF:

The applicant, Pope and Land, is requesting a master plan amendment to the Northwinds Master Plan Pod A to modify the development mix permitted on the property to allow 30,000 square feet of retail/restaurant, 140-room hotel, 1,230,000 square feet of office, 140 'For-Rent' units and 32 'For-Sale' condominium units on 24.547 acres. A rezoning is requested from O-I (Office-Institutional) to CUP (Community Unit Plan), as well as a comprehensive land use plan amendment from Corporate Office to Mixed Use. A conditional use is requested to allow 'For-Rent' residential use and variances are requested from the 'For-Rent' standards, minimum lot size in the CUP district and various parking variances. A change to a previous master plan condition is requested to remove a provision requiring a 20-story height for office buildings adjacent to the Georgia 400 Buffer. The property is located at the northeast corner of Haynes Bridge Road and Georgia 400.

DISCUSSION

The submitted request, if approved, will allow for the construction of a mixed-use development consisting of 30,000 square feet of retail/restaurant use, 1,230,000 square feet of office, 32 'For-Sale' condominium units, 140 'For-Rent' apartment units, 140-room hotel and several parking decks on a 24.547-acre site. The proposed residential density is 7.00 dwelling units/acre. The subject property is located at the northeast corner of Haynes Bridge Road and Georgia 400.

The subject property and surrounding properties are zoned O-I and are subject to the Northwinds Master Plan Pod A. The property is bound by Northwinds Parkway, Fairfield Inn & Suites and an office building

to the north, Haynes Bridge Road to the west, Georgia 400 to the south and the former DeVry Institute property to the east. The property and surrounding properties have a comprehensive land use plan designation of Corporate Office.

The applicant is requesting a master plan amendment for a project called "Northwinds Summit" to change the permitted mix of uses and development standards. Northwinds Master Plan Pods A & C have a remaining entitlement of 2,535,559 square feet of office/retail, of which 446,599 square feet can be exclusively retail on Pod C only. In addition, 124 hotel rooms remain entitled in Northwinds Pods A & C, including an allowance to exchange of 800 square feet of office use in Pod A to add one (1) hotel room, up to a maximum of 300 additional hotel rooms. The applicant's initial request indicated that the proposed uses were in addition to the remaining entitlements in the Northwinds Master Plan. However, the applicant has decided to move forward utilizing the existing remaining entitlements for office, retail and hotel.

A rezoning is requested for 24.547 acres from O-I to CUP and a comprehensive land use plan amendment from Corporate Office to Mixed Use in order to add the proposed residential uses. However, staff recommends rezoning the subject property to MU (Mixed Use), based on the proposed development mix. A conditional use is requested to allow 'Dwelling, 'For-Rent' Residential' use and variances are requested from the 'For-Rent' design standards, parking, as well as a variance to reduce the minimum lot size in the CUP zoning district.

The Northwinds Master Plan was approved in 1986 and has been amended on a few occasions over the years. According to the current master plan development standards, Pods A & C allow office buildings at a maximum height of 20 floors. In addition, development standard condition #6 requires office buildings adjacent to the Georgia 400 Buffer to be 20 stories or 300'. As reflected below and supported by Staff, the applicant proposes to strike Condition #6 altogether.

6. ~~"The height of office buildings located directly adjacent to the GA-400 Tree Protection Zone shall be 20 stories or 300', whichever is less."~~

In 1993, the City referred the Northwinds Master Plan to the Atlanta Regional Commission (ARC) for a Development of Regional Impact (DRI) review. At the time, the proposed Northwinds DRI was found to be not in the best interest of the State due to the potential negative impacts on the Big Creek Wastewater Treatment Plant, Fulton County School System and transportation facilities in the area. Staff submitted an application to the Department of Community Affairs (DCA) for a DRI Review of the applicant's proposed plan. On May 3, 2017, the ARC issued a finding that the proposal was in the best interest of the Region, and therefore the State. GRTA submitted a "Notice of Decision", dated April 27, 2017, stating the project was approved as submitted with recommended conditions.

The table below provides a comparison between the applicant's zoning proposal, the Northwinds Master Plan, and the remaining entitlement.

Applicant's Proposal vs Original Master Plan				
Use	Applicant's Proposal	Original Master Plan	Remaining Entitlement – Pods A & C	Remaining Entitlement, incl. Applicant's Proposal
Residential	32 'For-Sale' Condominium, 140 'For-Rent' Apartments	58 'For-Sale' Townhomes 800 'For-Rent' Apartments	None	+140 'For-Rent' Apartment +32 'For-Sale' Condominium
Hotel	140 rooms**	300 rooms*	124 rooms*	0**
Office & Accessory Retail/Restaurant	1,230,000 SF Office 30,000 SF Retail/Restaurant	4,340,140 SF (Pods A & C – office and retail)	2,535,559 SF	+1,262,759 SF**

**Northwinds Master Plan allows a developer to exchange 800 SF of office density in Pod A to add one (1) hotel room up to a maximum of 300 rooms in addition to the 300 permitted.*

***12,800 SF of office use is proposed to be exchanged for 16 hotel rooms in order to accommodate the applicant's request.*

The property is also located within the Tier 1 North Point Development Node as depicted on the 2035 Future Land Use Plan. The City's Comprehensive Land Use Plan describes the North Point Activity Center Character Area in the following way:

"PRESERVE the North Point area as a regional destination for shopping, jobs and entertainment, and ENHANCE the area with improvements and new development that supports a walkable and vibrant community destination with places to shop, work, entertain and live."

"Future development should emphasize connectivity, uses that generate a high level of activity and transit-oriented development that anticipates the extension of MARTA transit service to the area. It should reinforce a walkable, mixed-use destination supported by a range of housing types and transportation modes. It should also focus on expanding the street network, enhancing public transit service, creating a pedestrian-friendly environment by adding sidewalks and supporting bicycle use with infrastructure that makes biking safe and convenient. This complete transportation system should link adjacent residential, office and commercial areas to major destinations within the activity center or serve as a safe and convenient connection to other destinations in the community. Expand entertainment uses and capitalize on amphitheater location."

The property is located in an area of the North Point Activity Center LCI designated Mixed-Use Commercial Center Area, which is described in the following way:

"Mixed-use Commercial Centers seek to take advantage of Georgia 400, Mansell Road, and Haynes Bridge Road to accommodate significant vehicular traffic by locating high intensity uses within a short distance of the Georgia 400 interchanges. While still providing pedestrian connectivity to the mixed-use village center, the two commercial centers are better suited to accommodate taller, regional serving development with higher vehicular traffic demands."

The applicant is requesting the seven (7) variances related to the MU zoning district, 'For-Rent' standards and parking regulations:

1. Reduce the minimum lot size in the CUP district from 100 acres to 24.547 acres.
2. Allow first floor 'For-Rent' dwellings on more than two (2) buildings sides.

3. Remove requirement for first floor 'For-Rent' dwelling units to have individual unit entrance from the exterior of the building and individual stoops or porches.
4. Delete the requirement for neighborhood grocery associated with the 'For-Rent' product.
5. Reduce the parking requirement for office and retail uses from one (1) space per 250 square feet to one (1) space per 333.3 square feet (from 4 spaces/1,000 to 3 spaces/1,000).
6. Reduce the bicycle parking requirement from one (1) space per 25 parking spaces to one (1) space per 50 parking spaces.
7. Reduce the electric car charging station requirement from one (1) space per 25 parking spaces to one (1) space per 50 parking spaces.

The Site Plan does not meet the 25% minimum retail required in MU; however other than restaurant and convenience retail no additional destination type retail is recommended.

'FOR-RENT' RESIDENTIAL

The applicant requests a conditional use to allow 140 'For-Rent' units in a 4-story building with parking deck. One (1) side of the building has 1st floor retail and/or office uses along the new Storefront Street. Residents will have access to parking and amenities, such as a pool and private outdoor amenity area. Staff requested information on bedroom mix, unit size, price point and amenities; however, the applicant indicated that the information was not available at this time. The applicant is requesting variances to the 'For-Rent' standards to allow first floor 'For-Rent' units on more than two (2) buildings sides and to remove the requirements for individual unit entrance from the exterior of the building, individual stoops and porches and a neighborhood grocery of sufficient size to support the development. Staff could support a reduction in retail; however, if rental is approved then a small neighborhood grocery should be required. A small 3,000 square foot tenant could provide convenience goods.

Careful consideration should be given to maintaining a balance between 'For-Rent' versus 'For-Sale' product in the City. The 2035 Comprehensive Land Use Plan identifies the following policy as it relates to maintaining a balance of 'For-Sale' versus 'For-Rent' housing in the City:

Housing Policy 2: Maintain a balance between 'owner-occupied' and 'renter-occupied' in Alpharetta such that at least 68% of the housing stock is 'owner-occupied'.

There are several factors that should be considered with requests for apartments, such as mix of uses, design, long-term viability, impacts to City facilities and services, as well as traffic and school impacts. Office space already exists within the Northwinds Master Plan and high density housing should be tied to office space where jobs exist and are created and service uses are available to limit vehicular trips. The 1,230,000 square feet of new office will generate approximately 6,150 employees (1 employee per 200 square feet) to support the residential and retail uses.

The City's Rental Housing Study, which was prepared in May 2015 and recently updated, recommends as one possible approach that the City target an entitlement of between 93 and 159 'For-Rent' units per year in order to achieve a goal of 32% rental housing in the City. It should be noted that this annual target recommendation is not an approved City policy; however, the 32% 'For-Rent' policy is included in the 2035 Comprehensive Land Use Plan.

In 2017, the City approved 405 'For-Rent' units and looking at the goal of 32%, these approvals exhaust entitlements through 2020. If the City decides to allow 2020 entitlements, a condition should be added to prohibit a CO until 2020 in order to meet the goal. In order to promote a traffic reduction, residential units could be exchanged for existing office density, similar to the hotel room exchange, to reduce traffic impacts.

'FOR-SALE' RESIDENTIAL

The applicant is requesting 32 'For-Sale' condominium units in a 4-story building. The condominium building is depicted to the east of the proposed 'For-Rent' building and includes a 14,176 square foot private amenity area for its residents. It is recommended that a mixed-use development contain a variety of residential types. The applicant's proposed development mix provides nearly 19% 'For-Sale' residential product, which is comparable to the ratio of 'For-Sale' to 'For-Rent' uses at mixed-use developments such as Milton Park and Avalon. Avalon is approved for 16% 'For-Sale' product and Milton Park has over 25%.

OFFICE

The applicant proposes 1,230,000 square feet of office on the site. Northwinds Pods A & C have a remaining office/retail entitlement of 2,535,559 square feet. The applicant's request includes a 15-story, 350,000 square foot office building adjacent to Haynes Bridge Road, a two (2) story, 30,000 square foot office building, a five (5) story, 150,000 square foot office building, a 16-story, 400,000 square foot office building and a 15-story, 300,000 square foot office building near the existing detention pond. The applicant states that the 30,000 square foot building will be constructed in the first phase of the development.

Because the applicant initially requested new entitlements, staff examined whether or not the remaining office and hotel entitlements could be accommodated within Northwinds Master Plan. With the exception of the applicant's property, a 3.74-acre parcel of land at the southwest corner of Northwinds Parkway and Kimball Bridge Road is the only remaining undeveloped property within Northwinds. However, it is reasonable to assume that the large surface parking lots could be redeveloped with office/hotel buildings supported by parking decks. Staff prepared a map showing that Northwinds could be developed with the remaining 2.5 million square feet of office use and a 124-room hotel. Staff would not support new entitlement of office use within Northwinds due to potentially negative impacts on the area's roadways. The hotel rooms requested reduces the office entitlement by way of an exchange permitted in the Northwinds Master Plan. If residential is approved, a condition could require a similar exchange for existing office density.

RETAIL/RESTAURANT

The development proposes 30,000 square feet of retail/restaurant uses located in freestanding and mixed-use buildings. The applicant proposes 1st floor retail space in the 'For-Rent' building, a small 1-story retail building wrapping the 'For-Rent' parking deck building, a small 1-story retail building attached to a proposed 5-story office building and two (2) jewel box buildings within the center median of the internal boulevard. Retail uses will be those that are typically accessory to office use and retail services to support the proposed residential uses.

HOTEL

The applicant proposes a hotel with a maximum of 140 rooms and five (5) stories. A boutique hotel is typically defined as a smaller hotel, usually between 10 and 150 rooms, located in unique settings with upscale services and unique architectural and interior design. The Northwinds Master Plan was entitled for 300 hotel rooms, of which 124 rooms remain. The master plan allows an additional 300 hotel rooms through an exchange of one (1) hotel room per 800 square feet of office use. The applicant's request for a 140-room hotel would require the exchange of 12,800 square feet of office use for 16 hotel rooms in order to make up the difference between the proposed versus remaining hotel entitlement. Staff would not support new entitlement of hotel use within the Northwinds Master Plan due to the number of existing and entitled hotel sites throughout the City.

PUBLIC SPACE & PARK LAND

The applicant's site plan depicts 3.17 acres of public space, consisting of public plazas, courtyards, seating and walking paths. Public spaces are generally located between the new internal road and the fronts of office and retail buildings. Park space and public space cannot include the Georgia 400 tree buffer (except area improved for the Alpha Loop), building setbacks or landscape strips. 0.72 acres of private amenity space is provided in two (2) areas between the condominium building and 'For-Rent' building and internal to the 'For-Rent' building.

A 12' multi-use path will be provided through the subject property and incorporated into the City's Alpha Loop system. The site plan depicts the Alpha Loop entering the property from Northwinds Parkway and running along the detention pond, then running through the Georgia 400 Buffer and along Haynes Bridge Road to the intersection at the Georgia 400 off ramp. Staff recommends that the developer provide an easement and construct the 12' Alpha Loop through the property as depicted on the applicant's site plan, including enhancements such as an accessible path, seating/gathering areas, lighting, landscape, detention pond fountain and wayfinding signage.

The CUP zoning district requires a minimum 15% of the gross land area to be set aside as open space. However, staff believes the appropriate zoning of the subject property should be MU (Mixed Use) due to the proposed development mix. Therefore, the MU zoning district requires a minimum 10% of the land area be designated for public uses, such as recreation, entertainment and/or civic space. Based on the total site area, a minimum of 2.45 acres in public space is required for the proposed development. The site plan depicts 3.17 acres of public space, which exceeds the minimum requirement. The total park land goal in the MU zoning district is one (1) acre of park land per 100 population. Based on the table below, the applicant's proposed development would generate a population of 420 people. Therefore, a goal of 4.2 acres of park land should be incorporated in the proposed development, of which at least 50% should be passive park area. The site plan does not specifically call out park land within the proposed mixed-use development.

2011-2013 American Community Survey 3-Year Estimates – Average Household Size

	Alpharetta city, Georgia	
	Estimate	Margin of Error
Total:	2.72	+/-0.09
Owner occupied	2.93	+/-0.13
Renter occupied	2.33	+/-0.16

TRAFFIC

The proposed development triggers regional review under the Georgia Planning Act as a Development of Regional Influence (DRI). A traffic study was prepared following guidelines established by the Atlanta Regional Commission (ARC) and the Georgia Regional Transportation Authority (GRTA). Based on the land uses proposed, the development is expected to generate nearly 1,772 vehicle trips during the PM Peak Hour. The total vehicle trip generation for the development is presented in the table below.

Table 1– Trip Generation								
Land Use	Size	AM Peak Hour			PM Peak Hour			24-Hour Two-way
		Enter	Exit	Total	Enter	Exit	Total	
ITE 820 – Shopping	30,000 sf	46	29	75	128	139	267	3,105
	<i>Mixed-Use</i>	-5	-4	-9	-15	-21	-36	-420
	<i>Pass-by Trips (0%)</i>	0	0	0	-38	-40	-78	-780
ITE 230 – Condominium	32 Units	4	17	21	16	8	24	239
	<i>Mixed-Use</i>	0	0	0	-2	-2	-4	-40
ITE 310 – Hotel	140 Rooms	44	30	74	43	41	84	880
	<i>Mixed-Use</i>	-2	-2	-4	-8	-5	-13	-144
ITE 710 – Office	1,230,000 sf	1,254	171	1,425	248	1,208	1,456	8,842
	<i>Mixed-Use</i>	-1	-2	-3	-4	-5	-9	-140
ITE 220 – Apartment	140 Units	14	58	72	62	33	95	972
	<i>Mixed-Use</i>	-2	-2	-4	-9	-5	-14	-158
Total Trips (without Reductions)		1,362	305	1,667	497	1,429	1,926	14,038
New External Trips (with Reductions)		1,352	295	1,647	412	1,350	1,772	12,356

* Pass-by trips (AM) PM; 24 Hour pass-by trips estimated by considering PM pass-by as 10% of daily

Traffic operations were evaluated adding the proposed development trips to the existing transportation network, including recently approved and under construction developments. The major roadways in the area were found to generally have capacity available to accommodate the traffic added from the proposed development. In addition, the traffic study identified several improvements needed to mitigate operational deficiencies induced by future growth and traffic from the proposed development. Identified improvements include intersection improvements at Haynes Bridge Road and the site access/GA 400 SB; Haynes Bridge Road at Lakeview Parkway/Northwinds Parkway; Northwinds Parkway at Old Milton Parkway; and Northwinds Parkway at the site access.

At the request of the City, traffic was further evaluated assuming additional entitled development was built within the Northwinds Master Plan. In general the study found even this traffic could be accommodated within the existing transportation network. However, based on the intensity of development evaluated and the assumptions used in this supplemental study, the interchange of GA 400 at Haynes Bridge Road would need significant improvements.

SCHOOLS

Residential development is known to increase school enrollment. Fulton County Schools calculated the potential number of children who may live on the property by using their standard calculation to distinguish the number of children that a residential development will generate. The following table outlines these figures:

FULTON COUNTY SCHOOLS – 32 Condominiums & 140 Apartments

School	Estimated # New FCS Students Generated
Manning Oaks Elementary School	12 – 37
Northwestern Middle School	3 – 19
Milton High School	10 – 37
Total	25 – 93

Based on the total figure for all three school levels, it can be assumed that the proposed development could house approximately 25 – 93 school age children. All three schools are shown to be over capacity.

STANDARDS FOR ZONING CHANGES

The Planning Commission and the City Council shall consider the following standards in considering a rezoning application, giving due weight or priority to those factors particularly appropriate to the circumstances of each application:

- a. Whether the zoning proposal will permit a use that is suitable in view of the zoning use and development of adjacent and nearby property.

Response: The proposed rezoning would permit a mixed-use development, which is consistent with the North Point Activity Center LCI.

- b. Whether the zoning proposal will adversely affect the existing use or usability of adjacent or nearby property.

Response: The property is currently zoned O-I and subject to the Northwinds Master Plan, which has a remaining entitlement of approximately 2.5 million square feet of office/retail and 124 hotel rooms. A mixed-use development at this location would reduce impacts on City public facilities and services. However, staff is concerned that the applicant's proposal includes several variances to the 'For-Rent' design standards and does not address the goal for park land in the MU district.

- c. Whether the zoning proposal will adversely affect the natural environment.

Response: The proposed development respects the on-site stream buffers; however, it does not appear that any specimen trees will be saved other than those located within the Georgia 400 Tree Buffer.

- d. Whether there are substantial reasons why the property cannot or should not be used as currently zoned.

Response: The property is currently zoned O-I and subject to the Northwinds Master Plan, which has a remaining entitlement of approximately 2.5 million square feet of office/accessory retail and 124 hotel rooms. A mixed-use development at this location would reduce impacts on City public facilities and services, if office density is exchanged for residential density. Office generates the most peak hour trips.

e. Whether the zoning proposal will result in a use that will or could cause an excessive or burdensome use of public facilities or services, including but not limited to existing streets and transportation facilities, schools, water or sewer utilities, and police or fire protection.

Response: The purpose of a mixed-use development is to reduce impacts on public facilities and services by providing a place to live, work and play. A neighborhood grocery and recreation and park opportunities could further reduce impacts on public facilities and services.

f. Whether the zoning proposal is supported by new or changing conditions not anticipated or reflected in the existing zoning on the property.

Response: A mixed-use development at the proposed location would reduce impacts on City public facilities and services, if office density is exchanged for residential density.

g. Whether the zoning proposal reflects a reasonable balance between the promotion of the public health, safety, morality or general welfare against the right to unrestricted use of property.

Response: A mixed-use development at the proposed location would reduce impacts on City public facilities and services, if office density is exchanged for residential density.

h. Whether there are substantial reasons why the property cannot be used in accordance with existing zoning.

Response: The property is currently zoned O-I and subject to the Northwinds Master Plan, which has a remaining entitlement of approximately 2.5 million square feet of office/accessory retail and 124 hotel rooms. A mixed-use development at this location would reduce impacts on City public facilities and services.

i. The extent to which the zoning proposal is consistent with the Comprehensive Plan.

Response: The zoning proposal is not consistent with the Comprehensive Land Use Plan designation of the subject property, which is Corporate Office. However, the comprehensive plan depicts the property within the North Point Activity Center, which designates the highest intensity development concentration.

CONDITIONAL USE REVIEW CRITERIA

City staff has reviewed the applicant's request and compared it to the conditional use standards established in UDC Sec. 4.2.3 (B) which are as follows:

A conditional use otherwise permitted within a zoning district shall be considered to be compatible with other uses permitted in the district, provided that due consideration is given to the following objective criteria at a public hearing and satisfactory provisions or arrangements are made for:

1. Access into and out of the property with regard to traffic and pedestrian safety, volume of traffic flow, and emergency vehicles, as well as the type of street providing access;

Response: The project has two (2) full-access driveways on Haynes Bridge Road and Northwinds Parkway, as well as direct access to the on- and off-ramp to Georgia 400.

2. The extent to which refuse areas, loading and service areas, off street parking, and buffers and screening are provided on the property;

Response: The proposed mixed-use development can sufficiently address all development requirements mentioned above, except that the applicant is requesting a variety of parking variances.

3. Ensuring that the conditional use will not be injurious to the use and enjoyment of the environment or of other property in the immediate vicinity or diminish and impair property values within the surrounding neighborhood;

Response: The applicant proposes 'For-Rent' use in association with a mixed-use development, which is consistent with the UDC. However, the City's Rental Study has a goal of 32% renter-occupied units. The City is currently at 35% and entitlements have been approved through 2020. Although high density residential is appropriate at this location, 'For-Sale' product is recommended.

4. Ensuring that the conditional use will not increase local or state expenditures in relation to the cost of servicing or maintaining neighboring properties;

Response: Not applicable.

5. Ensuring that the conditional use will not impede the normal and orderly development of surrounding property for uses predominant in the area; and

Response: The proposed conditional use should not impact the normal and orderly development of surrounding properties.

6. Ensuring that the location and character of the conditional use is considered to be consistent with a desirable pattern of development for the city, in general.

Response: The proposed uses are consistent with the vision of the Comprehensive Plan and North Point Activity Center LCI, which identifies the Georgia 400 corridor as an appropriate location to establish mixed-use activity centers at higher densities and intensities.

VARIANCE REVIEW CRITERIA

The City of Alpharetta Unified Development Code Article IV, Section 4.5.3 outlines the criteria set forth for granting a variance. The ordinance specifically states..."a variance may be granted in whole or in part, or with conditions, in such individual case of unnecessary hardship upon a finding that":

(1) There are extraordinary and exceptional conditions pertaining to the particular piece of property in question because of its size, shape or topography; or

Response: There are no exceptional conditions pertaining to the subject property that would prohibit the applicant from complying with the 'For-Rent' design standards. Parking reductions could be supported given that this is a mixed-use development.

(2) The application of the Ordinance to this particular piece of property would create an unnecessary hardship; or

Response: The applicant could develop the subject property in compliance with the UDC regulations, specifically the 'For-Rent' design standards.

(3) There are conditions that are peculiar to the property which adversely affect its reasonable use or usability as currently zoned; or

Response: Not applicable.

(4) Relief, if granted, would not cause substantial detriment to the public good or impair the purpose and intent of the City of Alpharetta ordinances.

Response: Relief from the 'For-Rent' standards could result in a product similar to a garden apartment, which typically has a greater impact on schools. In addition, the lack of a neighborhood grocery is inconsistent with the intent of a mixed-use development, which is to decrease vehicle trips by providing a walkable mix of uses where one can live, work and play.

CONCURRENCES

Staff has reviewed the application and can generally support the applicant's request for comprehensive land use plan amendment, master plan amendment, rezoning and certain variances. Staff recommends a rezoning to MU, which is consistent with the vision of the North Point Activity Center LCI and promotes higher densities and intensities within a short distance of the Georgia 400 interchange.

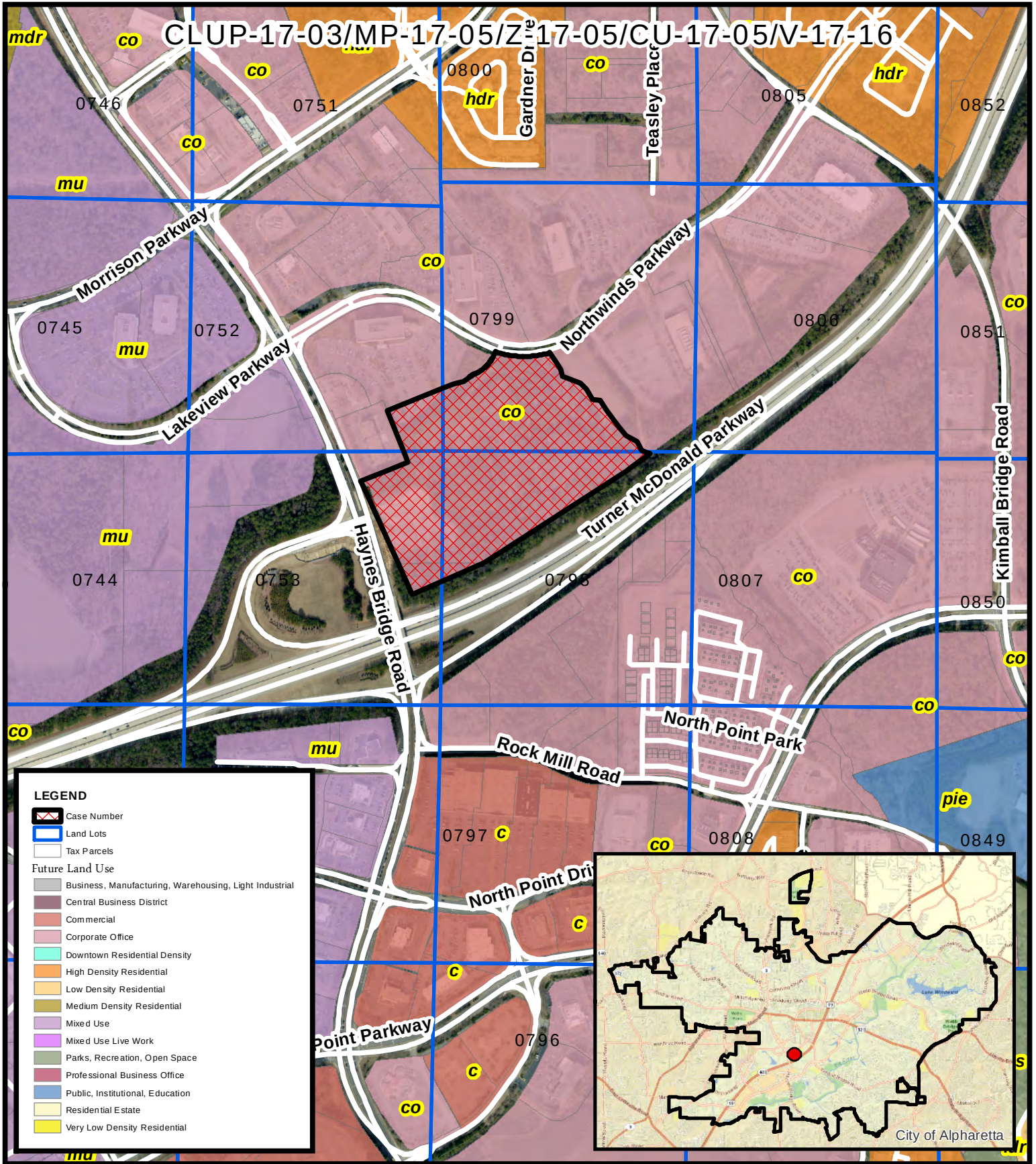
The City's Rental Housing Study recommends that the City target an entitlement of between 93 and 159 'For-Rent' units per year in order to achieve a goal of 32% rental housing in the City. In 2017, the City approved 405 'For-Rent' units, which includes the Perling/Devore (129 'For-Rent' units) and TPA/Fuqua (276 'For-Rent' units) mixed-use developments. These approvals exhaust the recommended targeted 'For-Rent' goal through 2020. If rental is approved, a Certificate of Occupancy should not be issued until January 2020. This requirement would ensure approval is consistent with the goals of the Comprehensive Land Use Plan. Staff is concerned that the requested variances to the 'For-Rent' design standards, as well as the lack of neighborhood grocery and exhausted 'For-Rent' numbers. Therefore, staff recommends 'For-Sale' condominium as the appropriate residential use at this location.

CITIZEN PARTICIPATION PLAN

The report submitted by the applicant states that letters were mailed to each property owner within 500' of the subject property stating the applicant's intent. The report states that one (1) adjacent property owner contacted the applicant about the proposal and the possibility of selling his property.

IV. ATTACHMENTS:

- Site Plan
- Northwinds Master Plan Build-out Map



CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/V-17-16

D/LL: 1/2/752, 753, 798, 799

PC Date: 6/01/17

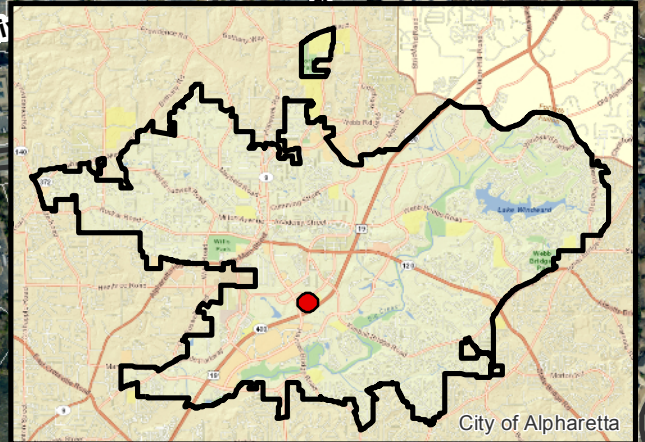
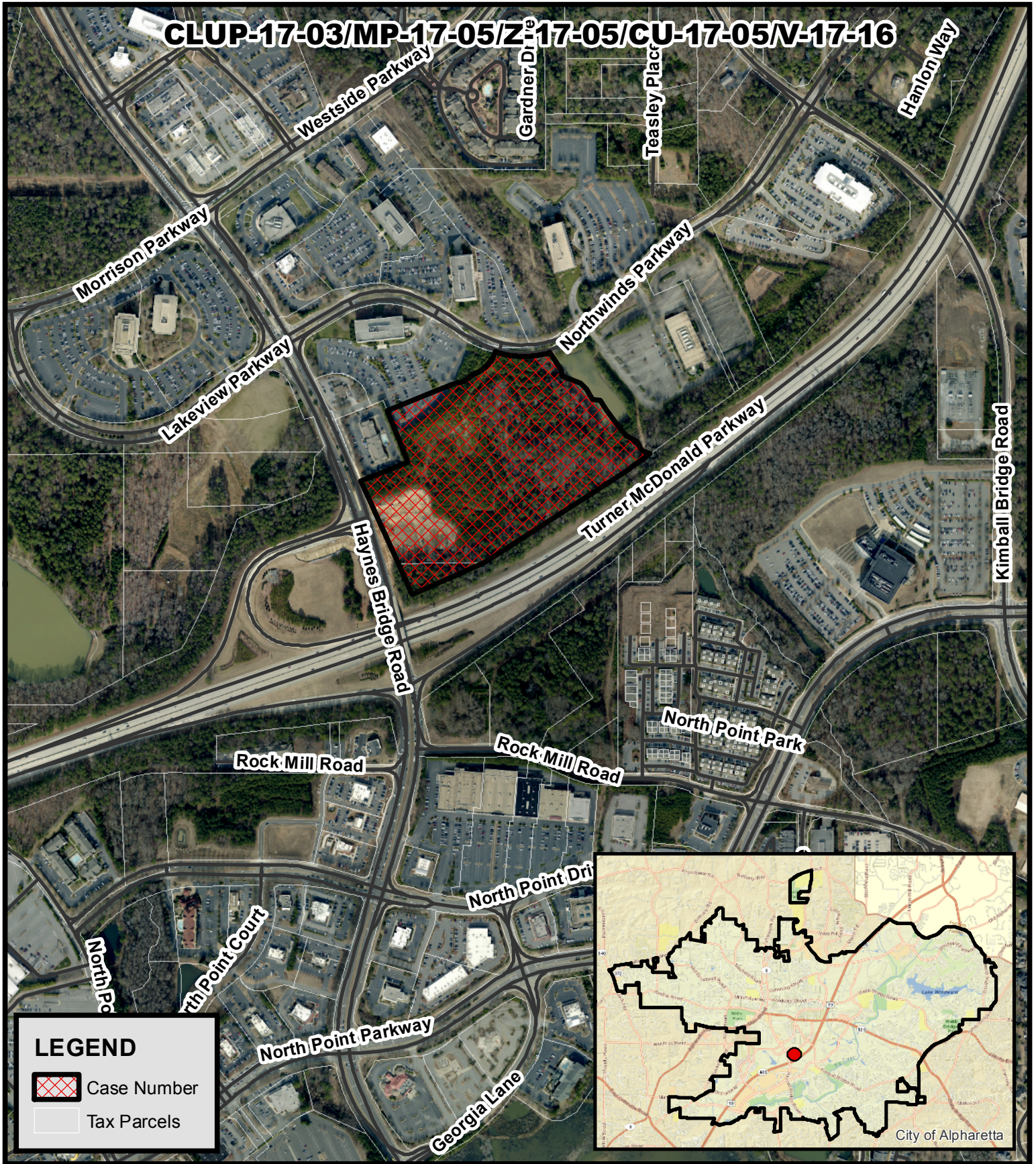
CC Date: 6/19/17

Future Land Use
Pope & Land
11365 Haynes Bridge Road

Location Map Provided by:
Community Development - GIS



CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/V-17-16



CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/V-17-16

D/LL: 1/2/752, 753, 798, 799

PC Date: 6/01/17

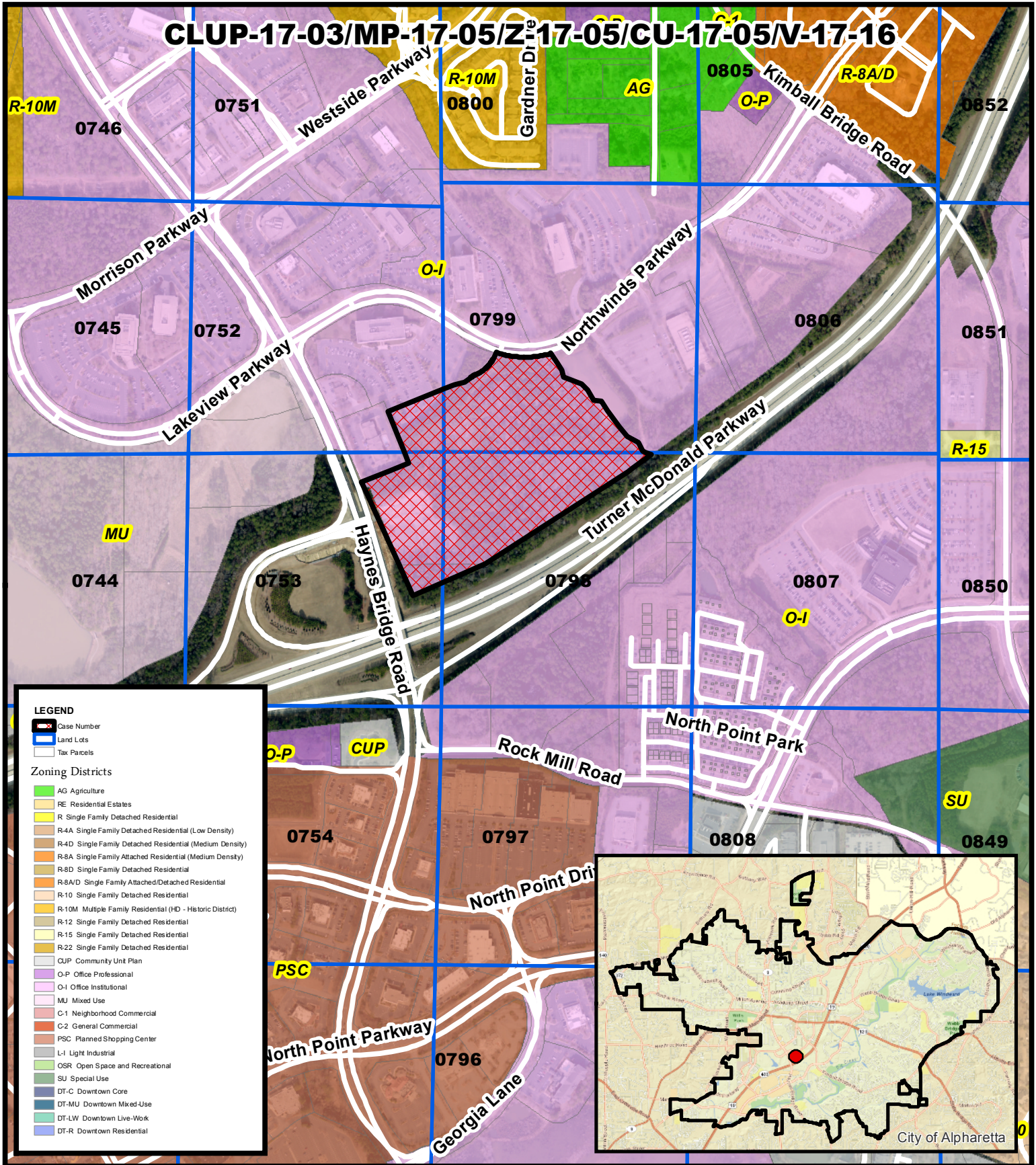
CC Date: 6/19/17



**Aerial Map
Pope & Land
11365 Haynes Bridge Road**

**Location Map Provided by:
Community Development - GIS**

CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/V-17-16

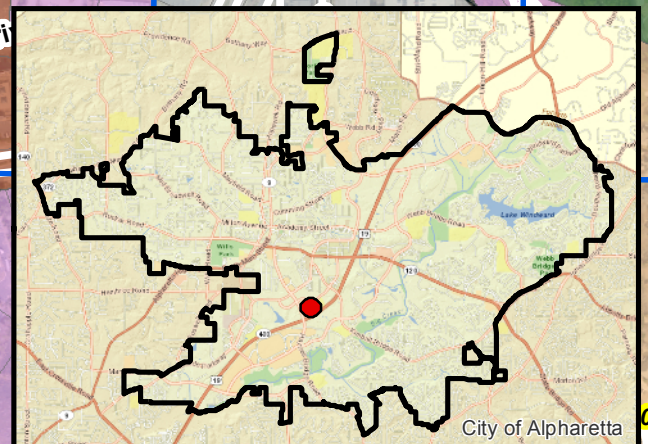


LEGEND

- Case Number
- Land Lots
- Tax Parcels

Zoning Districts

- AG Agriculture
- RE Residential Estates
- R Single Family Detached Residential
- R-4A Single Family Detached Residential (Low Density)
- R-4D Single Family Detached Residential (Medium Density)
- R-8A Single Family Attached Residential (Medium Density)
- R-8D Single Family Detached Residential
- R-8A/D Single Family Attached/Detached Residential
- R-10 Single Family Detached Residential
- R-10M Multiple Family Residential (HD - Historic District)
- R-12 Single Family Detached Residential
- R-15 Single Family Detached Residential
- R-22 Single Family Detached Residential
- CUP Community Unit Plan
- O-P Office Professional
- O-I Office Institutional
- MU Mixed Use
- C-1 Neighborhood Commercial
- C-2 General Commercial
- PSC Planned Shopping Center
- L-I Light Industrial
- OSR Open Space and Recreational
- SU Special Use
- DT-C Downtown Core
- DT-MU Downtown Mixed-Use
- DT-LW Downtown Live-Work
- DT-R Downtown Residential



CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/V-17-16

D/LL: 1/2/752, 753, 798, 799

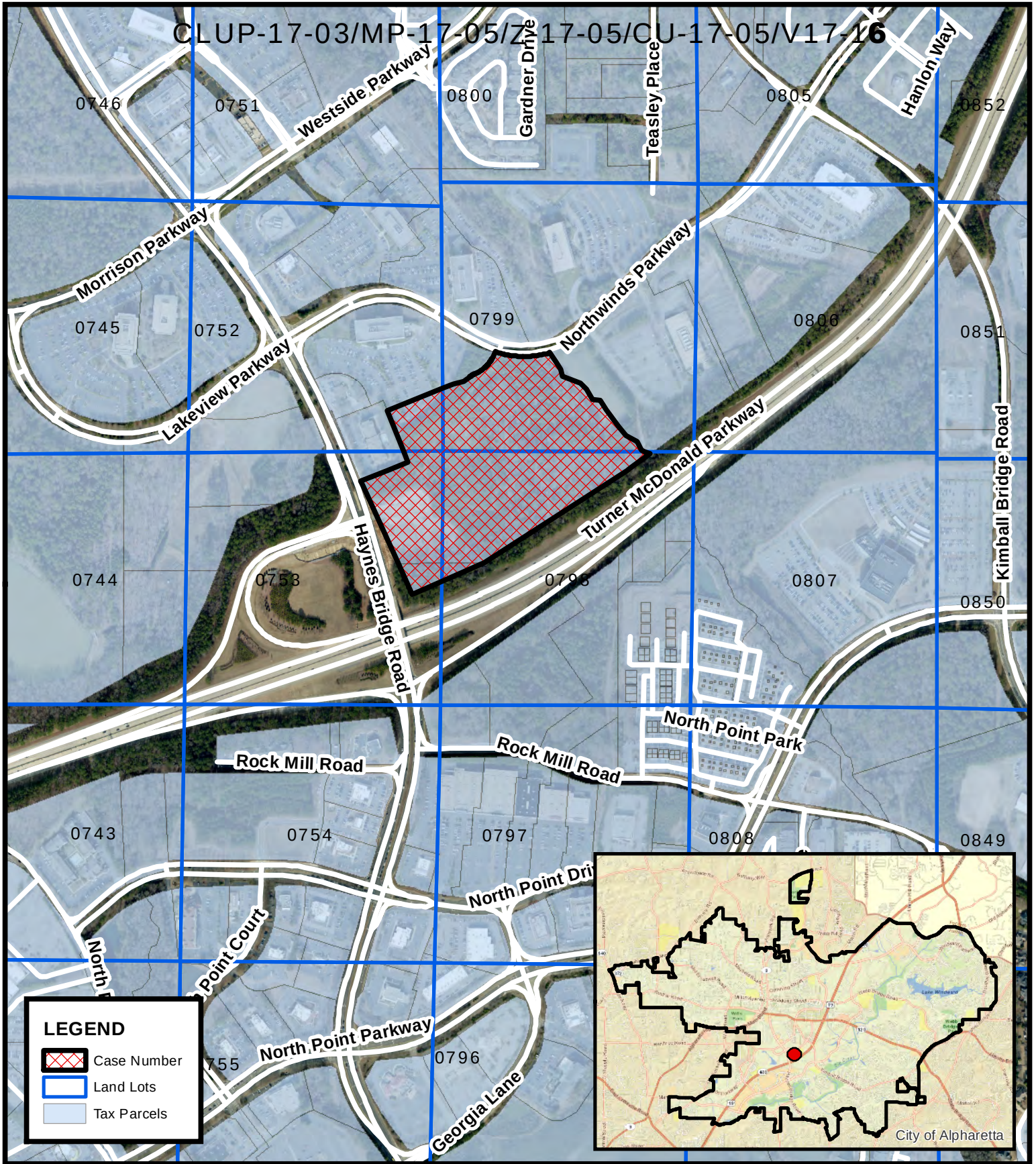
PC Date: 6/01/17

CC Date: 6/19/17



**Zoning Map
Pope & Land
11365 Haynes Bridge Road**

**Location Map Provided by:
Community Development - GIS**



CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/V17-16

D/LL: 1/2/752, 753, 798, 799

PC Date: 6/01/17

CC Date: 6/19/17

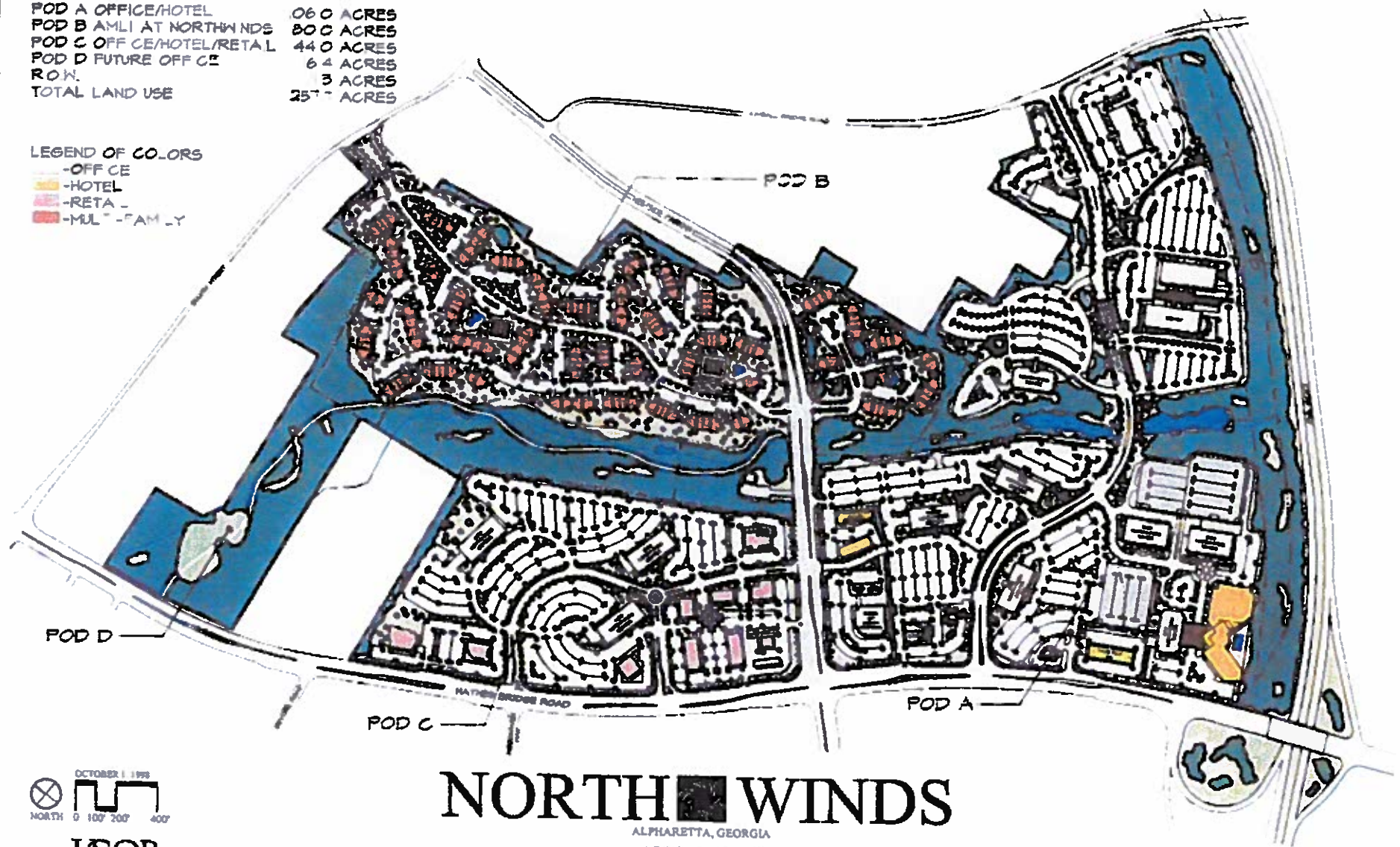


Location Map
Pope & Land
11365 Haynes Bridge Road

Location Map Provided by:
Community Development - GIS

POD A OFFICE/HOTEL 06.0 ACRES
 POD B AMLI AT NORTH WINDS 80.0 ACRES
 POD C OFF CE/HOTEL/RETAIL 44.0 ACRES
 POD D FUTURE OFF CE 6.4 ACRES
 ROW 3 ACRES
 TOTAL LAND USE 257.7 ACRES

LEGEND OF COLORS
 -OFF CE
 -HOTEL
 -RETAIL
 -MULTI-FAMILY



OCTOBER 1, 1995
 NORTH 0 100' 200' 400'
HGOR
REGISTERED ARCHITECTS & ENGINEERS

NORTH WINDS

ALPHARETTA, GEORGIA

A DEVELOPMENT OF

POPE AND LAND ENTERPRISES, INC.



MAYOR
Jimmy Phillips

CITY ADMINISTRATOR
J. Michael Wilkes

COUNCIL

Jonathan Beacher
Sandra B. Johnson
Arthur Letchas

Chuck Martin
Jim Matoney
Earl Mitchell

January 11, 1995

Mr. Milton L. Baker
Hines Interests Limited Partnership
Two Ravina Drive, Suite 1100
Atlanta, GA 30346-2104

Dear Mr. Baker:

Pursuant to your request, this letter serves to outline the conditions of the Northwind Master Plan as adopted on March 24, 1986 and revised on August 24, 1987. After careful research of our files the following list was compiled and serves as the most comprehensive outline that addresses the existing Northwind Master Plan. All conditions listed herein are applicable to all development which may occur on the site; however, amendments to the approved plan can be requested by the owner, or his agent, contingent upon City Council approval through the public hearing process..

The following are conditions placed by City Council at the March 24, 1986, public hearing for CU-86-01 (Haynes Bridge/GA 400) and continue to apply following Master Plan MP-87-02 and Site Plan SP-87-01 revisions on August 24, 1987:

1. All tracts are to come in for a site plan review by Planning Commission and City Council. Notification to adjacent property owners or homeowners representatives.
2. Those tracts that are contiguous to residentially used property that a 50 ft. buffer be placed on the plan and that in all cases where it be practical that it be 10% undisturbed. If there is vacant strip within the 50 ft. buffer then the developer will be allowed to come forward to the Planning Department and submit landscape plans. That any type of replanting that is made not be seedlings, but what is considered mature plantings.
3. That the improvements to Haynes Bridge Road as called for by the City of Alpharetta be made and shared from center line to the right-of-way along the entire frontage of the property.
4. They travel at their own risk, whether it be septic tank approval or sewer approval.

5. Traffic control signals will be borne by the developer where they are called for by the City.
6. That the commercial activity requested for the hotel site be limited to the interior of the hotel building. Otherwise a conditional use permit must be sought.

Conditions set specifically as a result of MP-87-02 -- Northwind MP Revision

1. All conditions placed on the Master Plan approved by the Alpharetta City Council on March 24, 1986, shall continue to apply.
2. Prior to the submission of further site plans, the developer shall submit a document to be known as the Letter of Intent which shall include the following per tract:
 - ◆ Projected time for beginning and ending of development
 - ◆ Prospective uses (such as supermarket, discount retail, discount drug, office, coffee shop etc..)
 - ◆ Architectural treatment
 - ◆ Intent of applicant to develop or sell tracts
 - ◆ Identification of buffer strips
 - ◆ Building setbacks and height
 - ◆ Availability of water and sewer
 - ◆ Construction timing of internal and frontage roads
3. Prior to the approval of a Land Disturbance Permit, a Preliminary Plat shall be submitted to the Director of Planning and Community Development, based upon a certified boundary survey of the property, incorporating the stipulations of these conditions of Master Plan approval and meeting or exceeding the requirements of the Zoning Ordinance.
4. Submit to the Director of Planning and Community Development for her approval, prior to any defoliation or alteration of the site, a Land Disturbance application which shall include a grading plan including phasing, a hydrological study, a separate soil sedimentation and erosion control plan, a tree plan, a signage plan and proposed provisions for permanent storm water retention and the method of continuing maintenance of these facilities.
5. Submit to the Director of Planning and Community Development for her approval, simultaneously with the submission of a tract development plan and prior to the approval of a Land Disturbance Permit, a detailed landscape plan for all required buffers and landscape strips including landscape strips along all roadways. A ten (10) foot wide landscaping screen shall be provided adjacent to any residentially used area or residential zoning district and adjacent to all thoroughfares, as stipulated in the Zoning Ordinance. All landscaping shall be in place prior to the issuance of a Certificate of Occupancy or the connection of permanent power for any portion of the development. The developer of any property fronting on Haynes Bridge Road shall provide to the City a twelve (12) month maintenance agreement stating said developer shall maintain planted vegetation for one

year from date of issuance of Certificate of Occupancy or connection of permanent power, that should the City determine that any vegetation shows evidence of dying, the developer shall replace said vegetation at no cost to the City within said twelve month period

6. Provide a 50 foot wide buffer strip, of which 25 feet wide shall be undisturbed, along those abutting properties which are used residentially or are zoned residential until such time as they no longer are so used or zoned. Said buffer strip shall not contain any parking, detention, or buildings, or portion thereof.
7. Site plans shall include all curb cuts. Site plans shall require approval of said curb cuts by the Director of Planning and Community Development.
8. City water shall be extended along Haynes Bridge Road. The Haynes Bridge Road water line is to be a 12 inch minimum line. Primary water lines on the development site shall be at 8 inch minimum.
9. Sewer lines are to be installed following approval by Fulton County Public Works, but planning of facilities is to be coordinated through the Alpharetta Department of Planning and Community Development and will require approval by both City and County agencies.
10. Connect to City of Alpharetta water and public sanitary sewer available to the site as well as pay all required tap-on fees, front footage assessments and the pro-rate share of the cost of public utility extensions as determined by the Director of Planning and Community Development. Should the City not be able to serve the developer, the City of Alpharetta will determine which jurisdictional agency will provide such service.
11. Design and develop on-site storm water detention facilities as required.
12. Should the developer acquire property adjacent to Tract 9, the rerouting of Kimball Bridge Road may be required. It is recommended a meeting be held between the developer, the Director of Planning and Community Development, and the Department of Transportation regarding this matter.
13. Include names of all interior streets on Development Plans. The extension of Morrison Parkway shall be identified by that name. The proposed north-south arterial road will continue through the project; however, its alignment will be determined by City Council after consultation with the property owner.
14. Should the developer acquire the R-2 property across from (east of) Devore Road, said street shall be extended to intersect with Morrison Parkway extension and the Devore Road extension shall have an 80 foot right-of-way.
15. The developer shall bear the cost of traffic signals at the following intersections:

- ♦ Haynes Bridge Road and Morrison Parkway
 - ♦ Haynes Bridge Road at the proposed extension of Westside Parkway between tracts four and five.
 *The developer is to coordinate with the Department of Transportation and the Alpharetta Department of Planning and Community Development regarding traffic signals at these two locations and written evidence is to be provided to the Department of Planning and Community Development regarding D.O.T. requirements.
 - ♦ Should the developer extend Devore Road, he shall bear the cost of traffic signals at the intersection with Morrison Boulevard
 - ♦ Should traffic signals be warranted at the intersection of Haynes Bridge Road and the street entrance to the Vantage Point residential development, and at the intersection of State Highway 120 and Kimball Bridge Road, the developer shall participate in a pro rata share of the cost of said traffic signals.
16. Dedicate at no cost to the City of Alpharetta prior to the approval of a Land Disturbance Permit for construction on any contiguous tract:
 - ♦ 50 feet from centerline on Haynes Bridge Road;
 - ♦ 45 feet from centerline on Kimball Road;
 - ♦ All streets internal to the development;
 - ♦ That side of Westside parkway which is to run through the project, said road to have a right-of-way of 80 feet.
 17. Improve the Haynes Bridge Roadway and the Kimball Bridge Road roadway which are on the Northwind development side. The Haynes Bridge Road improvements will have a 100 foot right-of-way with median. The developer shall construct a north-south arterial road which will run through the project and connect with adjacent properties. The alignment of that road shall be determined by City Council after consultation with the developer.
 18. Locate sidewalks as required in the Zoning Ordinance, said sidewalks to be included on the Civil Design Plans.
 19. The density of all tracts along Georgia 400 shall not exceed 25,000 square feet. These include tracts 1, 2, 3, 5, 7, and 8. This does not preclude the applicants right to submit a master plan revision requesting higher densities on the above tracts.
 20. Parking ratios shall comply with parking regulations in the current Zoning Ordinance as amended March 9, 1987.
 21. Any outparcels fronting on Haynes Bridge Road shall not have direct vehicular access to said road, without City Council approval.
 22. Distance between curb cuts shall not be less than 300 feet on any street within or along the development. There shall be no curb cut in Tract 6 on Haynes Bridge Road.

23. The extension of Morrison Parkway shall have a 100 foot right-of-way. The north-south arterial road (RE: Paragraphs 13 and 17) shall have a 80 foot right-of-way with median, and shall follow the alignment through the project as determined by City Council after consultation with the developer.
24. A 15 foot building setback shall be required in addition to the 50 foot buffers as required in 6 above and in addition to the 120 foot strip fronting on Georgia 400.
25. Any building in any tract of the Master Plan that is adjacent to property which is used for or zoned for residential purposes shall be limited to no more than four (4) stories. This would include only the buildings closest to the adjacent said residentially oriented properties.
26. Comply with required erosion/sedimentation controls at every phase of development, based on requirements provided by the Planning Department and which are to be described on the Civil Design Plans.
27. Provide such plans and documents as may be found necessary to locate all specimen trees/stands, or tree protection zones within property boundaries for the implementation of a tree protection plan. Owner shall abide by the City of Alpharetta Zoning Ordinance (Tree Regulations).
28. All signage shall be planned with one standardized design. An application shall be made to the Department of Planning and Community Development for a permit for each sign. Subsequent developers of any part of the property shall be subject to this requirement.
29. A mylar sepia of the Master Plan shall be submitted by the developer to the Department of Planning and Community Development within the following thirty (30) days of the date of approval of said Master Plan by the City Council.

Use and bulk requirements set by Tract are as follows:

Tract	Land Use	Acreage	% Coverage	G.S.F/Acre
1	Multistory Office	5.71	28%	40,000
2	Multistory Office	8.1	40%	40,000
3	Multistory Office	33.25	40%	40,000
4	Hotel	7.05	300 rooms	300 rooms
5	Multistory Office	31.66	40%	40,000
6	Retail	3.5	34%	15,000
7	Multistory Office	12.28	28%	30,000
8	Multistory Office	21.9	28%	30,000
9	Lowrise Office	8.78	34%	15,000
10	Retail	37.64	34%	12,000
11	Retail	6.33	34%	12,000
12	Lowrise Office	42.03	34%	15,000
13	Lowrise Office	7.24	34%	15,000

This information should sufficiently answer any questions concerning the existing development guidelines for the Northwind property. If you are in need of further assistance please call me.

Sincerely



Lynne Hair
Boards Administrator



MAYOR
Chuck Martin

COUNCIL
Brandon L. Beach
Debbie Gibson
Sandra B. Johnson
Arthur Letchas
Jim Matouney
Jim Paine

CITY ADMINISTRATOR
Robert J. Regus

Two South Main Street
Alpharetta, Georgia 30004

678/297-6000
Fax 678/297-6001

www.alpharetta.ga.us

24-Hour Information
678/297-6015



February 14, 2001

Mr. De Little
Pope & Land
3225 Cumberland Blvd Suite 400
Atlanta, Georgia 30339-5939

Re: Northwinds

Dear De,

We have received your request to clarify the remaining office density for the Northwinds Master Plan. Enclosed please find the current inventory of permitted projects within this development. The remaining office density according to our records is 2,541,430 square feet in Pods A and C.

Please call me at 678-297-6070 if you have any further questions.

Yours Truly,

Diana Wheeler
Director
Community Development

NORTHWINDS DENSITY INVENTORY PODS A AND C

NORTHWINDS DENSITY

Project	POD A		POD C		
	Office	Hotel	Office	Hotel	Retail
Marriott Fairfield		87			
Towne Place Suites		89			
Bank of North Georgia	40,000				
Devry Institute	65,000				
Uptown Gourmet	2,470				
Canyon Cafe	6,800				
One NorthWinds Center	150,000				
Two NorthWinds Center	150,000				
Three NorthWinds Center	150,000				
NorthWinds Pointe (Weeks)	154,500				
400 NorthWinds Center West			150,000		
Amoco					3,500
Village Tavern					8,241
Rainwater Restaurant					19,411
Crème de la Crème					19,471
NorthWinds Villages phase I					23,808
500 NorthWinds Center West			150,000		
600 NorthWinds Center West			150,000		
Adaptive Learning Center	50,000				
TOTAL USED DENSITY	768,570	176	450,000		74,431

APPROVED DENSITY

- 3,760,000 sf office/retail in Pods A & C with 580,140 sf of retail in Pod C only
- 300 hotel rooms (up to 300 additional hotel rooms may be substituted for 240,000 sf of office at the ratio of 800 sf per room) in Pods A & C, of which a maximum of 154 hotel rooms may be in Pod C.

REMAINING DENSITY

- 2,541,430 sf of office uses in Pods A & C, with 505,709 sf of retail in Pod C only.
- 124 hotel rooms.

TABLE A - REVISED OCTOBER, 1998

Primary Use	Pod A Office/Hotel	Pod B Multifamily	Pod C Retail/Office/Hotel	Pod D Office-lowrise	Pod E Parks/Rec.
Total Area	102.9 AC	80 AC	49 AC	16.8 AC	
Maximum Developable Square Feet	3,760,000 square feet 300 hotel rooms * (5)	800 Units	580,140 square feet retail (5)	252,000 square feet	
% Coverage	40	34	34	34	
Maximum Building Height	20 Floors	5 Floors	20 Floors	6 Floors	
Buffer/ Setbacks (1)	Conditional per site plan approval	Conditional per site plan approval	Conditional per site plan approval	Conditional per site plan approval	Conditional per site plan approval

- (1) Under O&I, building setbacks and landscaping are conditional per administrative site plan approval.
 - (2) Parking requirements are per article X of the "Zoning Ordinance of the City of Alpharetta, Georgia", March 9, 1987.
 - (3) Each development site with'n each pod shall be at lease three-quarter (3/4) acre in size and have one hundred feet of frontage on a public street.
 - (4) Retail uses shall not constitute more than twenty-five percent (25%) of any individual project development in Pod "A" or Pod "D".
 - (5) Office and Hotel uses shall be permitted on Pod "C". The overall buildable square footage of Pods "A" and "C" will not exceed 4,340,140 square feet, of which 580,140 square feet can be retail on Pod "C" only. Hotel uses shall not exceed 154 rooms in Pod "C".
 - (6) The height of office buildings located directly adjacent to the GA 400 Tree Protection Zone shall be 20 stories or 300', whichever is less.
 - (7) Parking requirements for high rise buildings with structured parking and over 250,000 square feet of gross floor area shall be 3.2/1,000, a 20% reduction of the City's requirement.
 - (8) Dense Landscaping shall be insorporated within the first 5'-10' of the GA 400 Tree Protection Zone, adjacent to the NorthWinds tower site portion of Pod "A", to further increase this buffer area in exchange for the increase in height to bulldings. Dense landscaping shall include magnolias to be placed every 25-30' as the site dictates.
 - (9) Sidewalks shall be added along Haynes Bridge Road, the entire length of the NorthWinds property.
- * The developer may exchange 800 square feet of office density in Pod "A" to add one hotel room up to a maximum of 300 rooms in addition to the 300 permitted.

PROJECT	CASE NO.	PERM.	AC	FUD	DESC.
SITE PLAN	NORTHWIND TIMBER HARV/NORTHPOINT BUS REV	9220 D	0		TIMBER HARVESTING
FINAL PLAT	MARRIOTT FAIRFIELD INN	9426 FP	0		COMMERCIAL S/D
CIVIL PLANS	NORTHWIND PARCEL 500	9430 D	0		GRADING
SITE PLAN	MARRIOTT FAIRFIELD INN	9443 D	39000		HOTEL
CIVIL PLANS	NORTHWIND PHASE I	9504 D	135000		OFFICE BUILDING
CIVIL PLANS	NORTHWINDS PARKWAY	9585 D		A	ROADWAY
CIVIL PLANS	NORTH GEORGIA BANK	9586 D	150000	A	BANK
CIVIL PLANS	WESTSIDE DRIVE	9602 D	0		ROADWAY
EXEMPTION PLAT	NORTHWINDS ONE CENTER	9604 EP			OFFICE
CIVIL PLANS	NORTH GEORGIA BANK	9607 D	40000	A	BANK
CIVIL PLANS	ONE NORTHWIND CENTER	9619 D	150000		OFFICE
CIVIL PLANS	BANK OF NORTH GEORGIA	9663 D	40000		RETAIL
CIVIL PLANS	NORTHWINDS LAKE	9663 D			DETENTION FACILITY
CIVIL PLANS	DEVRY @ NORTHWINDS	9668 D	65000		PRIVATE SCHOOL
CIVIL PLANS	TOWNE PLACE SUITES	9692 D			HOTEL
EXEMPTION PLAT	BANK OF NORTH GEORGIA	9702 EP			OFFICE/BANK
FINAL PLAT	NORTHWINDS PARKWAY	9703 FP			ROAD DEDICATION
EXEMPTION PLAT	AMOCO OIL COMPANY	9707 EP	3212		ROADWAY DEDICATION
FINAL PLAT	WESTSIDE PARKWAY - NORTHWINDS	9709 FP			INFRASTRUCTURE
CIVIL PLANS	WEEKS BUILDING A @ NORTHWINDS	9714 D	154500		OFFICE
GRADING PLAN	NORTHWINDS POD C GRADING	9741 D			GRADING
CIVIL PLANS	AMOCO PETROLEUM PRODUCTS HAYNES BRIDGE	9745 D	3500	C	SERVICE STATION/CON
CIVIL PLANS	ADAPTIVE LEARNING SCHOOLS NORTHWINDS	9748 D	14000		DAY CARE CENTER
CIVIL PLANS	THREE NORTHWIND CENTER	9758 D	150000		OFFICE
CIVIL PLANS-INACT	NORTHWINDS GREENWAY PATH	9766 D			PARK
CIVIL PLANS	CANYON CAFE	9811 D	6600		RESTAURANT
CIVIL PLANS-REVIS	NORTHWINDS FOUR CENTER	9814 RVD	150000		OFFICE
CIVIL PLANS - PER	AMLI AT NORTHWINDS PHASE III - GRADING	9817 RVD			MULTI FAMILY
CIVIL PLANS	NORTHWINDS VILLAGE	9849 D	57000		RETAIL
GRADING PLANS	NORTHWINDS TOWER	9882 D	270000	A	OFFICE
CIVIL PLANS	VILLAGE TAVERN	9882 G			GRADING PLAN
CIVIL PLANS REVIS	VILLAGE TAVERN	9883 D	10000	C	RESTAURANT
CIVIL PLANS	NORTHWINDS CENTER 500	9883 RVD	10000		RESTAURANT
EXEMPTION PLAT	NORTHWINDS - VILLAGE TAVERN	9888 D	150000		OFFICE
CIVIL PLANS	CREME DE LA CREME	9902 EP			RESTAURANT
FINAL PLAT	RAINFALL DRIVE	9904 D	19471		DAYCARE CENTER
EXEMPTION PLAT	NORTHWINDS 500 CENTER WEST	9908 FP			INFRASTRUCTURE
CIVIL PLANS	NORTHWINDS 500 CENTER WEST	9908 EP	150000		EXEMPTION PLAT
CIVIL PLANS	NORTHWINDS RETAIL OUR PARCEL	9925 D	150000		OFFICE
CIVIL PLANS	FOTOS RESTAURANT	9963 D	7850		RETAIL
CIVIL PLANS - PER	NORTHWINDS VILLAGE PHASE I	9966 D	10420		RESTAURANT
EXEMPTION PLAT	500 NORTHWINDS CENTER WEST	9985 RVD	23808		OFFICE
CIVIL PLANS-REVIS	FOTOS RESTAURANT	200002 EP	150000		EXEMPTION PLAT
		200024 RVD	19248		RESTAURANT

1-31-01
all proj.

TYPE	PROJECT	CASINO	SP	POD	DESC	NOLOPISSE	NOID	NEVERBUILT
SITE PLAN	NORTHWIND TIMBER HARV/NORTHPOINT BUS REV	9230D		0	TIMBER HARVESTING			
FINAL PLAT	MARRIOTT FAIRFIELD INN	9426FP		0	COMMERCIAL S/D			
CIVIL PLANS	NORTHWIND PARCEL 5&6	9430D		0	GRADING			
SITE PLAN	MARRIOTT FAIRFIELD INN	9443D		39050 A	HOTEL			
CIVIL PLANS	NORTHWIND PHASE I	9564D		135000 A	OFFICE BUILDING			
CIVIL PLANS	NORTHWINDS PARKWAY	9585D		A	ROADWAY			
CIVIL PLANS	NORTH GEORGIA BANK	9586D		40000 A	BANK		YES	
CIVIL PLANS	WESTSIDE DRIVE	9602D		0	ROADWAY			
EXEMPTION PLAT	NORTHWINDS ONE CENTER	9604EP			OFFICE		YES	
CIVIL PLANS	NORTH GEORGIA BANK	9607O		40000 A	BANK		2/1/01	
CIVIL PLANS	ONE NORTHWIND CENTER	9619D		150000 A	OFFICE			
CIVIL PLANS	BANK OF NORTH GEORGIA	9653D		40000 A	BANK			
CIVIL PLANS	NORTHWINDS LAKE	9663D			DETENTION FACILITY			
CIVIL PLANS	DEVRY @ NORTHWINDS	9688D		65000 A	PRIVATE SCHOOL			
CIVIL PLANS	TOWNE PLACE SUITES	9692D		A	HOTEL			
CIVIL PLANS	NORTHWINDS TWO CENTER	9698D		153416	OFFICE			
EXEMPTION PLAT	BANK OF NORTH GEORGIA	9702EP			OFFICE/BANK		YES	
FINAL PLAT	NORTHWINDS PARKWAY	9703FP			ROAD DEDICATION			
EXEMPTION PLAT	AMOCO OIL COMPANY	9707EP		3212	ROADWAY DEDICATION			
FINAL PLAT	WESTSIDE PARKWAY - NORTHWINDS	9709FP			INFRASTRUCTURE			
CIVIL PLANS	WEEKS BUILDING A @ NORTHWINDS	9714D		154500 A	OFFICE			
GRADING PLAN	NORTHWINDS POD C GRADING	9741D			GRADING		YES	
CIVIL PLANS	AMOCO PETROLEUM PRODUCTS-HAYNES BRIDGE	9745D		3500 C	SERVICE STATION/CON			
CIVIL PLANS	ADAPTIVE LEARNING SCHOOLS-NORTHWINDS	9748D		14000 A	DAY CARE CENTER		YES	
CIVIL PLANS	THREE NORTHWIND CENTER	9758D		150000 A	OFFICE			
CIVIL PLANS-INACT	NORTHWINDS GREENWAY PATH	9786D			PARK		YES	
CIVIL PLANS	CANYON CAFE	9811D		6600 A	RESTAURANT			
CIVIL PLANS-REVIS	NORTHWINDS FOUR CENTER	9814RVD		150000 C	OFFICE			
CIVIL PLANS - PER	AMLI AT NORTHWINDS PHASE III - GRADING	9817RVD			MULTI FAMILY			
CIVIL PLANS	NORTHWINDS VILLAGE	9849D		57000	RETAIL		YES	
CIVIL PLANS	NORTHWINDS TOWER	9862D		270000 A	OFFICE	YES		
GRADING PLANS	NORTHWINDS TOWER	9862G			GRADING PLAN			
CIVIL PLANS	VILLAGE TAVERN	9893D		10000 C	RESTAURANT			
CIVIL PLANS REVIS	VILLAGE TAVERN	9893RVD		10000 C	RESTAURANT			
CIVIL PLANS	NORTHWINDS CENTER 500	9898D		150000 C	OFFICE			
EXEMPTION PLAT	NORTHWINDS - VILLAGE TAVERN	9902EP			RESTAURANT			
CIVIL PLANS	CREME DE LA CREME	9904D		19471 C	DAYCARE CENTER			
FINAL PLAT	RAINWATER DRIVE	9906FP			INFRASTRUCTURE			
CIVIL PLANS	NORTHWINDS 600 CENTER WEST	9925D		150000 C	OFFICE			
CIVIL PLANS	NORTHWINDS RETAIL OURPARCEL	9963D		7850	RETAIL		YES	2/2/01
CIVIL PLANS	FOTOS RESTAURANT	9966D		10420	RESTAURANT		YES	
CIVIL PLANS - PER	NORTHWINDS VILLAGE PHASE I	9995RVD		23808 C	RETAIL			
EXEMPTION PLAT	600 NORTHWINDS CENTER WEST	200002EP		150000	EXEMPTION PLAT			
CIVIL PLANS-REVIS	FOTOS RESTAURANT	200024RVD		193118 C	RESTAURANT			

Northwinds Master Plan and Buildout Potential



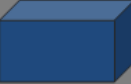
- 1. Pope & Land Proposal
- 2. Jackson Healthcare Phase II
- 3. The Ivy (Food Hall)
- 4. AMLI Apartments
- 5. Haynes Park



Existing Buildings



Remaining Entitled Office
(2.5 Million Sq. Ft)



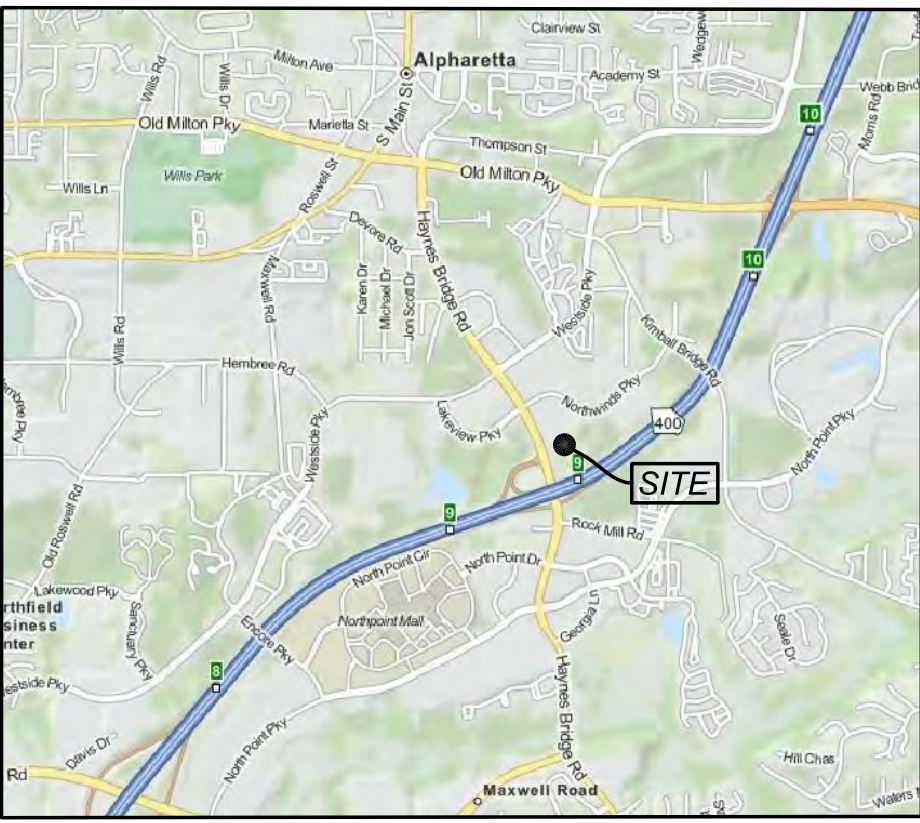
Remaining Entitled Hotel
(124 Rooms)



New Parking
Decks



Northwinds Master
Plan Boundary



LOCATION MAP

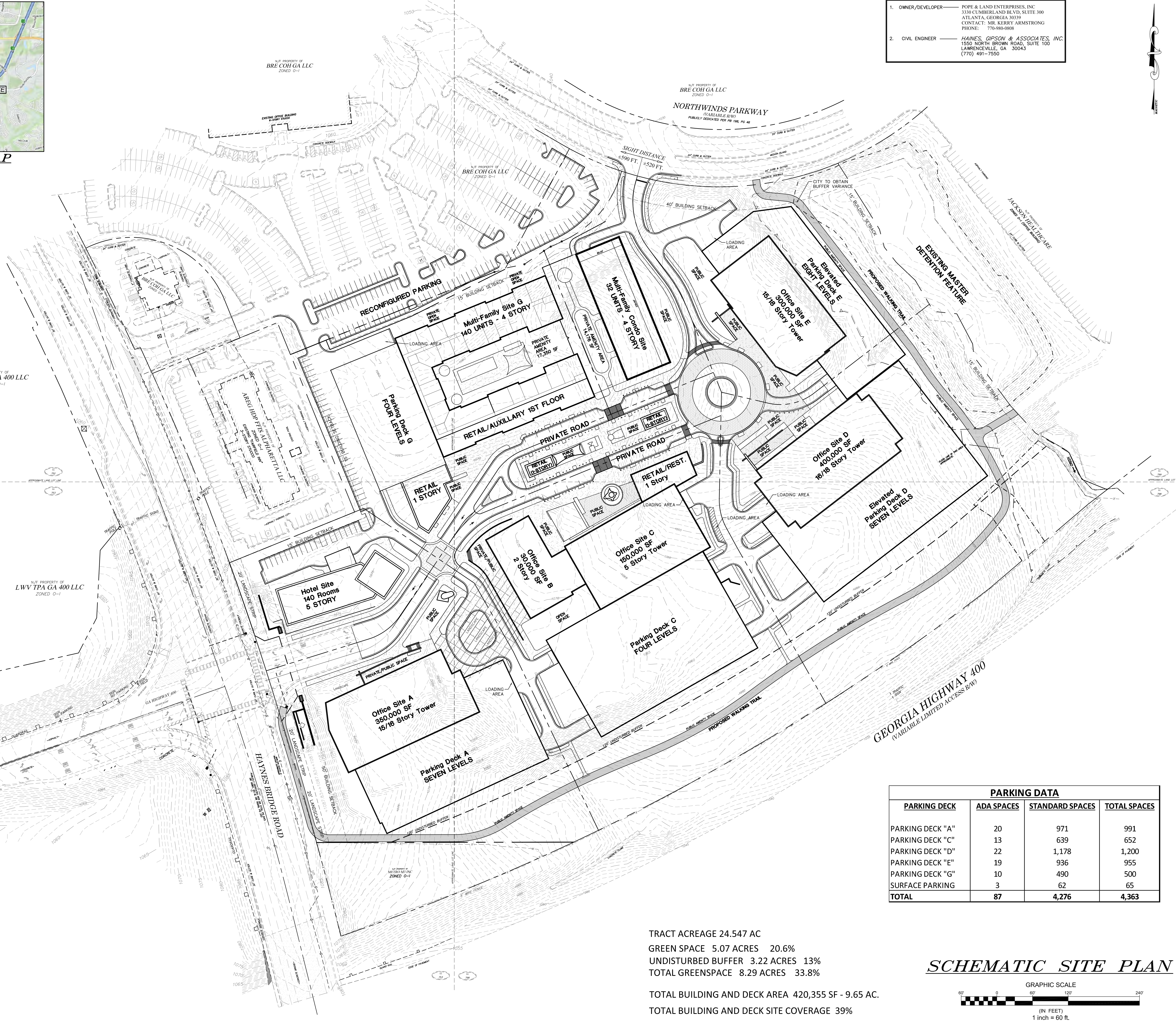


Know what's below.
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Or Call 800-282-7411

THE LOCATION OF ALL UTILITIES (GROVE OR BELOW GROUND) SHOWN ON THESE DRAWINGS ARE APPROXIMATE & WERE OBTAINED FROM OBSERVATIONS AT THE SITE AND/OR FROM THE UTILITY OWNER, HAINES, GIPSON & ASSOCIATES, INC. (HGA). HGA DOES NOT GUARANTEE THAT LOCATIONS SHOWN ARE EXACT. IT SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY OR HIS AGENT AND/OR THE CONTRACTOR TO DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES (GROVE OR BELOW GROUND) & TO NOTIFY UTILITY OWNERS BEFORE BEGINNING ANY CONSTRUCTION.

CAUTION-NOTE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. GA. LAW REQUIRES THE CONTRACTOR TO CALL THE UTILITY PROTECTION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE RELOCATION OF ALL THE UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.



1. OWNER/DEVELOPER

POPE & LAND ENTERPRISES, INC.
3330 CUMBERLAND BLVD, SUITE 300
ATLANTA, GEORGIA 30339
CONTACT: MR. KERRY ARMSTRONG
PHONE: 770-980-0808
2. CIVIL ENGINEER

HAINES, GIPSON & ASSOCIATES, INC.
1550 NORTH BROWN ROAD, SUITE 100
LAWRENCEVILLE, GA 30043
(770) 491-7650

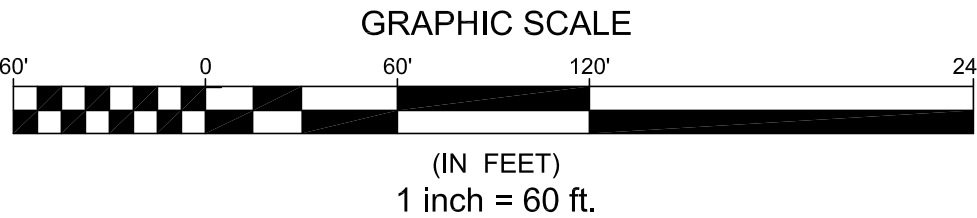


PARKING DATA			
PARKING DECK	ADA SPACES	STANDARD SPACES	TOTAL SPACES
PARKING DECK "A"	20	971	991
PARKING DECK "C"	13	639	652
PARKING DECK "D"	22	1,178	1,200
PARKING DECK "E"	19	936	955
PARKING DECK "G"	10	490	500
SURFACE PARKING	3	62	65
TOTAL	87	4,276	4,363

TRACT ACREAGE 24.547 AC
GREEN SPACE 5.07 ACRES 20.6%
UNDISTURBED BUFFER 3.22 ACRES 13%
TOTAL GREENSPACE 8.29 ACRES 33.8%

TOTAL BUILDING AND DECK AREA 420,355 SF - 9.65 AC.
TOTAL BUILDING AND DECK SITE COVERAGE 39%

SCHEMATIC SITE PLAN



HAINES GIPSON & ASSOCIATES
CONSULTING ENGINEERS
CIVIL & STRUCTURAL SERVICES
1550 NORTH BROWN ROAD, SUITE 100
LAWRENCEVILLE, GEORGIA 30043
PHONE: (770) 491-7650
FAX: (770) 491-7760

SEAL

POPE & LAND
ENTERPRISES, INC.
3330 CUMBERLAND BLVD, SUITE 300
ATLANTA, GEORGIA 30339

A PROJECT OF

NORTHWINDS SUMMIT
GEORGIA HWY. 400 AT HAINES BRIDGE ROAD
CITY OF ALPHARETTA, FULTON COUNTY, GEORGIA
ZONED O & I
LL's 752, 753, 798, 799 DISTRICT 1, SEC. 2

NO.	BY	DATE	DESCRIPTION

DRAWN BY
RCL

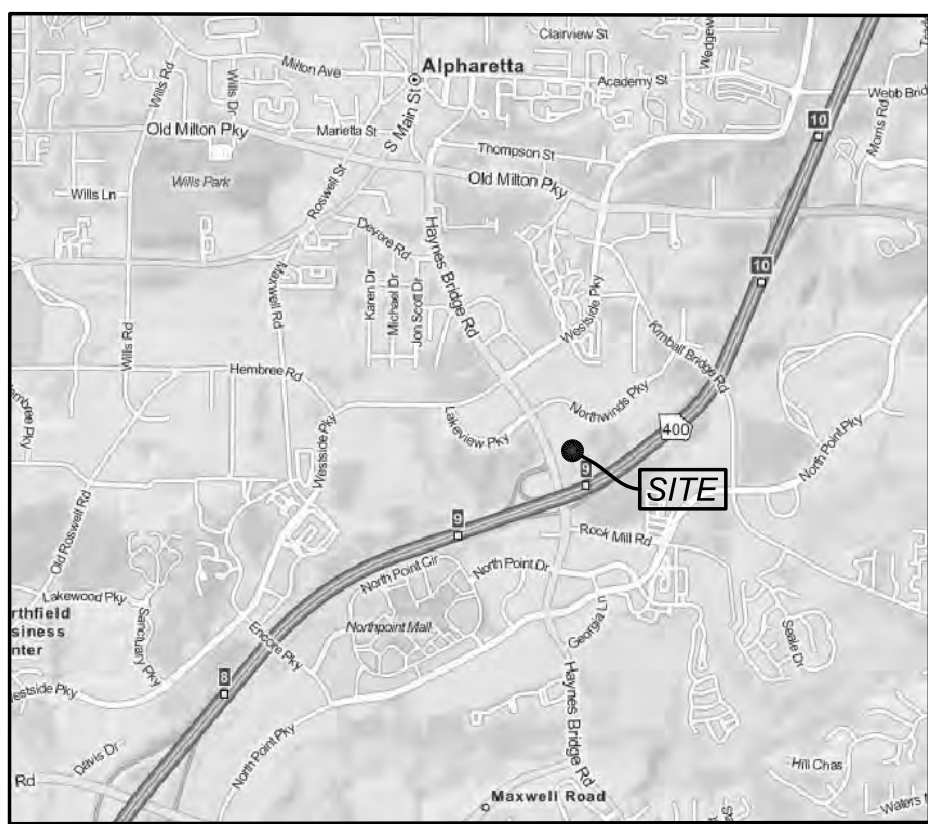
CHECKED BY
RCL

DATE
05/23/2017

SHEET TITLE
OVERALL
SITE PLAN

SHEET NUMBER
C-2.0

HGA JOB No. 2016-333

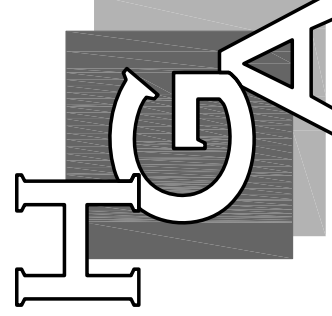


LOCATION MAP

1. OWNER/DEVELOPER — POPE & LAND ENTERPRISES, INC.
3330 CUMBERLAND BLVD, SUITE 300
ATLANTA, GEORGIA 30339
CONTACT: MR. KERRY ARMSTRONG
PHONE: 770-980-0808
2. CIVIL ENGINEER — HAINES, GIPSON & ASSOCIATES, INC.
1550 NORTH BROWN ROAD, SUITE 100
LAWRENCEVILLE, GA 30043
(770) 491-7650



HAINES GIPSON & ASSOCIATES
CONSULTING ENGINEERS
CIVIL & STRUCTURAL SERVICES
1550 NORTH BROWN ROAD, SUITE 100
LAWRENCEVILLE, GEORGIA 30043
PHONE: (770) 491-7650
FAX: (770) 491-7750



SEAL

POPE & LAND
ENTERPRISES, INC.
3330 CUMBERLAND BLVD, SUITE 300
ATLANTA, GEORGIA 30339

A PROJECT OF

NORTHWINDS SUMMIT
GEORGIA HWY. 400 AT HAYNES BRIDGE ROAD
CITY OF ALPHARETTA, FULTON COUNTY, GEORGIA
ZONED O & I
LL's 752, 753, 798, 799 DISTRICT 1, SEC. 2

DESCRIPTION

NO. BY DATE

DRAWN BY RCL CHECKED BY RCL

DATE 03/03/2017

SHEET TITLE OVERALL SITE PLAN

SHEET NUMBER

C-2.0



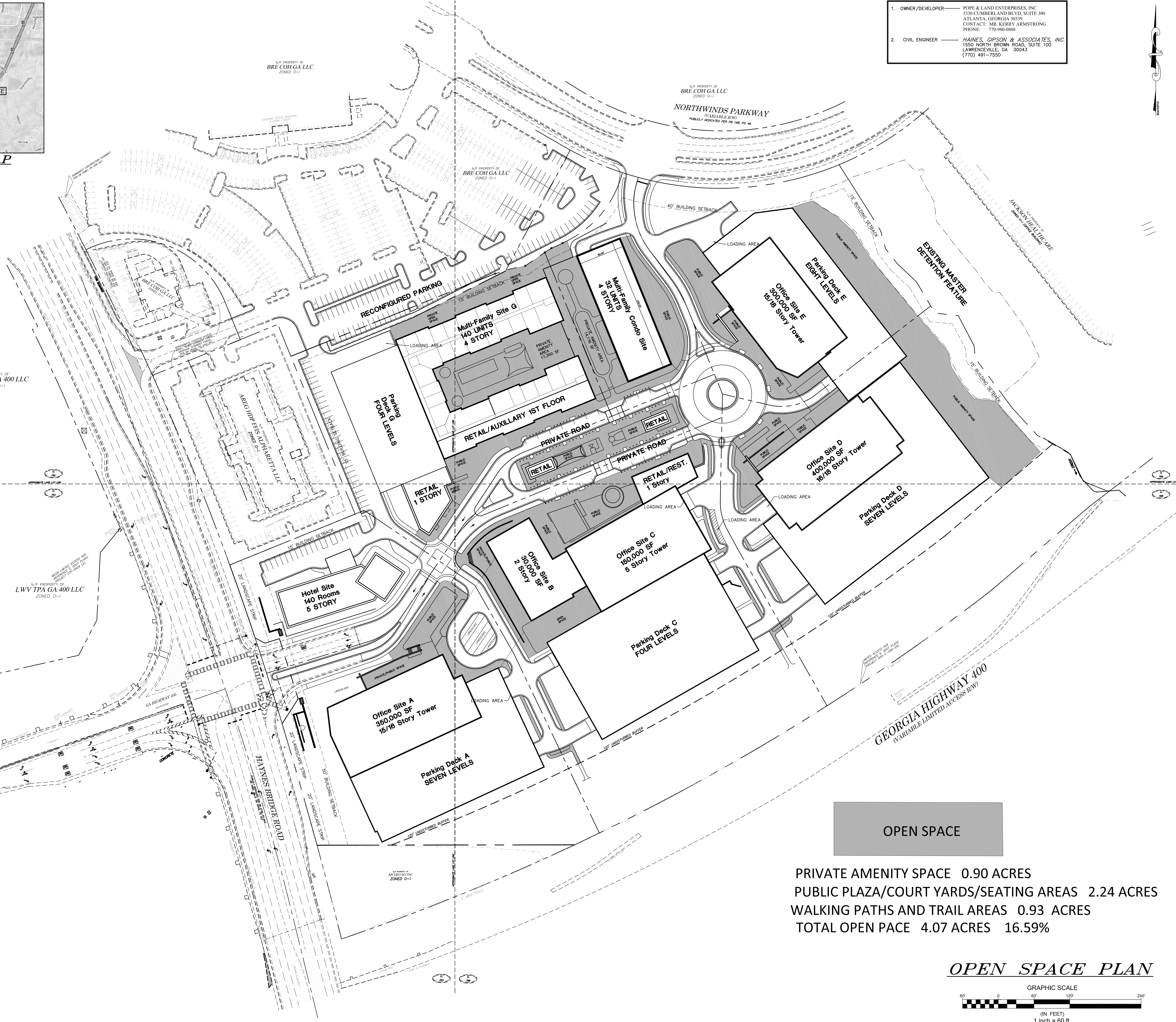
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CAUTION-NOTE TO CONTRACTOR

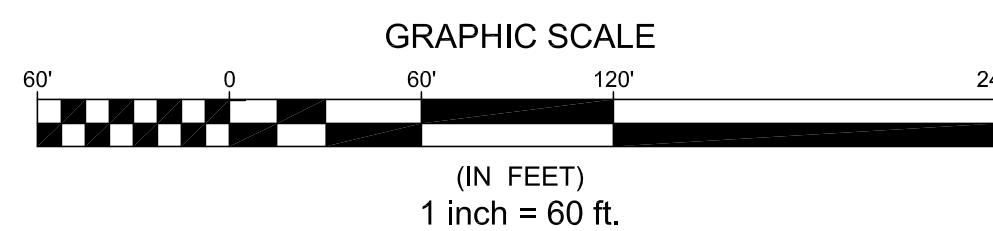
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OPEN SPACE

PRIVATE AMENITY SPACE 0.90 ACRES
PUBLIC PLAZA/COURT YARDS/SEATING AREAS 2.24 ACRES
WALKING PATHS AND TRAIL AREAS 0.93 ACRES
TOTAL OPEN SPACE 4.07 ACRES 16.59%

OPEN SPACE PLAN





NOTICE OF DECISION

To: Doug Hooker, ARC
(via electronic mail) Sonny Deriso, GRTA
Dick Anderson, GRTA

Al Nash, GRTA
Bob Voyles, GRTA

To: Mayor David Belle Isle, City of Alpharetta
(via electronic mail and certified mail) Kerry Armstrong, Pope and Land Enterprises

From: Christopher Tomlinson, GRTA Executive Director

Copy: Annie Gillespie, GRTA/SRTA
(via electronic mail) GRTA DRI Email (dri@grta.org)
Jon West, DCA
Andrew Smith, ARC
Marquitrice Mangham, ARC
Paul DeNard, GDOT District 7
Edlin Regis, GDOT District 7
Michael Woodman, City of Alpharetta
Eric Graves, City of Alpharetta

Larry Kelly, Pope and Land Enterprises
Clay Lewis, Haines Gipson & Associates
Sean McLendon, Cooper Carry
Chris Mutter, HGOR
Abdul Amer, A&R Engineering, Inc.

Date: April 27, 2017

Re: DRI 2669 Northwinds Summit

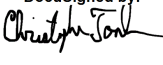
Notice of Decision for Request for Expedited Review of DRI 2669 Northwinds Summit

The purpose of this notice is to inform Pope and Land Enterprises (the Applicant), the City of Alpharetta (the local government), the GRTA Land Development Committee, the Georgia Department of Community Affairs (DCA), the Georgia Department of Transportation (GDOT), and the Atlanta Regional Commission (ARC) of GRTA's decision regarding DRI 2669 Northwinds Summit (the DRI Plan of Development). GRTA has completed an Expedited Review for the DRI Plan of Development pursuant to sections 3-101 and 3-102 of the *Procedures and Principles for GRTA Development of Regional Impact Review* and has determined that the DRI Plan of Development meets the GRTA review criteria set forth in Sections 3-101 and 3-102.F. The DRI Plan of Development as proposed is **approved subject to conditions**, as provided in Attachment A and subject to the limitations placed on allowable modifications to the DRI Plan of Development, as described in Attachment B.

This decision will become final and no further review will be required, unless: (1) a request for review by the Land Development Committee is submitted to the Executive Director within five (5) business days of receipt of this notice pursuant to Section 2-502 of the *Procedures and Principles for GRTA Development of Regional Impact Review*, or (2) an appeal by the Applicant is submitted to the Executive Director within five (5) business days of receipt of this notice pursuant to Section 2-501, or (3) an appeal by the local government is submitted to the Executive Director within five (5) business days of receipt of this notice pursuant to Section 2-501. If GRTA staff receives a request for review or an appeal, you will receive another notice from GRTA, and the Land Development Committee will hear the appeal or request for Expedited Review at its May 10, 2017 regular meeting.

The notice of decision is based upon review of the applicant's DRI Review Package. The Review Package includes the information presented during the Pre-Review and Methodology meeting on March 13, 2017, a trip generation/access analysis dated April 7, 2017, prepared by A&R Engineering, Inc., and site plan dated April 7, 2017, titled "Northwinds Summit," prepared by Haines Gipson & Associates – both received by ARC on behalf of GRTA on April 10, 2017. The review also includes confirmation from the City of Alpharetta on March 20, 2017 and from ARC on April 17, 2017 that the Livable Centers Initiative (LCI) criterion has been met.

Approval of the above-referenced DRI by expedited review shall not constitute GRTA approval of any subsequent material modifications to the proposed DRI by the local government such that the proposed DRI is no longer eligible for approval by expedited review.

DocuSigned by:

5409E9A65D48478...

Christopher Tomlinson
Executive Director
Georgia Regional Transportation Authority

Attachment A – General Conditions

General Conditions of Approval to GRTA Notice of Decision:

None.

Roadway Improvement Conditions of Approval to GRTA Notice of Decision:

Haynes Bridge Road at GA 400 Southbound Ramps

- Restripe the westbound approach (Site Driveway 1) to operate with two dedicated left turn lanes, one dedicated through lane and one shared through/right turn lane, as shown on plan.
- Install permissive + overlap signal phasing for the southbound right turn movement.

Haynes Bridge Road at Northwinds Parkway/Lakeview Parkway

- Convert the existing yield-controlled northbound right turn movement to a free-flow movement.
- Construct a second westbound right turn lane on Northwinds Parkway, per local standards.

Northwinds Parkway at Site Driveway 2

- Signalize, if and when warranted.

Attachment B – Required Elements of the DRI Plan of Development

Conditions Related to Altering Site Plan after GRTA Notice of Decision:

The on-site development will be constructed materially (substantially) in accordance with the Site Plan. Changes to the Site Plan will not be considered material or substantial so long as the following conditions are included as part of any changes:

- All of the “General Conditions of Approval to GRTA Notice of Decision” set forth in Attachment A are satisfied.
- All of the “Roadway Improvements as Conditions of Approval to GRTA Notice of Decision” set forth in Attachment A are satisfied.



REGIONAL REVIEW FINDING

Atlanta Regional Commission • 40 Courtland Street NE, Atlanta, Georgia 30303 • ph: 404.463.3100 • fax: 404.463.3105 • www.atlantaregional.com

DATE: May 3, 2017

ARC REVIEW CODE: R1704171

TO: Mayor David Belle Isle, City of Alpharetta
ATTN TO: Michael Woodman, Senior Planner
FROM: Douglas R. Hooker, Executive Director, ARC
RE: Development of Regional Impact (DRI) Review

Digital signature
Original on file

The Atlanta Regional Commission (ARC) has completed regional review of the following Development of Regional Impact (DRI). ARC reviewed the DRI with regard to its relationship to regional plans, goals and policies – and impacts it may have on the activities, plans, goals and policies of other local jurisdictions as well as state, federal and other agencies. This final report does not address whether the DRI is or is not in the best interest of the local government.

Name of Proposal: Northwinds Summit (DRI 2669)

Submitting Local Government: City of Alpharetta

Review Type: DRI

Date Opened: April 17, 2017

Date Closed: May 2, 2017

Description: This DRI is located in the City of Alpharetta on the east side of Haynes Bridge Road between Northwinds Parkway and US 19/GA 400. The project is a mixed-use development consisting of 1,230,000 SF of office space, 30,000 SF of retail/restaurant space, 140 apartments, 32 stacked condominiums and a 140-room hotel on approximately 20 acres. Access is proposed via two full-movement site driveways, one on Haynes Bridge Road and one on Northwinds Parkway. The DRI review trigger for this project is a rezoning and variance application. The project's estimated build-out year is 2019. This site comprises a portion of a previous DRI known as "Northwinds," reviewed by ARC in 1993.

Comments: According to the ARC Unified Growth Policy Map (UGPM), a component of The Atlanta Region's Plan, this DRI is located in a Regional Employment Corridor as well as a Regional Center. ARC's Regional Development Guide (RDG) details recommended policies for areas on the UGPM. General information and policy recommendations for Regional Employment Corridors and Regional Centers are listed at the bottom of this report.

This DRI appears to manifest many aspects of regional policy in that it supports the existing North Point LCI plan; converts an underutilized site to an infill, mixed-use development with a significant housing component; supports transit use given its proximity to MARTA bus service (Routes 140 and 141); includes ground floor retail, civic and pedestrian amenities, and a walking trail encircling the site; and provides interparcel connectivity to the parking area of the adjacent property to the north.

Many of these characteristics collectively offer the potential for site residents to work and shop on site, and for workers and visitors to park once or arrive via alternative transportation modes and conduct multiple trips on foot. Along these lines, care should be taken to ensure that the development promotes a functional, safe, clearly marked and comfortable pedestrian experience on all streets, paths and parking areas. The development team is also encouraged to ensure that end-of-trip facilities (bicycle racks, etc.) are provided for residents, workers and visitors at key locations throughout the site. ARC staff also recommend that the development team work with the City and GDOT to extend sidewalk access from the site southward to connect to the existing sidewalk on the east side of the Haynes Bridge Road/GA 400 overpass. This could improve pedestrian circulation in the area, better linking the site to the retail and restaurant uses farther south on Haynes Bridge Road, east of North Point Mall.

The intensity of this proposed project generally aligns with the RDG's recommended range of densities and building heights in Regional Employment Corridors.

The proposed development is located in the North Point LCI study area and is generally consistent with the study's recommendations. The development team should continue to work in close collaboration with the City of Alpharetta to ensure that the project, as constructed, is consistent with the recommendations of the LCI plan.

Additional comments are included in this report.

Further to the above, Regional Employment Corridors, along with the Region Core (Downtown, Midtown and Buckhead), form the densest part of the Atlanta region. Connected with transit, this area of the region is typically the most walkable, and redevelopment is the main driver of its growth. The Region Core and Regional Employment Corridors together contain 26 percent of the 10-county region's jobs and eight percent of region's population on approximately 2.25 percent of the region's land area. Regional policy recommendations for Regional Employment Corridors include:

- Continue to invest in the LCI program to assist local governments in center planning and infrastructure.
- Prioritize preservation of existing transit, increase frequency and availability of transit options.
- Encourage compact infill development, redevelopment and adaptive reuse.
- Create a range of housing options to accommodate all sectors of the workforce.
- Encourage active ground floor, pedestrian scale design, and pedestrian amenities in new development and the redevelopment of existing sites

Further to the above, Regional Centers are metro Atlanta's centers for employment, shopping and entertainment. These centers should be connected to the regional transportation network with existing or planned high-capacity transit service. In most cases, these centers have a jobs-housing imbalance, so housing options should be expanded within their boundaries, especially around existing or planned transit. Regional policy recommendations for Regional Centers include:

- Prioritize preservation, expansion and access to existing and planned transit systems and improve the quality and aesthetics of existing facilities.
- Incorporate appropriate end-of-trip facilities, such as bicycle racks and showers/locker rooms, within new and existing development.
- Enhance mobility and accessibility for all by creating Complete Streets that accommodate all modes of transportation.
- Encourage active ground floor, pedestrian-scale design and pedestrian amenities in new development and redevelopment of existing sites.
- Work toward improving the jobs-housing imbalance in Regional Centers and promote housing options to accommodate multiple household sizes and price points in close proximity to jobs.
- Use alternative designs and materials to minimize impervious surfaces to the greatest possible extent.

THE FOLLOWING LOCAL GOVERNMENTS AND AGENCIES RECEIVED NOTICE OF THIS REVIEW:

ARC COMMUNITY DEVELOPMENT
ARC RESEARCH & ANALYTICS
GEORGIA DEPARTMENT OF NATURAL RESOURCES
METROPOLITAN ATLANTA RAPID TRANSIT AUTHORITY
NORTH FULTON CID

ARC TRANSPORTATION ACCESS & MOBILITY
ARC AGING & HEALTH RESOURCES
GEORGIA DEPARTMENT OF TRANSPORTATION
CITY OF JOHNS CREEK

ARC NATURAL RESOURCES
GEORGIA DEPARTMENT OF COMMUNITY AFFAIRS
GEORGIA REGIONAL TRANSPORTATION AUTHORITY
CITY OF ROSWELL

If you have any questions regarding this review, please contact Andrew Smith at (404) 463-5581 or asmith@atlantaregional.com. This finding will be published to the ARC review website located at <http://www.atlantaregional.com/land-use/planreviews>.

Andrew Smith

From: Hood, Alan C. <achood@dot.ga.gov>
Sent: Monday, April 17, 2017 2:53 PM
To: Andrew Smith
Cc: Brian, Steve; Comer, Carol; Edmisten, Colette
Subject: RE: ARC DRI Review Notification: Northwinds Summit (DRI 2669)
Attachments: Preliminary Report - Northwinds Summit DRI 2669.pdf

Andrew,

The proposed project located in the City of Alpharetta on the east side of Haynes Bridge Road between Northwinds Parkway and US 19/GA 400, consisting of a mixed-use development with 1,230,000 SF of office space, 30,000 SF of retail/restaurant space, 140 apartments, 32 stacked condominiums and a 140-room hotel on approximately 20 acres, is not located within 11 miles of any civil airport. It is located outside of any FAA surface, and compatible land use area, and does not appear to impact any airport.

However, if the proposed project's vertical construction, or equipment exceeds 200ft above ground level, an FAA Form 7460-1 must be submitted to the Federal Aviation Administration. That may be done online at <https://oeaaa.faa.gov>. The FAA must be in receipt of the notification, no later than 90 days prior to construction. The FAA will evaluate the potential impact of the project on protected airspace associated with the airports and advise the proponent if any action is necessary.

Thank you for the opportunity to comment on the proposed development.

Alan Hood | Airport Safety Data Program Manager
Georgia Department of Transportation - Aviation Programs
600 West Peachtree Street, N.W. | 2nd Floor | Atlanta, Georgia 30308
M: 404-660-3394 | F: 404-631-1935 | E: achood@dot.ga.gov

View our website at <http://www.dot.ga.gov/IS/AirportAid>

From: Andrew Smith [mailto:ASmith@atlantaregional.com]
Sent: Monday, April 17, 2017 2:39 PM
To: VanDyke, Cindy; Fowler, Matthew; Zahul, Kathy; Weiss, Megan J; Comer, Carol; Hood, Alan C.; DeNard, Paul; Regis, Edlin; Woods, Chris N.; Johnson, Lankston; Boone, Eric; Humphrey, James; Greg Floyd (gffloyd@itsmarta.com); Annie Gillespie; Parker Martin; 'DRI@grta.org'; 'Jon West'; jud.turner@gaepd.org; awakefield@roswellgov.com; Brad Townsend; Jackie Deibel; sacenbrak@roswellgov.com; Sharon.Ebert@johnscreekga.gov; allison.tarpley@johnscreekga.gov; nicole.dozier@johnscreekga.gov; chris.haggard@johnscreekga.gov; Ann Miller Hanlon; kwinzeler@northfultoncid.com; Cook, Kathi; Woodman, Michael; egraves@alpharetta.ga.us; Taylor, Elicia; Kerry Armstrong; Larry Kelly; Abdul K. Amer (AAmer@areng.com); Abby Rettig; clay.lewis@hainesgipson.com; seanmclendon@coopercarry.com; Donny Kim; BClone@hgor.com; Chris Mutter; don@roladerandrolader.com; Austin Galloway
Cc: Community Development; Mike Alexander; David Haynes; Haley Berry; Marquitrice Mangham; Jim Santo; Jim Skinner
Subject: ARC DRI Review Notification: Northwinds Summit (DRI 2669)

Development of Regional Impact (DRI) – Request for Comments

This e-mail serves as notice that the Atlanta Regional Commission (ARC) has begun a Development of Regional Impact (DRI) review for **Northwinds Summit (DRI 2669)**.

This DRI is located in the City of Alpharetta on the east side of Haynes Bridge Road between Northwinds Parkway and US 19/GA 400. The project is a mixed-use development consisting of 1,230,000 SF of office space, 30,000 SF of retail/restaurant space, 140 apartments, 32 stacked condominiums and a 140-room hotel on approximately 20 acres. Access is proposed via two full-movement site driveways, one on Haynes Bridge Road and one on Northwinds Parkway. The DRI review trigger for this project is a rezoning and variance application. The project's estimated build-out year is 2019. This site comprises a portion of a previous DRI known as "Northwinds," reviewed by ARC in 1993.

As a representative of a nearby local government or potentially affected party, we request that you or your staff review the attached Preliminary Report and provide any comments to ARC on or before **May 2, 2017**.

You may also view the Preliminary Report and other project information by visiting the [ARC Plan Reviews webpage](#) and searching for "Northwinds Summit" in the field at the bottom of the page. The report and other information will be permanently available online as of tomorrow, April 18.

Date Opened: April 17, 2017

Deadline for Comments: May 2, 2017

Date to Close: May 8, 2017 (**If no significant issues are identified during comment period, review will close on May 2, 2017 per LCI Expedited Review process in ARC DRI Rules.**)

For more information regarding the DRI process or other DRIs reviewed by ARC, please visit the [ARC DRI webpage](#).

Regards,

Andrew Smith

Senior Planner, Community Development Division

Atlanta Regional Commission
regional impact + local relevance

40 Courtland Street, NE
Atlanta, Georgia 30303-2538

P | 404.463.5581

F | 404.463.3254

asmith@atlantaregional.com

atlantaregional.com

Pedestrian deaths continue to surge in Georgia - 236 walkers died in 2016. That's a 40% increase in just two years! Georgia DOT's **SEE & BE SEEN** campaign, in partnership with PEDS, aims to make it safer to walk in Georgia. Safety is a shared responsibility. Walkers and drivers: Pay attention. Walkers: make sure you can SEE & BE SEEN. Drivers: Slow down (speed kills). Visit www.dot.ga.gov/SBS. #ArriveAliveGA

Andrew Smith

From: Weiss, Megan J <MWeiss@dot.ga.gov>
Sent: Tuesday, April 18, 2017 9:56 AM
To: Andrew Smith
Cc: Mertz, Kaycee; Fowler, Matthew
Subject: RE: ARC DRI Review Notification: Northwinds Summit (DRI 2669)

Andrew,

GDOT Planning has reviewed the Northwinds Summit DRI Preliminary report and show no additional GDOT projects, other than those already mentioned in the report. For further information that may be needed concerning this review, please contact Megan Weiss at 404-631-1779 or mweiss@dot.ga.gov.

Megan Weiss, AICP
Transportation Planner II
Georgia Department of Transportation
Office of Planning-5th Floor
P:404-631-1779 E:mweiss@dot.ga.gov

From: Andrew Smith [mailto:ASmith@atlantaregional.com]
Sent: Monday, April 17, 2017 2:39 PM
To: VanDyke, Cindy; Fowler, Matthew; Zahul, Kathy; Weiss, Megan J; Comer, Carol; Hood, Alan C.; DeNard, Paul; Regis, Edlin; Woods, Chris N.; Johnson, Lankston; Boone, Eric; Humphrey, James; Greg Floyd (gflloyd@itsmarta.com); Annie Gillespie; Parker Martin; 'DRI@grta.org'; 'Jon West'; jud.turner@gaepd.org; awakefield@roswellgov.com; Brad Townsend; Jackie Deibel; sacenbrak@roswellgov.com; Sharon.Ebert@johnscreekga.gov; allison.tarpley@johnscreekga.gov; nicole.dozier@johnscreekga.gov; chris.haggard@johnscreekga.gov; Ann Miller Hanlon; kwinzeler@northfultoncid.com; Cook, Kathi; Woodman, Michael; egraves@alpharetta.ga.us; Taylor, Elicia; Kerry Armstrong; Larry Kelly; Abdul K. Amer (AAmer@areng.com); Abby Rettig; clay.lewis@hainesgipson.com; seanmclendon@coopercarry.com; Donny Kim; BClone@hgor.com; Chris Mutter; don@roladerandrolader.com; Austin Galloway
Cc: Community Development; Mike Alexander; David Haynes; Haley Berry; Marquitrice Mangham; Jim Santo; Jim Skinner
Subject: ARC DRI Review Notification: Northwinds Summit (DRI 2669)

Development of Regional Impact (DRI) – Request for Comments

This e-mail serves as notice that the Atlanta Regional Commission (ARC) has begun a Development of Regional Impact (DRI) review for **Northwinds Summit (DRI 2669)**.

This DRI is located in the City of Alpharetta on the east side of Haynes Bridge Road between Northwinds Parkway and US 19/GA 400. The project is a mixed-use development consisting of 1,230,000 SF of office space, 30,000 SF of retail/restaurant space, 140 apartments, 32 stacked condominiums and a 140-room hotel on approximately 20 acres. Access is proposed via two full-movement site driveways, one on Haynes Bridge Road and one on Northwinds Parkway. The DRI review trigger for this project is a rezoning and variance application. The project's estimated build-out year is 2019. This site comprises a portion of a previous DRI known as "Northwinds," reviewed by ARC in 1993.

As a representative of a nearby local government or potentially affected party, we request that you or your staff review the attached Preliminary Report and provide any comments to ARC on or before **May 2, 2017**.

You may also view the Preliminary Report and other project information by visiting the [ARC Plan Reviews webpage](#) and searching for "Northwinds Summit" in the field at the bottom of the page. The report and other information will be permanently available online as of tomorrow, April 18.

Date Opened: April 17, 2017

Deadline for Comments: May 2, 2017

Date to Close: May 8, 2017 (**If no significant issues are identified during comment period, review will close on May 2, 2017 per LCI Expedited Review process in ARC DRI Rules.**)

For more information regarding the DRI process or other DRIs reviewed by ARC, please visit the [ARC DRI webpage](#).

Regards,

Andrew Smith

Senior Planner, Community Development Division

Atlanta Regional Commission
regional impact + local relevance

40 Courtland Street, NE
Atlanta, Georgia 30303-2538

P | 404.463.5581

F | 404.463.3254

asmith@atlantaregional.com

atlantaregional.com

Pedestrian deaths continue to surge in Georgia - 236 walkers died in 2016. That's a 40% increase in just two years! Georgia DOT's **SEE & BE SEEN** campaign, in partnership with PEDS, aims to make it safer to walk in Georgia. Safety is a shared responsibility. Walkers and drivers: Pay attention. Walkers: make sure you can SEE & BE SEEN. Drivers: Slow down (speed kills). Visit www.dot.ga.gov/SBS. #ArriveAliveGA

NORTHWINDS SUMMIT DRI
City of Alpharetta
Natural Resources Division Review Comments

April 11, 2017

Water Supply Watershed and Stream Buffer Protection

The proposed project property is located within the Big Creek Water Supply Watershed, which is a small (less than 100 square mile) watershed and is a public water supply source for the City of Roswell. The proposed project is within seven miles of the City of Roswell intake.

Under the Georgia Planning Act of 1989, all development in a public water supply watershed is subject to the DNR Part 5 Water Supply Watershed Minimum Criteria (Chapter 391-3-16-.01, Criteria for Water Supply Watersheds) unless alternative criteria are developed and adopted by the jurisdiction according to the requirements of the Part 5 criteria and are then approved by Georgia EPD and DCA. The minimum criteria in a small water supply watershed include: a limit on impervious surfaces of either 25 percent of the watershed area or the existing amount, whichever is greater; buffer requirements on perennial (blue-line on a USGS 1:24,000 quad sheet) streams that include a 100-foot undisturbed buffer and 150-foot impervious setback on streams that are within 7 miles upstream of the closest intake; and requirements for hazardous materials and hazardous waste. However, alternate criteria have been developed for this watershed.

The Big Creek Watershed Study was completed in December 2000 with participation by all jurisdictions in the basin. It includes alternative protection measures to the DNR Part 5 Water Supply Watershed Criteria, including structural and non-structural control measures. It is our understanding that the City of Alpharetta has adopted protection requirements consistent with those proposed in the Study and that DCA has accepted those requirements in lieu of the Part 5 minimum criteria. This project will need to conform to Alpharetta's water supply watershed requirements

The USGS coverage for the project area shows an unnamed blue line stream running across the rear of the property from Northwinds Parkway to Georgia 400. It is identified on the submitted site plan as "Big Creek Tributary 11". A portion of the stream is an existing detention pond associated with the neighboring development and is partially located on this property, which is identified on the site plan as "Existing Master Detention Feature".

No buffers are shown on the stream, only a 15-foot building setback that is presumably the property line setback. A proposed walking trail is shown paralleling the creek and the detention pond, with another that ends at the property line and presumably will cross the stream. Behind the walking trail are parking structures E and D, which are shown on the site plan as approximately 40 -50 feet from the edge of the pond and 60-70 feet from the indicated stream channel. These impervious surfaces, as well as associated land disturbance, are subject to the requirements of the State 25-foot Sedimentation and Erosion Control buffer, as well as the City stream buffer ordinance's 50-foot undisturbed buffer and 75-foot impervious surface and may require a variance. Any unmapped waters of the State on this property will also be subject to the State 25-foot Sediment and Erosion Control Buffer.

Storm Water/Water Quality

The project should adequately address the impacts of the proposed development on stormwater runoff and downstream water quality. During construction, the project should conform to the relevant state and federal erosion and sedimentation control requirements. After construction, as with all development, water quality will be impacted due to polluted stormwater runoff. The amount of pollutants that will be produced after construction of the proposed development are dependent on the type and intensity of the use and the impervious coverage, which will affect the design of stormwater controls for the project.

In order to address post-construction stormwater runoff quality, the project should implement stormwater management controls (structural and/or nonstructural) as found in the Georgia Stormwater Management Manual (www.georgiastormwater.com) and meet the stormwater management quantity and quality criteria outlined in the Manual. Where possible, the project should utilize the stormwater better site design concepts included in the Manual.

Development of Regional Impact Assessment of Consistency with the Regional Transportation Plan

DRI INFORMATION

DRI Number #2669
DRI Title Northwinds Summit Mixed Use Development
County Fulton County
City (if applicable) Alpharetta
Address / Location South side of Riverside Drive between Fulton Industrial Blvd and Campbellton Road
Review Process ☒ EXPEDITED
☐ NON-EXPEDITED

REVIEW INFORMATION

Prepared by ARC Transportation Access and Mobility Division
Staff Lead Marquitrice Mangham
Copied David Haynes
Date April 11, 2017

TRAFFIC STUDY

Prepared by A & R Engineering Inc.
Date April 7, 2017

REGIONAL TRANSPORTATION PLAN PROJECTS

01. Did the traffic analysis incorporate all projects contained in the current version of the fiscally constrained RTP which are within the study area or along major transportation corridors connecting the study area with adjacent jurisdictions?

- ☒ YES (provide date of RTP project list used below and the page number of the traffic study where relevant projects are identified)

The mixed-use development proposes office, accessory retail, multifamily units and a hotel. The traffic analysis report identifies planned and/or programmed projects for the study area on page 18. One project (listed below) was taken from Plan 2040 and identified in the analysis. Further review shows this project information is consistent with the current Atlanta Regions Plan.

AR-ML-300 Roadway SR 400 Managed Lanes From I 285 N to McFarland Road

- ☐ NO (provide comments below)

REGIONAL NETWORKS

02. Will the development site be directly served by any roadways identified as Regional Thoroughfares?

A Regional Thoroughfare is a major transportation corridor that serves multiple ways of traveling, including walking, bicycling, driving, and riding transit. It connects people and goods to important places in metropolitan Atlanta. A Regional Thoroughfare's operations should be managed through application of special traffic control strategies and suitable land development guidelines in order to maintain travel efficiency, reliability, and safety for all users. In light of the special function that Regional Thoroughfares serve in supporting cross-regional and interjurisdictional mobility and access, the network receives priority consideration for infrastructure investment in the Metro Atlanta region. Any access points between the development and a Regional Thoroughfare, combined with the development's on-site circulation patterns, must be designed with the goal of preserving the highest possible level of capacity and safety for all users of the roadway.

- ☒ NO
- ☐ YES (identify the roadways and existing/proposed access points)

The site plan and traffic analysis indicate the site will be served by access points on Haynes Bridge Road and Northwind Parkway. Neither roadway is identified as a Regional Thoroughfare.

03. Will the development site be directly served by any roadways identified as Regional Truck Routes?

A Regional Truck Route is a freeway, state route or other roadway which serves as a critical link for the movement of goods to, from and within the Region by connecting airports, intermodal/multimodal facilities, distribution and warehousing centers and manufacturing clusters with the rest of the state and nation. These facilities often serve a key mobility and access function for other users as well, including drivers, bicyclists, pedestrians and transit users. A Regional Truck Route's operations should be managed through application of special traffic control strategies and suitable land development guidelines in order to maintain travel efficiency, reliability, and safety for all users. In light of the special function that Regional Truck Routes serve in supporting cross-regional and interjurisdictional mobility and access, the network receives priority consideration for infrastructure investment in the Metro Atlanta region. Any access points between the development and a Regional Truck Route, combined with the development's on-site circulation patterns, must be designed with the goal of preserving the highest possible level of capacity and safety for all users of the roadway.

☒ NO

☐ YES (*identify the roadways and existing/proposed access points*)

The site plan and traffic analysis indicate the site will be served by access points on Haynes Bridge Road and Northwind Parkway. Neither roadway is identified as a Regional Truck Route.

04. If the development site is within one mile of an existing rail service, provide information on accessibility conditions.

Access between major developments and transit services provide options for people who cannot or prefer not to drive, expand economic opportunities by better connecting people and jobs, and can help reduce congestion. If a transit service is available nearby, but walking or bicycling between the development site and the nearest station is a challenge, the applicable local government(s) is encouraged to make the route a funding priority for future walking and bicycling infrastructure improvements.

☒ NOT APPLICABLE (*nearest station more than one mile away*)

☐ RAIL SERVICE WITHIN ONE MILE (*provide additional information below*)

Operator / Rail Line Click here to enter name of operator and rail line

Nearest Station Click here to enter name of station.

Distance* ☐ Within or adjacent to the development site (0.10 mile or less)
 ☐ 0.10 to 0.50 mile
 ☐ 0.50 to 1.00 mile

Walking Access* ☐ Sidewalks and crosswalks provide sufficient connectivity
 ☐ Sidewalk and crosswalk network is incomplete
 ☐ Not applicable (*accessing the site by walking is not consistent with the type of development proposed*)

[Click here to provide comments.](#)

Bicycling Access*

- ☐ Dedicated paths, lanes or cycle tracks provide sufficient connectivity
- ☐ Low volume and/or low speed streets provide connectivity
- ☐ Route follows high volume and/or high speed streets
- ☐ Not applicable (*accessing the site by bicycling is not consistent with the type of development proposed*)

[Click here to provide comments.](#)

Transit Connectivity

- ☐ Fixed route transit agency bus service available to rail station
- ☐ Private shuttle or circulator available to rail station
- ☐ No services available to rail station
- ☐ Not applicable (*accessing the site by transit is not consistent with the type of development proposed*)

[Click here to provide comments.](#)

* *Following the most direct feasible walking or bicycling route to the nearest point on the development site*

05. If there is currently no rail transit service within one mile of the development site, is nearby rail service planned in the fiscally constrained RTP?

Access between major developments and transit services provide options for people who cannot or prefer not to drive, expand economic opportunities by better connecting people and jobs, and can help reduce traffic congestion. If a transit agency operates within the jurisdiction and expansion plans are being considered in the general vicinity of the development site, the agency should give consideration to how the site can be best served during the evaluation of alignments and station locations. Proactive negotiations with the development team and local government(s) are encouraged to determine whether right-of-way within the site should be identified and protected for potential future service. If direct service to the site is not feasible or cost effective, the transit agency and local government(s) are encouraged to ensure good walking and bicycling access accessibility is provided between the development and the future rail line. These improvements should be considered fundamental components of the overall transit expansion project, with improvements completed concurrent with or prior to the transit service being brought online.

- ☐ NOT APPLICABLE (rail service already exists)
- ☐ NOT APPLICABLE (accessing the site by transit is not consistent with the type of development proposed)
- ☒ NO (no plans exist to provide rail service in the general vicinity)
- ☐ YES (provide additional information on the timeframe of the expansion project below)
 - ☐ CST planned within TIP period
 - ☐ CST planned within first portion of long range period
 - ☐ CST planned near end of plan horizon

[Click here to provide comments.](#)

06. If the development site is within one mile of fixed route bus services (including any privately operated shuttles or circulators open to the general public), provide information on walking and bicycling accessibility conditions.

Access between major developments and transit services provide options for people who cannot or prefer not to drive, expand economic opportunities by better connecting people and jobs, and can help reduce congestion. If a transit service is available nearby, but walking or bicycling between the development site and the nearest station is a challenge, the applicable local government(s) is encouraged to make the connection a funding priority for future walking and bicycling infrastructure improvements.

☐ NOT APPLICABLE (nearest bus, shuttle or circulator stop more than one mile away)

☒ SERVICE WITHIN ONE MILE (provide additional information below)

Operator(s) Marta Bus Service

Bus Route(s) Route #141 Haynes Bridge Road at Northwinds

Distance* ☒ Within or adjacent to the development site (0.10 mile or less)

☐ 0.10 to 0.50 mile

☐ 0.50 to 1.00 mile

Walking Access* ☒ Sidewalks and crosswalks provide sufficient connectivity

☐ Sidewalk and crosswalk network is incomplete

☐ Not applicable (accessing the site by walking is not consistent with the type of development proposed)

The development is adjacent Haynes Bridge Road and Northwinds Parkway. Sidewalks and pedestrian facilities currently exist along both roadways.

Bicycling Access* ☒ Dedicated paths, lanes or cycle tracks provide sufficient connectivity

☐ Low volume and/or low speed streets provide sufficient connectivity

☐ Route uses high volume and/or high speed streets

☐ Not applicable (accessing the site by bicycling is not consistent with the type of development proposed)

Bike lanes are present along Haynes Bridge Road adjacent to the site.

* Following the most direct feasible walking or bicycling route to the nearest point on the development site

07. Does a transit agency which provides rail and/or fixed route bus service operate anywhere within the jurisdiction in which the development site is located?

Access between major developments and transit services provide options for people who cannot or prefer not to drive, expand economic opportunities by better connecting people and jobs, and can help reduce traffic congestion. If a transit agency operates within the jurisdiction and a comprehensive operations plan update is undertaken, the agency should give consideration to serving the site during the evaluation of future routes, bus stops and transfer facilities. If the nature of the development is amenable to access by transit, walking or bicycling, but direct service to the site is not feasible or cost effective, the transit agency and local government(s) should ensure good walking and bicycling access accessibility is provided between the development and any routes within a one mile radius. The applicable local government(s) is encouraged to make these connections a funding priority for future walking and bicycling infrastructure improvements.

☐ NO

☒ YES

Yes. See question 6 above.

08. If the development site is within one mile of an existing multi-use path or trail, provide information on accessibility conditions.

Access between major developments and walking/bicycling facilities provide options for people who cannot or prefer not to drive, expand economic opportunities by better connecting people and jobs, and can help reduce traffic congestion. If connectivity with a regionally significant path or trail is available nearby, but walking or bicycling between the development site and those facilities is a challenge, the applicable local government(s) is encouraged to make the route a funding priority for future walking and bicycling infrastructure improvements.

☐ NOT APPLICABLE (nearest path or trail more than one mile away)

☒ YES (provide additional information below)

Name of facility Rock Mill Park, Big Creek Greenway

Distance ☐ Within or adjacent to development site (0.10 mile or less)
 ☒ 0.15 to 0.50 mile
 ☐ 0.50 to 1.00 mile

Walking Access* ☒ Sidewalks and crosswalks provide connectivity
 ☐ Sidewalk and crosswalk network is incomplete
 ☐ Not applicable (accessing the site by walking is not consistent with the type of development proposed)

[Click here to provide comments.](#)

Bicycling Access* ☐ Dedicated lanes or cycle tracks provide connectivity
 ☒ Low volume and/or low speed streets provide connectivity
 ☐ Route uses high volume and/or high speed streets
 ☐ Not applicable (accessing the site by bicycling is not consistent with the type of development proposed)

The proposed development is within a quarter mile of Rock Mill Park and the Big Creek Greenway. Sidewalks provide pedestrian connectivity. Bicycle lanes currently do not exist adjacent to the park. The site depicts a proposed semicircular walking trail being provided on site as an amenity.

* Following the most direct feasible walking or bicycling route to the nearest point on the development site

OTHER TRANSPORTATION DESIGN CONSIDERATIONS

09. Does the site plan provide for the construction of publicly accessible roadway connections with adjacent parcels?

The ability for drivers and bus routes to move between developments without using the adjacent roadway network can save time and reduce congestion. Such opportunities should be considered and proactively incorporated into development site plans whenever possible.

- ☐ YES (connections to adjacent parcels are planned as part of the development)
- ☐ YES (stub outs will make future connections possible when adjacent parcels redevelop)
- ☒ NO (the site plan precludes future connections with adjacent parcels when they redevelop)
- ☐ NOT APPLICABLE (adjacent parcels are not likely to develop or redevelop in the near future)
- ☐ NOT APPLICABLE (the nature of the development or adjacent parcels does not lend itself to interparcel roadway connections)

The development proposes a mixture of neighborhood uses including, office, accessory commercial and residential uses. Office and commercial uses currently bound the property on the west. The site plan does not depict consideration is being taken for future vehicular connectivity to adjacent parcels.

10. Does the site plan enable pedestrians and bicyclists to move between destinations within the development site safely and conveniently?

The ability for walkers and bicyclists to move within the site safely and conveniently reduces reliance on vehicular trips, which has congestion reduction and health benefits. Development site plans should incorporate well designed and direct sidewalk connections between all key destinations. To the extent practical, bicycle lanes or multiuse paths are encouraged for large acreage sites and where high volumes of bicyclists and pedestrians are possible.

- ☐ YES (sidewalks provided on all key walking routes and both sides of roads whenever practical and bicyclists should have no major issues navigating the street network)
- ☒ PARTIAL (some walking and bicycling facilities are provided, but connections are not comprehensive and/or direct)
- ☐ NO (walking and bicycling facilities within the site are limited or nonexistent)
- ☐ NOT APPLICABLE (the nature of the development does not lend itself to internal walking and bicycling trips)

The site plan depicts a private drive providing vehicle access to onsite parking. While no crosswalks are depicted on the plan, sidewalks are provided along the exterior and interior roadways and driveways throughout the development and pedestrian connectivity is provided to neighboring uses. The site plan is unclear as to whether bicycle lanes are provided along the interior driveway.

11. Does the site plan provide the ability to construct publicly accessible bicycling and walking connections with adjacent parcels which may be redeveloped in the future?

The ability for walkers and bicyclists to move between developments safely and conveniently reduces reliance on vehicular trips, which has congestion reduction and health benefits. Such opportunities should be considered and proactively incorporated into development site plans whenever possible.

- ☒ YES (connections to adjacent parcels are planned as part of the development)
- ☐ YES (stub outs will make future connections possible when adjacent parcels redevelop)
- ☐ NO (the development site plan does not enable walking or bicycling to/from adjacent parcels)
- ☐ NO (the site plan precludes future connections with adjacent parcels when they redevelop)
- ☐ NOT APPLICABLE (adjacent parcels are not likely to develop or redevelop in the near future)
- ☐ NOT APPLICABLE (the nature of the development or adjacent parcels does not lend itself to interparcel walking and bicycling trips)

Existing pedestrian and bicycle facilities along Haynes Bridge Road and Northwind Parkway provide access to adjacent uses. Proposed sidewalks interior to the site also provide for inter parcel connectivity and access to adjacent uses for pedestrians.

12. Does the site plan effectively manage truck movements and separate them, to the extent possible, from the flow of pedestrians, bicyclists and motorists both within the site and on the surrounding road network?

The ability for delivery and service vehicles to efficiently enter and exit major developments is often key to their economic success. So is the ability of visitors and customers being able to move around safely and pleasantly within the site. To the extent practical, truck movements should be segregated by minimizing the number of conflict points with publicly accessible internal roadways, sidewalks, paths and other facilities.

- ☐ YES (truck routes to serve destinations within the site are clearly delineated, provide ample space for queuing and turning around, and are separated from other users to the extent practical)
- ☐ PARTIAL (while one or more truck routes are also used by motorists and/or interface with primary walking and bicycling routes, the site plan mitigates the potential for conflict adequately)
- ☐ NO (one or more truck routes serving the site conflict directly with routes likely to be used heavily by pedestrians, bicyclists and/or motorists)
- ☒ NOT APPLICABLE (the nature of the development will not generate a wide variety of users and/or very low truck volumes, so the potential for conflict is negligible)

The proposed uses should not generate a significant amount of truck traffic. Motorist and cyclist may share lanes internal to the site. Separate pedestrian, vehicular and freight movement facilities that are proposed should provide adequate safety for all modes of transportation.

RECOMMENDATIONS

13. Do the transportation network recommendations outlined in the traffic study appear to be feasible from a constructability standpoint?

- ☐ UNKNOWN *(additional study is necessary)*
- ☒ YES *(based on information made available through the review process; does not represent a thorough engineering / financial analysis)*
- ☐ NO *(see comments below)*

Click here to enter text.

14. Is ARC aware of any issues with the development proposal which may result in it being opposed by one or more local governments, agencies or stakeholder groups?

- ☒ NO *(based on information shared with ARC staff prior to or during the review process; does not reflect the outcome of an extensive stakeholder engagement process)*
- ☐ YES *(see comments below)*

Click here to enter text.

15. ARC offers the following additional comments for consideration by the development team and/or the applicable local government(s):

None.



Developments of Regional Impact

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DRI #2669

DEVELOPMENT OF REGIONAL IMPACT Initial DRI Information

This form is to be completed by the city or county government to provide basic project information that will allow the RDC to determine if the project appears to meet or exceed applicable DRI thresholds. Refer to both the [Rules for the DRI Process](#) and the [DRI Tiers and Thresholds](#) for more information.

Local Government Information

Submitting Local Government: City of Alpharetta

Individual completing form: Michael Woodman

Telephone: 678-297-6072

E-mail: mwoodman@alpharetta.ga.us

*Note: The local government representative completing this form is responsible for the accuracy of the information contained herein. If a project is to be located in more than one jurisdiction and, in total, the project meets or exceeds a DRI threshold, the local government in which the largest portion of the project is to be located is responsible for initiating the DRI review process.

Proposed Project Information

Name of Proposed Project: Northwinds Summit

Location (Street Address, GPS Coordinates, or Legal Land Lot Description): Fulton County PIN: 12 285007520648

Brief Description of Project: Northwinds Summit Mixed-use development is proposed at the northwest corner of Haynes Bridge Road and Georgia 400 and will consist of 140 apartments, 32 stacked condominiums, 140-room hotel, 30,000 SF retail/restaurant, and 1,230,000 SF of office.

Development Type:

- | | | |
|--|---|---|
| ☐ (not selected) | ☐ Hotels | ☐ Wastewater Treatment Facilities |
| ☐ Office | ☒ Mixed Use | ☐ Petroleum Storage Facilities |
| ☐ Commercial | ☐ Airports | ☐ Water Supply Intakes/Reservoirs |
| ☐ Wholesale & Distribution | ☐ Attractions & Recreational Facilities | ☐ Intermodal Terminals |
| ☐ Hospitals and Health Care Facilities | ☐ Post-Secondary Schools | ☐ Truck Stops |
| ☐ Housing | ☐ Waste Handling Facilities | ☐ Any other development types |
| ☐ Industrial | ☐ Quarries, Asphalt & Cement Plants | |

If other development type, describe:

Project Size (# of units, floor area, etc.): 140 apartment units, 32 stacked condominium units, 140-room hotel, 30,000 SF retail/restaurant, 1,230,000 SF of office.

Developer: Pope and Land Real Estate/Kerry Armstrong

Mailing Address: 3330 Cumberland Blvd. SE, Suite 300

Address 2:

City: Atlanta State: GA Zip: 30339

Telephone: 770-980-0808

Email: karmstrong@popeandland.com

Is property owner different from developer/applicant? ☐ (not selected) ☐ Yes ☒ No

If yes, property owner:

Is the proposed project entirely located within your local government's jurisdiction? ☐ (not selected) ☒ Yes ☐ No

If no, in what additional jurisdictions is the project located?

Is the current proposal a continuation or expansion of a previous DRI? ☐ (not selected) ☐ Yes ☒ No

If yes, provide the following information: Project Name:
Project ID:

The initial action being requested of the local government for this project:

☒ Rezoning
☒ Variance
☐ Sewer
☐ Water
☐ Permit
☐ Other

Is this project a phase or part of a larger overall project?
☐ (not selected) ☐ Yes ☒ No

If yes, what percent of the overall project does this project/phase represent?

Estimated Project Completion Dates: This project/phase: 2022
Overall project:

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Developments of Regional Impact

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DRI #2669

DEVELOPMENT OF REGIONAL IMPACT Additional DRI Information

This form is to be completed by the city or county government to provide information needed by the RDC for its review of the proposed DRI. Refer to both the [Rules for the DRI Process](#) and the [DRI Tiers and Thresholds](#) for more information.

Local Government Information

Submitting Local Government: City of Alpharetta
Individual completing form: Michael Woodman
Telephone: 678-297-6072
Email: mwoodman@alpharetta.ga.us

Project Information

Name of Proposed Project: Northwinds Summit
DRI ID Number: 2669
Developer/Applicant: Pope and Land Real Estate/Kerry Armstrong
Telephone: 770-980-0808
Email(s): karmstrong@popeandland.com

Additional Information Requested

Has the RDC identified any additional information required in order to proceed with the official regional review process? (If no, proceed to Economic Impacts.)
☐ (not selected) ☒ Yes ☐ No

If yes, has that additional information been provided to your RDC and, if applicable, GRTA?
☒ (not selected) ☐ Yes ☐ No

If no, the official review process can not start until this additional information is provided.

Economic Development

Estimated Value at Build-Out: \$567,200,000

Estimated annual local tax revenues (i.e., property tax, sales tax) likely to be generated by the proposed development: \$9,527,024

Is the regional work force sufficient to fill the demand created by the proposed project?
☐ (not selected) ☒ Yes ☐ No

Will this development displace any existing uses?
☐ (not selected) ☐ Yes ☒ No

If yes, please describe (including number of units, square feet, etc):

Water Supply

Name of water supply provider for this site: Fulton County

What is the estimated water supply demand to be generated by the project, measured in Millions of Gallons Per Day (MGD)? 0.283

Is sufficient water supply capacity available to serve the proposed project? ☐ (not selected) ☒ Yes ☐ No

If no, describe any plans to expand the existing water supply capacity:
n/a

Is a water line extension required to serve this project? ☐ (not selected) ☒ Yes ☐ No

If yes, how much additional line (in miles) will be required?
+/- 0.4 miles (approx. 2,105 linear feet)

Wastewater Disposal

Name of wastewater treatment provider for this site: Fulton County

What is the estimated sewage flow to be generated by the project, measured in Millions of Gallons Per Day (MGD)? 0.274

Is sufficient wastewater treatment capacity available to serve this proposed project? ☐ (not selected) ☒ Yes ☐ No

If no, describe any plans to expand existing wastewater treatment capacity: n/a

Is a sewer line extension required to serve this project? ☐ (not selected) ☒ Yes ☐ No

If yes, how much additional line (in miles) will be required? +/- 0.275 miles (approx 1,455 linear feet)

Land Transportation

How much traffic volume is expected to be generated by the proposed development, in peak hour vehicle trips per day? (If only an alternative measure of volume is available, please provide.) AM: 1,647 / PM: 1,772 / DAILY: 12,356

Has a traffic study been performed to determine whether or not transportation or access improvements will be needed to serve this project? ☐ (not selected) ☒ Yes ☐ No

Are transportation improvements needed to serve this project? ☐ (not selected) ☒ Yes ☐ No

If yes, please describe below: Please refer to Traffic Impact Study for recommended improvements

Solid Waste Disposal

How much solid waste is the project expected to generate annually (in tons)? 34.4

Is sufficient landfill capacity available to serve this proposed project? ☐ (not selected) ☒ Yes ☐ No

If no, describe any plans to expand existing landfill capacity: n/a

Will any hazardous waste be generated by the development? ☐ (not selected) ☐ Yes ☒ No

If yes, please explain:

Stormwater Management

What percentage of the site is projected to be impervious surface once the proposed development has been constructed? +/- 66%

Describe any measures proposed (such as buffers, detention or retention ponds, pervious parking areas) to mitigate the project's impacts on stormwater management: Jurisdictional buffers required along Trib. #11 to Big Creek. Pervious parking in some low traffic areas. Water quantity and quality requirements per the Georgia Stormwater Management Manual.

Environmental Quality

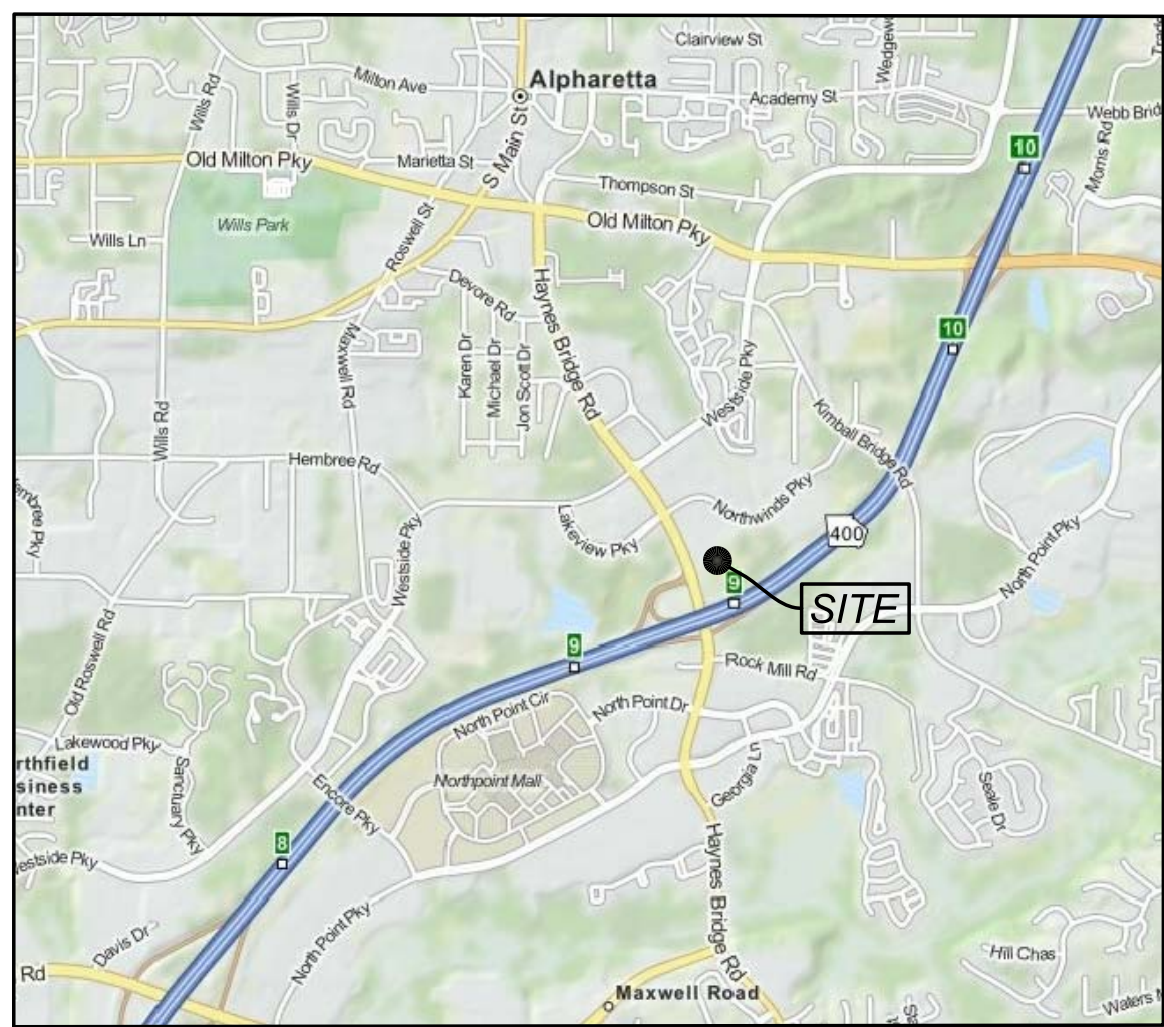
Is the development located within, or likely to affect any of the following:

1. Water supply watersheds? ☐ (not selected) ☒ Yes ☐ No
2. Significant groundwater recharge areas? ☐ (not selected) ☐ Yes ☒ No
3. Wetlands? ☐ (not selected) ☐ Yes ☒ No
4. Protected mountains? ☐ (not selected) ☐ Yes ☒ No
5. Protected river corridors? ☐ (not selected) ☐ Yes ☒ No
6. Floodplains? ☐ (not selected) ☒ Yes ☐ No
7. Historic resources? ☐ (not selected) ☐ Yes ☒ No
8. Other environmentally sensitive resources? ☐ (not selected) ☐ Yes ☒ No

If you answered yes to any question above, describe how the identified resource(s) may be affected:
100-yr floodplain to studied elevation of 1025. No proposed impacts from this development. Site stormwater discharges to Trib. #11 of Big Creek. Big Creek flows into the Chattahoochee River. Site development should not affect local water supply.

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[GRTA DRI Page](#) | [ARC DRI Page](#) | [RC Links](#) | [DCA DRI Page](#) | [Site Map](#) | [Statements](#) | [Contact](#)

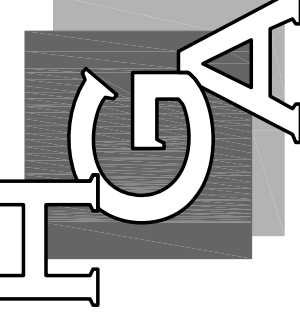


LOCATION MAP

1. OWNER/DEVELOPER — POPE & LAND ENTERPRISES, INC.
3330 CUMBERLAND BLVD, SUITE 300
ATLANTA, GEORGIA 30339
CONTACT: MR. KERRY ARMSTRONG
PHONE: 770-980-0808
2. CIVIL ENGINEER — HAINES, GIPSON & ASSOCIATES, INC.
1550 NORTH BROWN ROAD, SUITE 100
LAWRENCEVILLE, GA 30043
PHONE: (770) 491-7650
FAX: (770) 491-7750



HAINES GIPSON & ASSOCIATES
CONSULTING ENGINEERS
CIVIL & STRUCTURAL SERVICES
1550 NORTH BROWN ROAD, SUITE 100
LAWRENCEVILLE, GEORGIA 30043
PHONE: (770) 491-7650
FAX: (770) 491-7750



SEAL

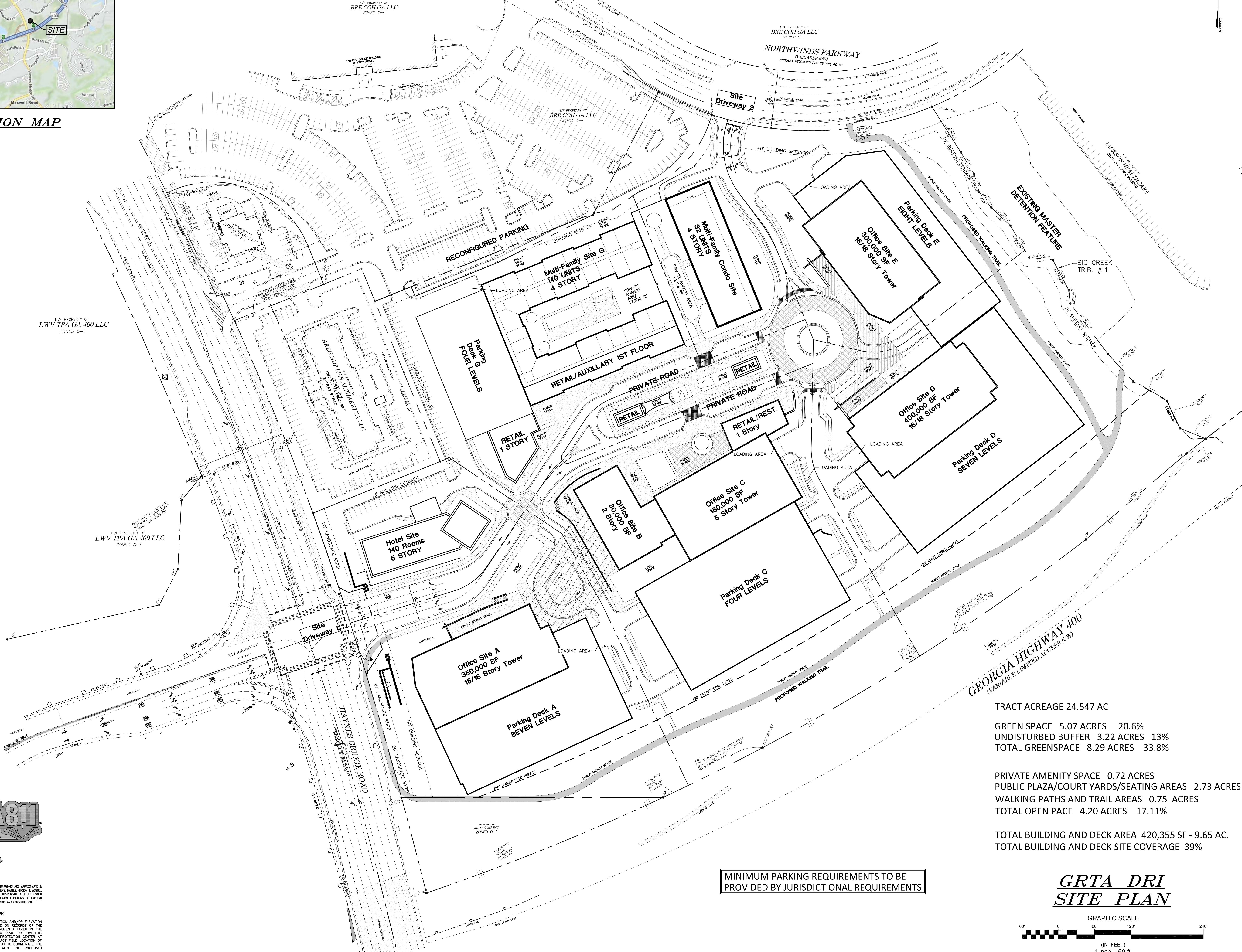
POPE & LAND
ENTERPRISES, INC.
3330 CUMBERLAND BLVD, SUITE 300
ATLANTA, GEORGIA 30339

NORTHWINDS SUMMIT
GEORGIA HWY. 400 AT HAYNES BRIDGE ROAD
CITY OF ALPHARETTA, FULTON COUNTY, GEORGIA
ZONED O & I
LL's 752, 753, 798, 799 DISTRICT 1, SEC. 2

NO.	DESCRIPTION	DATE	BY

DRAWN BY	CHECKED BY
RCL	RCL
DATE	04/07/2017
SHEET TITLE	GRTA DRI SITE PLAN
SHEET NUMBER	DRI-1

HGA JOB No. 2016-333



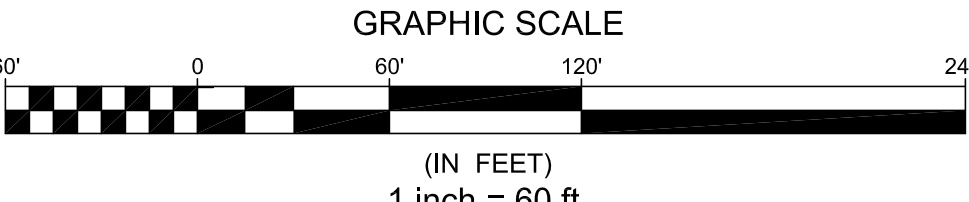
TRACT ACREAGE 24.547 AC
GREEN SPACE 5.07 ACRES 20.6%
UNDISTURBED BUFFER 3.22 ACRES 13%
TOTAL GREENSPACE 8.29 ACRES 33.8%

PRIVATE AMENITY SPACE 0.72 ACRES
PUBLIC PLAZA/COURT YARDS/SEATING AREAS 2.73 ACRES
WALKING PATHS AND TRAIL AREAS 0.75 ACRES
TOTAL OPEN SPACE 4.20 ACRES 17.11%

TOTAL BUILDING AND DECK AREA 420,355 SF - 9.65 AC.
TOTAL BUILDING AND DECK SITE COVERAGE 39%

MINIMUM PARKING REQUIREMENTS TO BE
PROVIDED BY JURISDICTIONAL REQUIREMENTS

GRTA DRI
SITE PLAN

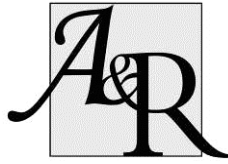


Know what's below.
Call before you dig.
Dial 811
Or Call 800-282-7411

THE LOCATION OF ALL UTILITIES SHOWN ON THESE DRAWINGS ARE APPROXIMATE & ARE BASED ON RECORDS OF THE UTILITY OWNERS. HAINES, GIPSON & ASSOCIATES, INC. DOES NOT GUARANTEE THAT LOCATIONS SHOWN ARE EXACT. IT SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY OR HIS AGENT AND/OR THE CONTRACTOR TO DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES HAVING OR BELOW GROUND & TO NOTIFY UTILITY OWNERS BEFORE BEGINNING ANY CONSTRUCTION.

CAUTION-NOTE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. GA. LAW REQUIRES THE CONTRACTOR TO CALL THE UTILITY PROTECTION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE RELOCATION OF ALL UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.



A&R Engineering Inc.

2160 Kingston Court, Suite O
Marietta, GA 30067
Tel: (770) 690-9255 Fax: (770) 690-9210
www.areng.com

Memorandum

To: Pope & Land Real Estate
From: Abdul K. Amer, PE, PTOE
Date: May 23, 2017
Subject: Additional Analysis for Northwinds Summit – Alpharetta, Georgia

At the request of the City of Alpharetta, a follow-up analysis has been completed for the Northwinds Summit DRI located on Haynes Bridge Road west of US 19/GA 400. The master plan for the Northwinds development was originally entitled to a total of 3,760,000 square feet of office and retail space along with 300 hotel rooms, 800 apartment units and 58 townhomes. As of 2017, the remaining entitlement for the Northwinds master plan consists of 1,964,900 square feet of office and retail space and 124 hotel rooms. The Northwinds Summit DRI (#2669) has a proposed density of 1,230,000 square feet of office space, 30,000 square feet of retail space, 140 hotel rooms, 140 apartment units, and 32 condominium units. Table 1, below, outlines the amount of density used in this analysis to determine the traffic impacts on the roadway network.

TABLE 1 — REMAINING DENSITY CALCULATIONS			
	Office/Retail	Hotel	Residential
Original Entitlements	3,760,000 sf	300 rooms	800 apts, 58 townhomes
Constructed Density	1,795,100 sf	176 rooms	800 apts, 58 townhomes
Remaining Entitlements	1,964,900 sf	124 rooms	-
Total Density Used in Analysis	2,464,900 sf	140 rooms	140 apts, 32 condos

The traffic generated by the additional density shown in Table 1 was added to the analysis completed for the DRI (#2669) study to determine any further improvements to the roadway network needed for the study intersections to operate acceptably. Table 2 shows a comparison of traffic operations at the study intersections between the DRI study and the additional analysis. This analysis includes all recommended system and site improvements as outlined in the DRI study.

TABLE 2 — FUTURE “BUILD” INTERSECTION OPERATIONS

Intersection		Build Condition: LOS (Delay)			
		SCENARIO FROM DRI STUDY		ADDED SCENARIO	
		AM Peak	PM Peak	AM Peak	PM Peak
1	<u>Haynes Bridge Rd @ GA 400 NB Ramps</u>	<u>D (51.0)</u>	<u>E (76.0)</u>	<u>E (68.4)</u>	<u>F (87.2)</u>
	-Eastbound Approach	D (51.9)	F (111.3)	E (73.1)	F (131.9)
	-Northbound Approach	E (57.1)	F (87.1)	E (79.2)	F (96.0)
	-Southbound Approach	D (42.4)	D (50.9)	D (48.8)	E (62.1)
2	<u>Haynes Bridge Rd @ GA 400 SB Ramps</u>	<u>D (49.5)</u>	<u>E (68.7)</u>	<u>F (85.6)</u>	<u>F (139.1)</u>
	-Eastbound Approach	F (95.0)	E (67.7)	F (127.8)	E (69.7)
	-Westbound Approach	E (72.9)	F (115.9)	E (72.2)	F (477.6)
	-Northbound Approach	C (25.7)	C (32.3)	C (32.8)	D (35.9)
	-Southbound Approach	D (52.1)	F (87.8)	F (143.6)	F (84.3)
3	<u>Haynes Bridge Rd @ Northwinds Pkwy</u>	<u>D (53.2)</u>	<u>E (77.9)</u>	<u>E (76.5)</u>	<u>F (87.3)</u>
	-Eastbound Approach	D (43.3)	F (182.9)	D (43.1)	F (156.6)
	-Westbound Approach	E (69.7)	E (62.3)	E (69.0)	E (67.5)
	-Northbound Approach	D (47.0)	D (47.6)	D (45.8)	E (76.2)
	-Southbound Approach	E (60.7)	D (48.7)	F (124.1)	E (67.5)
4	<u>Haynes Bridge Rd @ Westside Pkwy</u>	<u>E (57.5)</u>	<u>D (49.6)</u>	<u>E (67.6)</u>	<u>E (55.9)</u>
	-Eastbound Approach	D (44.1)	E (65.9)	D (45.5)	E (74.6)
	-Westbound Approach	E (68.7)	E (68.0)	F (91.4)	E (75.6)
	-Northbound Approach	D (46.2)	C (26.4)	D (53.9)	C (34.9)
	-Southbound Approach	E (67.0)	E (62.4)	E (72.8)	E (65.0)
5	<u>Kimball Bridge Rd @ Northwinds Pkwy</u>	<u>C (20.8)</u>	<u>C (20.2)</u>	<u>C (25.1)</u>	<u>C (24.0)</u>
	-Eastbound Left	C (20.0)	C (28.5)	C (23.7)	C (31.8)
	-Westbound Left	B (13.2)	B (16.3)	B (17.3)	B (19.4)
	-Northbound Approach	C (32.9)	C (20.1)	D (35.4)	C (24.4)
	-Southbound Approach	D (41.9)	C (33.4)	D (46.1)	D (37.5)
6	<u>Old Milton Pkwy @ Northwinds Pkwy Ext</u>	<u>D (41.1)</u>	<u>E (68.7)</u>	<u>D (45.2)</u>	<u>F (82.7)</u>
	-Eastbound Approach	D (41.3)	E (55.2)	D (43.0)	F (83.4)
	-Westbound Approach	C (33.0)	D (54.1)	D (39.1)	E (61.5)
	-Northbound Approach	E (76.4)	F (80.8)	E (76.3)	F (82.2)
	-Southbound Approach	F (106.5)	F (174.3)	F (106.5)	F (172.1)
7	<u>Northwinds Pkwy @ Site Drwy 2</u>				
	-Eastbound Approach	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	-Westbound Left	B (14.5)	A (8.3)	D (33.9)	A (8.5)
	-Northbound Approach	F (85.1)	E (36.4)	F (**)	F (673.6)

*Results beyond range

The results from Table 2 show an increase in overall delay at the study intersections located along Haynes Bridge Road. Recommended improvements to the study intersections are outlined below, with the improved results shown in Table 3.

Haynes Bridge Road at GA 400 Northbound Ramps

- Remove one eastbound right turn lane in order to accommodate a third left turn lane. The remaining single right turn lane should operate as a free-flow lane.

Haynes Bridge Road at GA 400 Southbound Ramps/Site Driveway

- Convert existing eastbound right turn protected + overlap signal phasing to permissive + overlap phasing for traffic turning onto Haynes Bridge Road from GA 400.
- Construct a second southbound right turn lane for traffic turning onto the GA 400 ramp from

Haynes Bridge Road.

- Reconfigure the existing driveway lane geometry to operate with dual left turns, one dedicated through lane, and one dedicated right turn lane.
- Install westbound permissive + overlap right turn signal phasing for traffic exiting the proposed development onto Haynes Bridge Road.

Haynes Bridge Road at Lakeview Parkway/Northwinds Parkway

- Construct a dedicated northbound right turn lane on Haynes Bridge Road for traffic turning onto Northwinds Parkway.
- Construct a second southbound left turn lane for traffic turning onto Northwinds Parkway from Haynes Bridge Road.

FUTURE "BUILD" INTERSECTION OPERATIONS			
Intersection		Build Condition: LOS (Delay)	
		IMPROVED SCENARIO	
		AM Peak	PM Peak
1	<u>Haynes Bridge Rd @ GA 400 NB Ramps</u>	<u>D (40.9)</u>	<u>E (73.4)</u>
	-Eastbound Approach	D (46.0)	F (130.2)
	-Northbound Approach	D (43.8)	E (68.7)
	-Southbound Approach	C (31.3)	D (54.2)
2	<u>Haynes Bridge Rd @ GA 400 SB Ramps</u>	<u>E (79.5)</u>	<u>F (81.6)</u>
	-Eastbound Approach	F (112.8)	F (114.8)
	-Westbound Approach	E (68.9)	F (191.8)
	-Northbound Approach	D (35.1)	C (32.4)
	-Southbound Approach	F (131.3)	E (61.7)
3	<u>Haynes Bridge Rd @ Northwinds Pkwy</u>	<u>D (43.9)</u>	<u>E (74.3)</u>
	-Eastbound Approach	D (41.4)	F (124.9)
	-Westbound Approach	F (82.2)	F (92.7)
	-Northbound Approach	D (44.4)	D (42.9)
	-Southbound Approach	C (35.0)	E (65.6)
4	<u>Haynes Bridge Rd @ Westside Pkwy</u>	<u>E (64.5)</u>	<u>E (55.1)</u>
	-Eastbound Approach	D (47.8)	E (64.4)
	-Westbound Approach	F (83.5)	F (85.8)
	-Northbound Approach	D (46.9)	C (34.8)
	-Southbound Approach	E (74.6)	E (64.9)
5	<u>Kimball Bridge Rd @ Northwinds Pkwy</u>	<u>C (25.1)</u>	<u>C (24.0)</u>
	-Eastbound Left	C (23.7)	C (31.8)
	-Westbound Left	B (17.3)	B (19.4)
	-Northbound Approach	D (35.4)	C (24.4)
	-Southbound Approach	D (46.1)	D (37.5)
6	<u>Old Milton Pkwy @ Northwinds Pkwy Ext</u>	<u>D (45.2)</u>	<u>E (75.4)</u>
	-Eastbound Approach	D (43.0)	E (67.1)
	-Westbound Approach	D (39.1)	E (58.8)
	-Northbound Approach	E (76.3)	F (81.5)
	-Southbound Approach	F (106.5)	F (173.2)
7	<u>Northwinds Pkwy @ Site Drwy 2</u>		
	-Eastbound Approach	A (0.0)	A (0.0)
	-Westbound Left	D (33.9)	A (8.5)
	-Northbound Approach	F (**)	F (673.6)

The results indicate that the driveway approach to Northwinds Parkway is experiencing heavy delays during the AM and PM peak hours. In discussions with the City of Alpharetta, this intersection may warrant installation of a traffic signal after full buildout of the development and if shown to be warranted by a signal warrant study.

APPENDIX

**“BUILD” INTERSECTION ANALYSIS (WITH IMPROVEMENTS)
FROM DRI STUDY**

Queues

Future Build AM - Improved

1: Haynes Bridge Rd & GA 400 NB Ramps

05/15/2017



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1419	457	1531	619	259	1462
Future Volume (vph)	1419	457	1531	619	259	1462
Lane Group Flow (vph)	1494	491	1664	652	282	1589
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0	15.0	7.0	15.0
Minimum Split (s)	15.0	15.0	33.0	33.0	14.0	33.0
Total Split (s)	78.0	78.0	62.0	62.0	20.0	82.0
Total Split (%)	48.8%	48.8%	38.8%	38.8%	12.5%	51.3%
Yellow Time (s)	3.8	3.8	4.9	4.9	3.6	4.9
All-Red Time (s)	2.3	2.3	1.9	1.9	2.4	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.8	6.8	6.0	6.8
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	Min	C-Min
v/c Ratio	0.97	0.38	0.95	0.54	0.94	0.66
Control Delay	59.7	25.6	62.9	19.6	104.4	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	25.6	62.9	19.6	104.4	31.9
Queue Length 50th (ft)	777	162	621	137	149	523
Queue Length 95th (ft)	#943	214	#719	206	#248	591
Internal Link Dist (ft)			688			809
Turn Bay Length (ft)	500	500		220	340	
Base Capacity (vph)	1542	1292	1757	1198	300	2392
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.38	0.95	0.54	0.94	0.66

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 90 (56%), Referenced to phase 2:SBT and 6:NBT, Start of Green

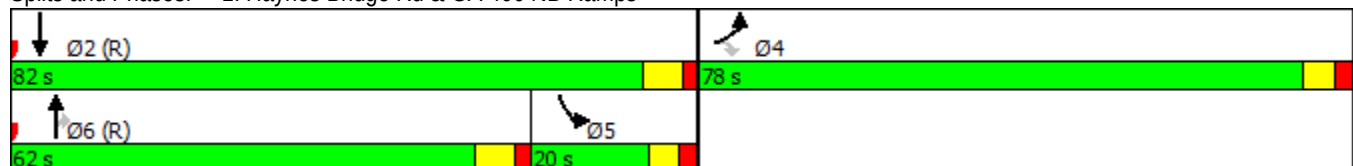
Natural Cycle: 120

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Haynes Bridge Rd & GA 400 NB Ramps



HCM Signalized Intersection Capacity Analysis

Future Build AM - Improved

1: Haynes Bridge Rd & GA 400 NB Ramps

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 					  	 	 	  	
Traffic Volume (vph)	1419	0	457	0	0	0	0	1531	619	259	1462	0
Future Volume (vph)	1419	0	457	0	0	0	0	1531	619	259	1462	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Lane Util. Factor	0.97		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		2787					5085	2787	3433	5085	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		2787					5085	2787	3433	5085	
Peak-hour factor, PHF	0.95	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	1494	0	491	0	0	0	0	1664	652	282	1589	0
RTOR Reduction (vph)	0	0	40	0	0	0	0	0	236	0	0	0
Lane Group Flow (vph)	1494	0	451	0	0	0	0	1664	416	282	1589	0
Turn Type	Prot		Perm					NA	Perm	Prot	NA	
Protected Phases	4							6		5	2	
Permitted Phases			4						6			
Actuated Green, G (s)	71.8		71.8					55.3	55.3	14.0	75.3	
Effective Green, g (s)	71.8		71.8					55.3	55.3	14.0	75.3	
Actuated g/C Ratio	0.45		0.45					0.35	0.35	0.09	0.47	
Clearance Time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Vehicle Extension (s)	3.0		3.0					5.1	5.1	4.1	5.1	
Lane Grp Cap (vph)	1540		1250					1757	963	300	2393	
v/s Ratio Prot	c0.44							c0.33		c0.08	0.31	
v/s Ratio Perm			0.16						0.15			
v/c Ratio	0.97		0.36					0.95	0.43	0.94	0.66	
Uniform Delay, d1	43.1		29.0					50.9	40.3	72.6	32.6	
Progression Factor	1.00		1.00					1.00	1.00	0.96	0.93	
Incremental Delay, d2	16.3		0.2					12.1	1.4	33.5	1.3	
Delay (s)	59.4		29.2					63.1	41.7	103.3	31.7	
Level of Service	E		C					E	D	F	C	
Approach Delay (s)		51.9			0.0			57.1			42.4	
Approach LOS		D			A			E			D	
Intersection Summary												
HCM 2000 Control Delay			51.0		HCM 2000 Level of Service				D			
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			160.0		Sum of lost time (s)				18.9			
Intersection Capacity Utilization			91.5%		ICU Level of Service				F			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Improved

2: Haynes Bridge Rd & GA 400 SB Ramps

05/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	554	136	548	97	45	150	2158	515	234	998	527
Future Volume (vph)	554	136	548	97	45	150	2158	515	234	998	527
Lane Group Flow (vph)	373	377	596	105	102	163	2272	560	254	1085	573
Turn Type	Split	NA	pt+ov	Split	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	3 1	4	4	1	6		5	2	3
Permitted Phases								6			2
Detector Phase	3	3	3 1	4	4	1	6	6	5	2	3
Switch Phase											
Minimum Initial (s)	5.0	5.0		5.0	5.0	6.0	15.0	15.0	6.0	15.0	5.0
Minimum Split (s)	43.0	43.0		44.0	44.0	12.0	51.4	51.4	12.0	51.4	43.0
Total Split (s)	39.0	39.0		43.0	43.0	26.0	55.0	55.0	23.0	52.0	39.0
Total Split (%)	24.4%	24.4%		26.9%	26.9%	16.3%	34.4%	34.4%	14.4%	32.5%	24.4%
Yellow Time (s)	4.0	4.0		3.4	3.4	3.0	4.4	4.4	3.3	4.4	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	2.8	1.7	1.7	2.6	1.7	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		6.4	6.4	5.8	6.1	6.1	5.9	6.1	7.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	1.05	1.10	0.64	0.48	0.39	0.34	0.95	0.65	1.34	0.49	0.46
Control Delay	122.2	135.0	36.8	79.0	39.9	46.3	27.4	10.7	216.7	27.7	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	122.2	135.0	36.8	79.0	39.9	46.3	27.4	10.7	216.7	27.7	2.0
Queue Length 50th (ft)	~425	~468	237	55	26	74	602	194	~349	362	0
Queue Length 95th (ft)	#639	#693	285	88	58	m79	m#953	m212	m#529	434	57
Internal Link Dist (ft)		420			220		809			959	
Turn Bay Length (ft)			250			385		225	300		360
Base Capacity (vph)	354	343	930	785	787	484	2389	859	189	2218	1253
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	1.10	0.64	0.13	0.13	0.34	0.95	0.65	1.34	0.49	0.46

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 105 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

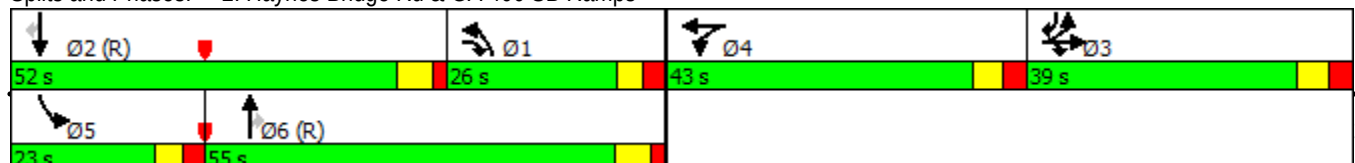
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Haynes Bridge Rd & GA 400 SB Ramps



HCM Signalized Intersection Capacity Analysis

2: Haynes Bridge Rd & GA 400 SB Ramps

Future Build AM - Improved

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	554	136	548	97	45	48	150	2158	515	234	998	527
Future Volume (vph)	554	136	548	97	45	48	150	2158	515	234	998	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.4	6.4		5.8	6.1	6.1	5.9	6.1	7.0
Lane Util. Factor	*1.00	0.95	0.88	0.97	0.95		0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1717	2787	3433	3263		3433	5085	1583	1770	5085	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1717	2787	3433	3263		3433	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	602	148	596	105	49	53	163	2272	560	254	1085	573
RTOR Reduction (vph)	0	0	0	0	50	0	0	0	116	0	0	208
Lane Group Flow (vph)	373	377	596	105	52	0	163	2272	444	254	1085	365
Turn Type	Split	NA	pt+ov	Split	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	3 1	4	4		1	6		5	2	3
Permitted Phases									6			2
Actuated Green, G (s)	32.0	32.0	54.6	10.3	10.3		22.6	75.2	75.2	17.1	69.8	101.8
Effective Green, g (s)	32.0	32.0	54.6	10.3	10.3		22.6	75.2	75.2	17.1	69.8	101.8
Actuated g/C Ratio	0.20	0.20	0.34	0.06	0.06		0.14	0.47	0.47	0.11	0.44	0.64
Clearance Time (s)	7.0	7.0		6.4	6.4		5.8	6.1	6.1	5.9	6.1	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	3.0
Lane Grp Cap (vph)	354	343	951	220	210		484	2389	744	189	2218	1076
v/s Ratio Prot	0.21	c0.22	0.21	c0.03	0.02		0.05	c0.45		c0.14	0.21	0.07
v/s Ratio Perm									0.28			0.16
v/c Ratio	1.05	1.10	0.63	0.48	0.25		0.34	0.95	0.60	1.34	0.49	0.34
Uniform Delay, d1	64.0	64.0	44.2	72.3	71.2		61.9	40.6	31.2	71.5	32.3	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.72	0.56	0.49	0.64	0.84	1.58
Incremental Delay, d2	62.6	77.9	1.3	1.6	0.6		0.1	3.9	1.1	179.8	0.6	0.1
Delay (s)	126.6	141.9	45.5	73.9	71.8		44.9	26.7	16.4	225.5	27.6	21.5
Level of Service	F	F	D	E	E		D	C	B	F	C	C
Approach Delay (s)		95.0			72.9			25.7			52.1	
Approach LOS		F			E			C			D	
Intersection Summary												
HCM 2000 Control Delay			49.5			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			25.4			
Intersection Capacity Utilization			98.9%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Improved

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

05/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	43	162	300	67	204	117	945	1294	454	1298	146
Future Volume (vph)	43	162	300	67	204	117	945	1294	454	1298	146
Lane Group Flow (vph)	57	180	326	120	270	131	1005	1920	504	1366	162
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm
Protected Phases	3	8	5	7	4		5	2	1	6	
Permitted Phases	8		8			4			6		6
Detector Phase	3	8	5	7	4	4	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	11.0	49.4	11.0	11.2	47.4	47.4	11.0	42.7	11.4	37.7	37.7
Total Split (s)	14.4	44.4	50.0	17.0	47.0	47.0	50.0	60.6	38.0	48.6	48.6
Total Split (%)	9.0%	27.8%	31.3%	10.6%	29.4%	29.4%	31.3%	37.9%	23.8%	30.4%	30.4%
Yellow Time (s)	4.2	4.4	3.2	3.2	4.4	4.4	3.2	4.5	3.4	4.5	4.5
All-Red Time (s)	3.0	3.0	2.8	3.0	3.0	3.0	2.8	2.2	3.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.4	6.7	6.7
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio	0.31	0.64	0.24	0.59	0.80	0.31	1.06	0.91	1.27	0.77	0.25
Control Delay	63.0	73.2	15.6	85.5	79.2	4.8	75.7	30.1	163.2	28.7	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	73.2	15.6	85.5	79.2	4.8	75.7	30.1	163.2	28.7	0.9
Queue Length 50th (ft)	53	179	71	63	288	0	~587	722	~555	203	0
Queue Length 95th (ft)	77	251	96	60	327	11	m#620	m#848	m#775	m412	m0
Internal Link Dist (ft)		469			1131			959		721	
Turn Bay Length (ft)	90		150			150	225		200		180
Base Capacity (vph)	213	430	1377	231	435	494	944	2107	398	1780	660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.42	0.24	0.52	0.62	0.27	1.06	0.91	1.27	0.77	0.25

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 14 (9%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

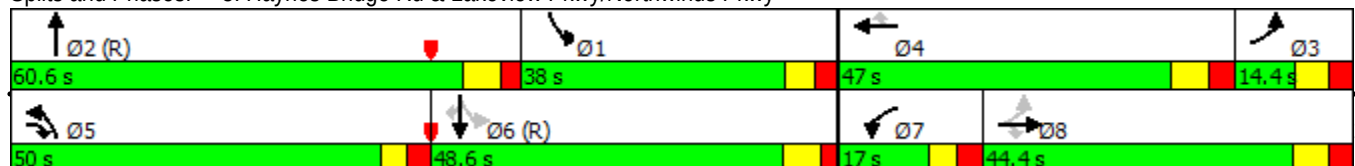
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy



HCM Signalized Intersection Capacity Analysis

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

Future Build AM - Improved

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	162	300	67	204	117	945	1294	513	454	1298	146
Future Volume (vph)	43	162	300	67	204	117	945	1294	513	454	1298	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7		6.4	6.7	6.7
Lane Util. Factor	1.00	1.00	0.88	0.97	0.95	0.95	0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	2787	3433	1755	1504	3433	4864		1770	5085	1583
Flt Permitted	0.55	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.17	1.00	1.00
Satd. Flow (perm)	1028	1863	2787	3433	1755	1504	3433	4864		320	5085	1583
Peak-hour factor, PHF	0.75	0.90	0.92	0.56	0.80	0.80	0.94	0.95	0.92	0.90	0.95	0.90
Adj. Flow (vph)	57	180	326	120	255	146	1005	1362	558	504	1366	162
RTOR Reduction (vph)	0	0	64	0	2	106	0	41	0	0	0	107
Lane Group Flow (vph)	57	180	262	120	268	25	1005	1879	0	504	1366	55
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA		pm+pt	NA	Perm
Protected Phases	3	8	5	7	4		5	2		1	6	
Permitted Phases	8		8			4				6		6
Actuated Green, G (s)	25.9	25.7	69.7	9.4	30.5	30.5	44.0	66.6		54.9	54.6	54.6
Effective Green, g (s)	25.9	25.7	69.7	9.4	30.5	30.5	44.0	66.6		54.9	54.6	54.6
Actuated g/C Ratio	0.16	0.16	0.44	0.06	0.19	0.19	0.28	0.42		0.34	0.34	0.34
Clearance Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7		6.4	6.7	6.7
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	183	299	1214	201	334	286	944	2024		396	1735	540
v/s Ratio Prot	0.01	c0.10	0.06	0.03	c0.15		c0.29	0.39		c0.25	0.27	
v/s Ratio Perm	0.04		0.03			0.02				c0.19		0.03
v/c Ratio	0.31	0.60	0.22	0.60	0.80	0.09	1.06	0.93		1.27	0.79	0.10
Uniform Delay, d1	60.4	62.4	28.1	73.5	61.9	53.3	58.0	44.4		54.3	47.5	36.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.63		0.61	0.56	0.08
Incremental Delay, d2	0.4	2.9	0.0	3.2	12.7	0.1	36.6	3.2		133.4	2.1	0.2
Delay (s)	60.8	65.3	28.2	76.6	74.6	53.4	76.8	31.4		166.3	28.6	2.9
Level of Service	E	E	C	E	E	D	E	C		F	C	A
Approach Delay (s)		43.3			69.7			47.0			60.7	
Approach LOS		D			E			D			E	
Intersection Summary												
HCM 2000 Control Delay			53.2				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			27.7		
Intersection Capacity Utilization			101.1%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Improved

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

05/15/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	520	359	309	1213	45	568	848	147	59	1210	216
Future Volume (vph)	83	520	359	309	1213	45	568	848	147	59	1210	216
Lane Group Flow (vph)	92	565	390	336	1251	49	617	893	155	66	1247	232
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2	6		6
Detector Phase	3	8	5	7	4	4	5	2	2	1	6	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0	4.0	10.0	5.0
Minimum Split (s)	11.6	51.7	11.4	11.4	51.7	51.7	11.4	38.7	38.7	11.0	51.7	11.6
Total Split (s)	14.0	51.0	34.0	27.0	64.0	64.0	34.0	60.0	60.0	22.0	48.0	14.0
Total Split (%)	8.8%	31.9%	21.3%	16.9%	40.0%	40.0%	21.3%	37.5%	37.5%	13.8%	30.0%	8.8%
Yellow Time (s)	3.6	3.9	3.4	3.4	3.9	3.9	3.4	4.7	4.7	3.5	4.7	3.6
All-Red Time (s)	3.0	2.8	3.0	3.0	2.8	2.8	3.0	1.8	1.8	2.8	1.8	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	0.72	0.58	0.47	0.90	0.99	0.07	1.04	0.46	0.22	0.28	0.95	0.36
Control Delay	61.3	52.6	20.5	59.9	72.9	0.2	97.4	14.9	2.0	28.6	72.6	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	52.6	20.5	59.9	72.9	0.2	97.4	14.9	2.0	28.6	72.6	14.5
Queue Length 50th (ft)	56	269	187	237	684	0	~349	186	20	37	473	55
Queue Length 95th (ft)	#133	334	280	#368	#844	0	m#424	m184	m17	68	#564	130
Internal Link Dist (ft)		761			667			721			604	
Turn Bay Length (ft)	200		200	165		200	250		260	350		160
Base Capacity (vph)	128	979	834	372	1267	666	592	1953	705	322	1319	649
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.58	0.47	0.90	0.99	0.07	1.04	0.46	0.22	0.20	0.95	0.36

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 3 (2%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

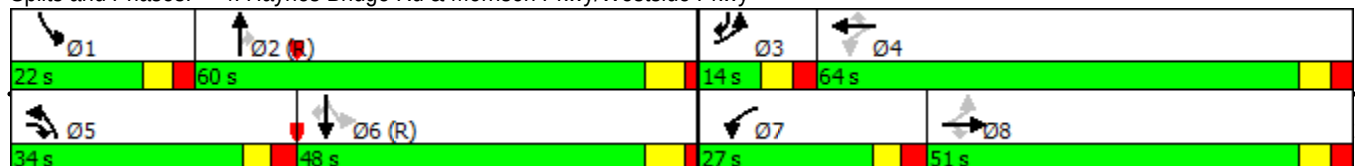
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy



HCM Signalized Intersection Capacity Analysis

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

Future Build AM - Improved

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	520	359	309	1213	45	568	848	147	59	1210	216
Future Volume (vph)	83	520	359	309	1213	45	568	848	147	59	1210	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.09	1.00	1.00	0.24	1.00	1.00	0.95	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)	168	3539	1583	454	3539	1583	3433	5085	1583	571	5085	1583
Peak-hour factor, PHF	0.90	0.92	0.92	0.92	0.97	0.92	0.92	0.95	0.95	0.90	0.97	0.93
Adj. Flow (vph)	92	565	390	336	1251	49	617	893	155	66	1247	232
RTOR Reduction (vph)	0	0	62	0	0	31	0	0	96	0	0	108
Lane Group Flow (vph)	92	565	328	336	1251	18	617	893	59	66	1247	124
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2	6		6
Actuated Green, G (s)	51.7	44.3	71.9	71.3	57.3	57.3	27.6	61.4	61.4	49.3	41.5	48.9
Effective Green, g (s)	51.7	44.3	71.9	71.3	57.3	57.3	27.6	61.4	61.4	49.3	41.5	48.9
Actuated g/C Ratio	0.32	0.28	0.45	0.45	0.36	0.36	0.17	0.38	0.38	0.31	0.26	0.31
Clearance Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Vehicle Extension (s)	2.5	2.5	3.0	2.5	2.5	2.5	3.0	5.5	5.5	2.0	5.5	2.5
Lane Grp Cap (vph)	128	979	711	371	1267	566	592	1951	607	234	1318	483
v/s Ratio Prot	0.03	0.16	0.08	c0.12	c0.35		c0.18	0.18		0.01	c0.25	0.01
v/s Ratio Perm	0.20		0.13	0.29		0.01			0.04	0.07		0.07
v/c Ratio	0.72	0.58	0.46	0.91	0.99	0.03	1.04	0.46	0.10	0.28	0.95	0.26
Uniform Delay, d1	43.9	49.8	30.6	33.2	51.0	33.3	66.2	36.9	31.6	39.8	58.2	41.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.39	0.36	1.00	1.00	1.00
Incremental Delay, d2	16.4	0.7	0.5	24.7	22.0	0.0	40.4	0.5	0.2	0.2	14.9	0.2
Delay (s)	60.3	50.5	31.1	58.0	73.0	33.3	100.4	14.7	11.6	40.0	73.0	42.1
Level of Service	E	D	C	E	E	C	F	B	B	D	E	D
Approach Delay (s)		44.1			68.7			46.2			67.0	
Approach LOS		D			E			D			E	
Intersection Summary												
HCM 2000 Control Delay			57.5				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			26.2		
Intersection Capacity Utilization			99.5%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Improved

5: Northwinds Pkwy/Northwinds Extension & Kimball Bridge Rd

05/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	Ø7
Lane Configurations	↰	↱	↰	↰	↱	↰	↱	↱	
Traffic Volume (vph)	4	594	273	313	268	40	21	106	
Future Volume (vph)	4	594	273	313	268	40	21	106	
Lane Group Flow (vph)	8	612	303	337	298	80	165	122	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	NA	
Protected Phases	5	2		1	6	3	8	4	7
Permitted Phases	2		2	6		8			
Detector Phase	5	2	2	1	6	3	8	4	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	24.0	11.0	24.0	11.0	24.0	24.0	11.0
Total Split (s)	11.0	58.0	58.0	27.0	74.0	11.0	24.0	24.0	11.0
Total Split (%)	9.2%	48.3%	48.3%	22.5%	61.7%	9.2%	20.0%	20.0%	9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	Min	None
v/c Ratio	0.01	0.74	0.38	0.70	0.25	0.40	0.24	0.35	
Control Delay	7.2	28.4	8.1	16.4	8.2	41.7	10.2	46.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.2	28.4	8.1	16.4	8.2	41.7	10.2	46.2	
Queue Length 50th (ft)	1	289	37	75	64	41	5	36	
Queue Length 95th (ft)	3	493	107	153	146	51	36	74	
Internal Link Dist (ft)		801			544		923	1121	
Turn Bay Length (ft)	130		160	130		150			
Base Capacity (vph)	581	1145	1048	607	1423	202	825	751	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.01	0.53	0.29	0.56	0.21	0.40	0.20	0.16	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 91.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Northwinds Pkwy/Northwinds Extension & Kimball Bridge Rd

Ø1	Ø2	Ø3	Ø4
27 s	58 s	11 s	24 s
Ø5	Ø6	Ø7	Ø8
11 s	74 s	11 s	24 s

HCM Signalized Intersection Capacity Analysis

5: Northwinds Pkwy/Northwinds Extension & Kimball Bridge Rd

Future Build AM - Improved

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	594	273	313	268	0	40	21	128	0	106	1
Future Volume (vph)	4	594	273	313	268	0	40	21	128	0	106	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95			0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.87			1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863		1770	3082			3522	
Flt Permitted	0.58	1.00	1.00	0.21	1.00		0.40	1.00			1.00	
Satd. Flow (perm)	1077	1863	1583	398	1863		754	3082			3522	
Peak-hour factor, PHF	0.50	0.97	0.90	0.93	0.90	0.92	0.50	0.92	0.90	0.92	0.90	0.25
Adj. Flow (vph)	8	612	303	337	298	0	80	23	142	0	118	4
RTOR Reduction (vph)	0	0	102	0	0	0	0	115	0	0	2	0
Lane Group Flow (vph)	8	612	201	337	298	0	80	50	0	0	120	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	46.6	45.8	45.8	66.0	59.2		18.7	18.7			9.0	
Effective Green, g (s)	46.6	45.8	45.8	66.0	59.2		18.7	18.7			9.0	
Actuated g/C Ratio	0.48	0.47	0.47	0.68	0.61		0.19	0.19			0.09	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	524	882	749	473	1140		184	596			327	
v/s Ratio Prot	0.00	0.33		c0.10	0.16		c0.02	0.02			0.03	
v/s Ratio Perm	0.01		0.13	c0.38			c0.07					
v/c Ratio	0.02	0.69	0.27	0.71	0.26		0.43	0.08			0.37	
Uniform Delay, d1	13.0	20.0	15.3	12.1	8.7		33.1	32.0			41.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	2.4	0.2	5.0	0.1		1.6	0.1			0.7	
Delay (s)	13.0	22.3	15.5	17.2	8.8		34.8	32.0			41.9	
Level of Service	B	C	B	B	A		C	C			D	
Approach Delay (s)		20.0			13.2			32.9			41.9	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			20.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			96.7			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			72.5%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Improved

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

05/15/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					 		
Traffic Volume (vph)	140	1468	41	530	2061	321	38	32	85	100	5	37
Future Volume (vph)	140	1468	41	530	2061	321	38	32	85	100	5	37
Lane Group Flow (vph)	175	1596	55	576	2216	357	68	64	202	109	20	77
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	5.0	8.0	8.0	6.0	8.0	8.0
Minimum Split (s)	13.0	30.7	30.7	13.0	36.7	36.7	11.0	43.0	43.0	13.0	43.0	43.0
Total Split (s)	23.0	60.0	60.0	55.0	92.0	92.0	11.0	43.0	43.0	13.0	45.0	45.0
Total Split (%)	13.5%	35.1%	35.1%	32.2%	53.8%	53.8%	6.4%	25.1%	25.1%	7.6%	26.3%	26.3%
Yellow Time (s)	4.0	4.7	4.7	4.0	4.7	4.7	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	1.8	1.8	3.0	1.8	1.8	2.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.86	0.69	0.07	1.03	0.67	0.33	0.44	0.51	0.69	0.91	0.14	0.29
Control Delay	83.8	39.2	0.2	93.5	20.1	9.5	75.3	90.5	21.0	139.8	73.8	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.8	39.2	0.2	93.5	20.1	9.5	75.3	90.5	21.0	139.8	73.8	2.8
Queue Length 50th (ft)	126	513	0	~613	547	107	69	71	0	63	21	0
Queue Length 95th (ft)	#189	597	0	#867	640	179	72	66	0	#129	14	0
Internal Link Dist (ft)		555			792			972			387	
Turn Bay Length (ft)	235		150	330		145	400			200		100
Base Capacity (vph)	222	2318	805	559	3321	1077	153	392	492	120	414	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.69	0.07	1.03	0.67	0.33	0.44	0.16	0.41	0.91	0.05	0.16

Intersection Summary

Cycle Length: 171

Actuated Cycle Length: 171

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

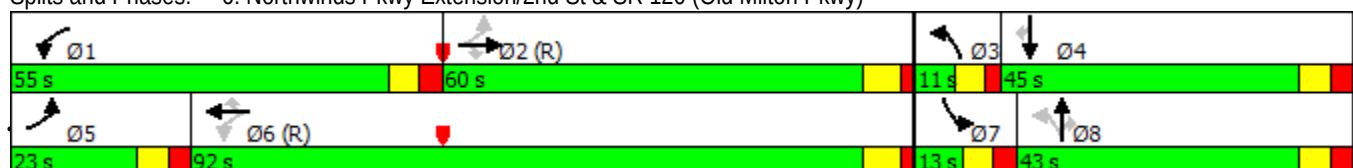
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)



HCM Signalized Intersection Capacity Analysis

Future Build AM - Improved

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					 		
Traffic Volume (vph)	140	1468	41	530	2061	321	38	32	85	100	5	37
Future Volume (vph)	140	1468	41	530	2061	321	38	32	85	100	5	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.07	1.00	1.00	0.07	1.00	1.00	0.74	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	124	5085	1583	128	5085	1583	1386	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.80	0.92	0.75	0.92	0.93	0.90	0.56	0.50	0.42	0.92	0.25	0.48
Adj. Flow (vph)	175	1596	55	576	2216	357	68	64	202	109	20	77
RTOR Reduction (vph)	0	0	30	0	0	44	0	0	188	0	0	71
Lane Group Flow (vph)	175	1596	25	576	2216	313	68	64	14	109	20	6
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	92.3	78.0	78.0	133.0	111.7	111.7	16.5	11.5	11.5	6.0	13.5	13.5
Effective Green, g (s)	92.3	78.0	78.0	133.0	111.7	111.7	16.5	11.5	11.5	6.0	13.5	13.5
Actuated g/C Ratio	0.54	0.46	0.46	0.78	0.65	0.65	0.10	0.07	0.07	0.04	0.08	0.08
Clearance Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	204	2319	722	560	3321	1034	144	125	106	120	147	124
v/s Ratio Prot	0.07	0.31		c0.29	0.44		0.01	c0.03		c0.03	0.01	
v/s Ratio Perm	0.39		0.02	c0.51		0.20	0.03		0.01			0.00
v/c Ratio	0.86	0.69	0.03	1.03	0.67	0.30	0.47	0.51	0.13	0.91	0.14	0.05
Uniform Delay, d1	43.5	36.9	25.7	52.2	18.2	12.8	72.6	77.0	75.0	82.2	73.3	72.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.1	1.7	0.1	45.5	1.1	0.8	2.4	3.5	0.5	54.0	0.4	0.2
Delay (s)	71.6	38.6	25.8	97.8	19.3	13.6	75.1	80.5	75.6	136.3	73.7	73.0
Level of Service	E	D	C	F	B	B	E	F	E	F	E	E
Approach Delay (s)		41.3			33.0			76.4			106.5	
Approach LOS		D			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			41.1									D
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			171.0									27.5
Intersection Capacity Utilization			84.3%									E
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Northwinds Pkwy

Future Build AM - Improved
05/15/2017

	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗	
Traffic Volume (veh/h)	765	230	243	299	49	58	
Future Volume (Veh/h)	765	230	243	299	49	58	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	832	250	264	325	53	63	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						8	
Median type	None			None			
Median storage veh							
Upstream signal (ft)	1211						
pX, platoon unblocked							
vC, conflicting volume			1082		1522	416	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1082		1522	416	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			59		17	89	
cM capacity (veh/h)			640		64	585	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	416	416	250	264	162	162	116
Volume Left	0	0	0	264	0	0	53
Volume Right	0	0	250	0	0	0	63
cSH	1700	1700	1700	640	1700	1700	140
Volume to Capacity	0.24	0.24	0.15	0.41	0.10	0.10	0.83
Queue Length 95th (ft)	0	0	0	50	0	0	131
Control Delay (s)	0.0	0.0	0.0	14.5	0.0	0.0	85.1
Lane LOS				B			F
Approach Delay (s)	0.0			6.5			85.1
Approach LOS							F
Intersection Summary							
Average Delay			7.7				
Intersection Capacity Utilization			47.9%	ICU Level of Service			A
Analysis Period (min)			15				

Queues

Future Build PM - Improved

05/15/2017

1: Haynes Bridge Rd & GA 400 NB Ramps



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1046	410	1943	934	956	2371
Future Volume (vph)	1046	410	1943	934	956	2371
Lane Group Flow (vph)	1078	432	2003	973	996	2444
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0	15.0	7.0	15.0
Minimum Split (s)	15.0	15.0	33.0	33.0	14.0	33.0
Total Split (s)	50.0	50.0	64.0	64.0	46.0	110.0
Total Split (%)	31.3%	31.3%	40.0%	40.0%	28.8%	68.8%
Yellow Time (s)	3.8	3.8	4.9	4.9	3.6	4.9
All-Red Time (s)	2.3	2.3	1.9	1.9	2.4	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.8	6.8	6.0	6.8
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	Min	C-Min
v/c Ratio	1.15	0.53	1.10	0.76	1.16	0.75
Control Delay	128.8	43.3	102.2	27.3	124.3	17.8
Queue Delay	0.0	0.0	0.1	0.0	0.0	3.8
Total Delay	128.8	43.3	102.3	27.3	124.3	21.6
Queue Length 50th (ft)	~678	182	~868	287	~634	765
Queue Length 95th (ft)	#815	246	#958	384	m#619	m756
Internal Link Dist (ft)			688			809
Turn Bay Length (ft)	500	500		220	340	
Base Capacity (vph)	941	816	1817	1288	858	3279
Starvation Cap Reductn	0	0	0	0	0	738
Spillback Cap Reductn	0	0	54	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.53	1.14	0.76	1.16	0.96

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 93 (58%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

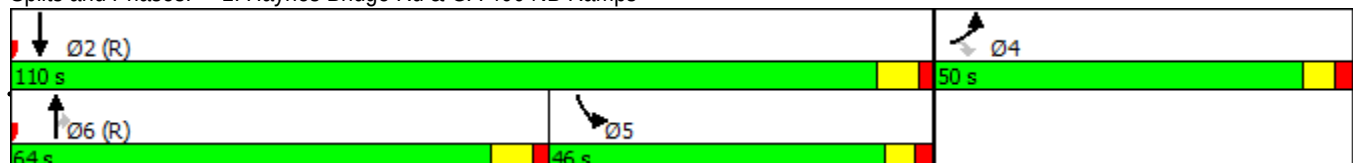
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Haynes Bridge Rd & GA 400 NB Ramps



HCM Signalized Intersection Capacity Analysis

Future Build PM - Improved

1: Haynes Bridge Rd & GA 400 NB Ramps

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1046	0	410	0	0	0	0	1943	934	956	2371	0
Future Volume (vph)	1046	0	410	0	0	0	0	1943	934	956	2371	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Lane Util. Factor	0.97		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		2787					5085	2787	3433	5085	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		2787					5085	2787	3433	5085	
Peak-hour factor, PHF	0.97	0.92	0.95	0.92	0.92	0.92	0.92	0.97	0.96	0.96	0.97	0.92
Adj. Flow (vph)	1078	0	432	0	0	0	0	2003	973	996	2444	0
RTOR Reduction (vph)	0	0	52	0	0	0	0	0	292	0	0	0
Lane Group Flow (vph)	1078	0	380	0	0	0	0	2003	681	996	2444	0
Turn Type	Prot		Perm					NA	Perm	Prot	NA	
Protected Phases	4							6		5	2	
Permitted Phases			4						6			
Actuated Green, G (s)	43.9		43.9					57.2	57.2	40.0	103.2	
Effective Green, g (s)	43.9		43.9					57.2	57.2	40.0	103.2	
Actuated g/C Ratio	0.27		0.27					0.36	0.36	0.25	0.65	
Clearance Time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Vehicle Extension (s)	3.0		3.0					5.1	5.1	4.1	5.1	
Lane Grp Cap (vph)	941		764					1817	996	858	3279	
v/s Ratio Prot	c0.31							c0.39		c0.29	0.48	
v/s Ratio Perm			0.14						0.24			
v/c Ratio	1.15		0.50					1.10	0.68	1.16	0.75	
Uniform Delay, d1	58.0		48.8					51.4	43.7	60.0	19.4	
Progression Factor	1.00		1.00					1.00	1.00	0.98	0.90	
Incremental Delay, d2	78.1		0.5					55.0	3.8	73.7	0.1	
Delay (s)	136.2		49.3					106.4	47.5	132.5	17.6	
Level of Service	F		D					F	D	F	B	
Approach Delay (s)		111.3			0.0			87.1			50.9	
Approach LOS		F			A			F			D	
Intersection Summary												
HCM 2000 Control Delay			76.0									
HCM 2000 Volume to Capacity ratio			1.13									
Actuated Cycle Length (s)			160.0									
Intersection Capacity Utilization			108.7%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

2: Haynes Bridge Rd & GA 400 SB Ramps

05/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	235	42	651	465	204	643	2139	177	89	2172	1133
Future Volume (vph)	235	42	651	465	204	643	2139	177	89	2172	1133
Lane Group Flow (vph)	150	151	693	495	470	663	2205	192	97	2239	1168
Turn Type	Split	NA	pt+ov	Split	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	3 1	4	4	1	6		5	2	3
Permitted Phases								6			2
Detector Phase	3	3	3 1	4	4	1	6	6	5	2	3
Switch Phase											
Minimum Initial (s)	5.0	5.0		5.0	5.0	6.0	15.0	15.0	6.0	15.0	5.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	30.0	30.0	13.0	30.0	13.0
Total Split (s)	27.0	27.0		27.0	27.0	32.0	77.0	77.0	29.0	74.0	27.0
Total Split (%)	16.9%	16.9%		16.9%	16.9%	20.0%	48.1%	48.1%	18.1%	46.3%	16.9%
Yellow Time (s)	4.0	4.0		3.4	3.4	3.0	4.4	4.4	3.3	4.4	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	2.8	1.7	1.7	2.6	1.7	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		6.4	6.4	5.8	6.1	6.1	5.9	6.1	7.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	0.71	0.71	0.89	1.12	0.86	1.18	0.87	0.23	0.63	1.04	1.22
Control Delay	86.4	85.7	49.0	141.3	62.9	116.9	9.3	2.0	68.0	64.7	130.5
Queue Delay	0.0	0.0	6.6	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.1
Total Delay	86.4	85.7	55.6	141.3	62.9	116.9	9.9	2.0	68.0	64.7	130.6
Queue Length 50th (ft)	161	162	273	~306	181	~420	332	20	95	~927	~1472
Queue Length 95th (ft)	#264	#263	#356	#425	#270	m#343	m298	m20	m95	m#921	m#1563
Internal Link Dist (ft)		418			220		809			956	
Turn Bay Length (ft)			250			385		225	300		360
Base Capacity (vph)	210	213	783	441	546	562	2539	846	255	2157	956
Starvation Cap Reductn	0	0	0	0	0	0	92	0	0	0	17
Spillback Cap Reductn	0	0	63	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.71	0.96	1.12	0.86	1.18	0.90	0.23	0.38	1.04	1.24

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 91 (57%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

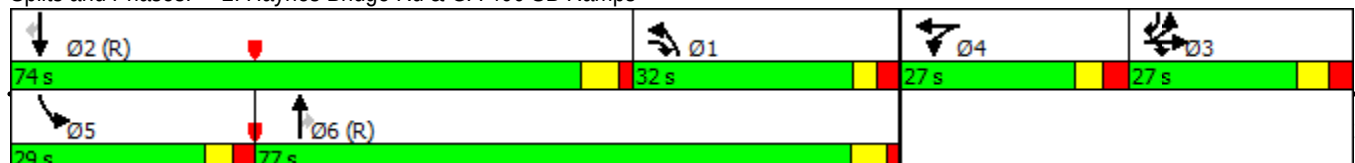
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Haynes Bridge Rd & GA 400 SB Ramps



HCM Signalized Intersection Capacity Analysis

2: Haynes Bridge Rd & GA 400 SB Ramps

Future Build PM - Improved

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	42	651	465	204	233	643	2139	177	89	2172	1133
Future Volume (vph)	235	42	651	465	204	233	643	2139	177	89	2172	1133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.4	6.4		5.8	6.1	6.1	5.9	6.1	7.0
Lane Util. Factor	0.95	0.95	0.88	0.97	0.95		0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1710	2787	3433	3259		3433	5085	1583	1770	5085	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1710	2787	3433	3259		3433	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.94	0.94	0.92	0.94	0.97	0.97	0.92	0.92	0.97	0.97
Adj. Flow (vph)	255	46	693	495	222	248	663	2205	192	97	2239	1168
RTOR Reduction (vph)	0	0	0	0	127	0	0	0	56	0	0	29
Lane Group Flow (vph)	150	151	693	495	343	0	663	2205	136	97	2239	1139
Turn Type	Split	NA	pt+ov	Split	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	3 1	4	4		1	6		5	2	3
Permitted Phases									6			2
Actuated Green, G (s)	20.0	20.0	46.2	20.6	20.6		26.2	79.9	79.9	14.1	67.9	87.9
Effective Green, g (s)	20.0	20.0	46.2	20.6	20.6		26.2	79.9	79.9	14.1	67.9	87.9
Actuated g/C Ratio	0.12	0.12	0.29	0.13	0.13		0.16	0.50	0.50	0.09	0.42	0.55
Clearance Time (s)	7.0	7.0		6.4	6.4		5.8	6.1	6.1	5.9	6.1	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	3.0
Lane Grp Cap (vph)	210	213	804	441	419		562	2539	790	155	2157	938
v/s Ratio Prot	0.09	0.09	0.25	c0.14	0.11		c0.19	0.43		0.05	0.44	c0.15
v/s Ratio Perm									0.09			0.57
v/c Ratio	0.71	0.71	0.86	1.12	0.82		1.18	0.87	0.17	0.63	1.04	1.21
Uniform Delay, d1	67.3	67.2	53.9	69.7	67.9		66.9	35.4	21.9	70.4	46.0	36.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.54	0.23	0.20	0.88	0.92	0.88
Incremental Delay, d2	10.9	10.3	9.4	80.7	11.8		82.7	0.4	0.0	3.0	23.4	100.2
Delay (s)	78.2	77.5	63.3	150.4	79.6		119.1	8.6	4.4	64.7	65.8	131.8
Level of Service	E	E	E	F	E		F	A	A	E	E	F
Approach Delay (s)		67.7			115.9			32.3			87.8	
Approach LOS		E			F			C			F	
Intersection Summary												
HCM 2000 Control Delay			68.7			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			1.26									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			25.4			
Intersection Capacity Utilization			117.8%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

05/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑↑↑	↰	↑↑↑	↱
Traffic Volume (vph)	113	166	1046	591	222	449	345	1920	123	1558	55
Future Volume (vph)	113	166	1046	591	222	449	345	1920	123	1558	55
Lane Group Flow (vph)	126	184	1113	642	380	339	375	2091	137	1640	60
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm
Protected Phases	3	8	5	7	4		5	2	1	6	
Permitted Phases	8		8			4			6		6
Detector Phase	3	8	5	7	4	4	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	14.0	12.0	13.0	14.0	14.0	12.0	30.0	13.0	30.0	30.0
Total Split (s)	14.0	33.0	29.0	46.0	65.0	65.0	29.0	65.0	16.0	52.0	52.0
Total Split (%)	8.8%	20.6%	18.1%	28.8%	40.6%	40.6%	18.1%	40.6%	10.0%	32.5%	32.5%
Yellow Time (s)	4.2	4.4	3.2	3.2	4.4	4.4	3.2	4.5	3.4	4.5	4.5
All-Red Time (s)	3.0	3.0	2.8	3.0	3.0	3.0	2.8	2.2	3.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.4	6.7	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio	0.63	0.78	1.12	0.88	0.76	0.60	0.76	0.95	0.90	0.91	0.09
Control Delay	55.6	89.8	110.7	75.1	58.5	25.3	52.4	47.1	90.7	46.5	0.8
Queue Delay	0.0	0.0	0.1	5.5	0.0	0.0	0.0	2.4	0.0	5.8	0.0
Total Delay	55.6	89.8	110.7	80.6	58.5	25.3	52.4	49.4	90.7	52.4	0.8
Queue Length 50th (ft)	87	189	~688	338	363	150	187	788	112	622	1
Queue Length 95th (ft)	124	271	#792	396	451	242	m246	#1024	m#198	m#810	m2
Internal Link Dist (ft)		469			1177			956		723	
Turn Bay Length (ft)	90		150			150	225		200		180
Base Capacity (vph)	199	298	991	853	614	656	493	2201	152	1796	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	13	155	0	2	0	57	0	128	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.62	1.14	0.92	0.62	0.52	0.76	0.98	0.90	0.98	0.09

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 32 (20%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

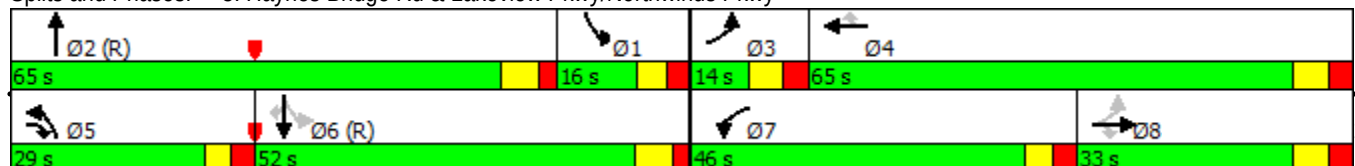
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy



HCM Signalized Intersection Capacity Analysis

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

Future Build PM - Improved

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	166	1046	591	222	449	345	1920	56	123	1558	55
Future Volume (vph)	113	166	1046	591	222	449	345	1920	56	123	1558	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7		6.4	6.7	6.7
Lane Util. Factor	1.00	1.00	0.88	0.97	0.95	0.95	0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.95	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	2787	3433	1673	1504	3433	5060		1770	5085	1583
Flt Permitted	0.53	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.08	1.00	1.00
Satd. Flow (perm)	981	1863	2787	3433	1673	1504	3433	5060		158	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.94	0.92	0.92	0.94	0.92	0.95	0.80	0.90	0.95	0.92
Adj. Flow (vph)	126	184	1113	642	241	478	375	2021	70	137	1640	60
RTOR Reduction (vph)	0	0	118	0	14	128	0	2	0	0	0	39
Lane Group Flow (vph)	126	184	995	642	366	211	375	2089	0	137	1640	21
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA		pm+pt	NA	Perm
Protected Phases	3	8	5	7	4		5	2		1	6	
Permitted Phases	8		8			4				6		6
Actuated Green, G (s)	27.0	20.2	43.2	34.0	46.4	46.4	23.0	69.5		56.8	56.5	56.5
Effective Green, g (s)	27.0	20.2	43.2	34.0	46.4	46.4	23.0	69.5		56.8	56.5	56.5
Actuated g/C Ratio	0.17	0.13	0.27	0.21	0.29	0.29	0.14	0.43		0.35	0.35	0.35
Clearance Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7		6.4	6.7	6.7
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	199	235	752	729	485	436	493	2197		152	1795	558
v/s Ratio Prot	0.03	0.10	c0.19	c0.19	0.22		0.11	c0.41		0.05	c0.32	
v/s Ratio Perm	0.08		0.17			0.14				0.26		0.01
v/c Ratio	0.63	0.78	1.32	0.88	0.75	0.48	0.76	0.95		0.90	0.91	0.04
Uniform Delay, d1	59.9	67.8	58.4	61.0	51.6	46.9	65.9	43.6		65.7	49.4	33.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.94		0.87	0.82	1.00
Incremental Delay, d2	4.8	15.0	154.5	11.7	6.3	0.6	3.1	6.1		30.3	5.4	0.1
Delay (s)	64.7	82.8	212.9	72.8	57.9	47.5	49.8	47.2		87.7	46.0	34.0
Level of Service	E	F	F	E	E	D	D	D		F	D	C
Approach Delay (s)		182.9			62.3			47.6			48.7	
Approach LOS		F			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			77.9									
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			160.0									
Intersection Capacity Utilization			99.3%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

05/15/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	761	502	332	710	69	510	1717	256	53	876	115
Future Volume (vph)	194	761	502	332	710	69	510	1717	256	53	876	115
Lane Group Flow (vph)	223	801	546	361	763	90	554	1866	278	65	952	125
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2			6
Detector Phase	3	8	5	7	4	4	5	2	2	1	6	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0	4.0	10.0	5.0
Minimum Split (s)	13.0	18.0	13.0	13.0	18.0	18.0	13.0	28.0	28.0	12.0	24.0	13.0
Total Split (s)	25.0	44.0	36.0	34.0	53.0	53.0	36.0	69.0	69.0	13.0	46.0	25.0
Total Split (%)	15.6%	27.5%	22.5%	21.3%	33.1%	33.1%	22.5%	43.1%	43.1%	8.1%	28.8%	15.6%
Yellow Time (s)	3.6	3.9	3.4	3.4	3.9	3.9	3.4	4.7	4.7	3.5	4.7	3.6
All-Red Time (s)	3.0	2.8	3.0	3.0	2.8	2.8	3.0	1.8	1.8	2.8	1.8	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	0.80	0.97	0.72	1.03	0.72	0.15	0.86	0.94	0.38	0.88	0.77	0.20
Control Delay	52.2	85.8	19.9	102.2	55.1	0.6	43.9	26.0	1.8	148.1	60.9	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Total Delay	52.2	85.8	19.9	102.2	55.1	0.6	43.9	26.8	1.8	148.1	60.9	4.4
Queue Length 50th (ft)	146	441	183	~349	383	0	279	546	4	69	341	5
Queue Length 95th (ft)	208	#578	264	#562	461	0	m290	m405	m3	#145	396	31
Internal Link Dist (ft)		761			667			723			604	
Turn Bay Length (ft)	200		200	165		200	250		260	350		160
Base Capacity (vph)	297	825	757	352	1058	582	645	1989	723	74	1255	640
Starvation Cap Reductn	0	0	0	0	0	0	0	28	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.97	0.72	1.03	0.72	0.15	0.86	0.95	0.38	0.88	0.76	0.20

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 11 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

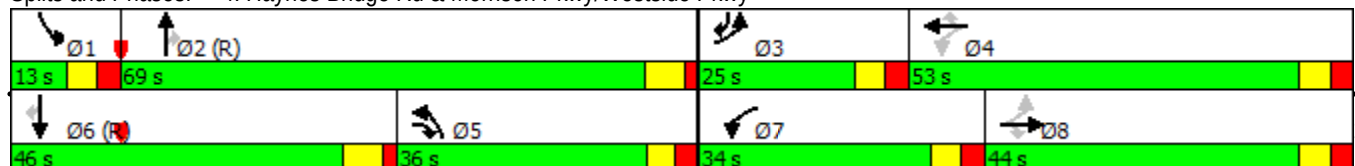
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy



HCM Signalized Intersection Capacity Analysis

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

Future Build PM - Improved

05/15/2017

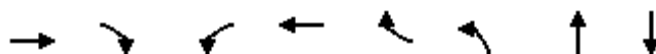
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	761	502	332	710	69	510	1717	256	53	876	115
Future Volume (vph)	194	761	502	332	710	69	510	1717	256	53	876	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.22	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	404	3539	1583	171	3539	1583	3433	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.87	0.95	0.92	0.92	0.93	0.77	0.92	0.92	0.92	0.81	0.92	0.92
Adj. Flow (vph)	223	801	546	361	763	90	554	1866	278	65	952	125
RTOR Reduction (vph)	0	0	90	0	0	63	0	0	104	0	0	74
Lane Group Flow (vph)	223	801	456	361	763	27	554	1866	174	65	952	51
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2			6
Actuated Green, G (s)	54.0	37.2	67.3	71.2	47.8	47.8	30.1	62.6	62.6	6.7	39.1	55.9
Effective Green, g (s)	54.0	37.2	67.3	71.2	47.8	47.8	30.1	62.6	62.6	6.7	39.1	55.9
Actuated g/C Ratio	0.34	0.23	0.42	0.45	0.30	0.30	0.19	0.39	0.39	0.04	0.24	0.35
Clearance Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Vehicle Extension (s)	2.5	2.5	3.0	2.5	2.5	2.5	3.0	5.5	5.5	2.0	5.5	2.5
Lane Grp Cap (vph)	279	822	665	351	1057	472	645	1989	619	74	1242	553
v/s Ratio Prot	0.08	0.23	0.13	c0.18	0.22		0.16	c0.37		0.04	c0.19	0.01
v/s Ratio Perm	0.19		0.16	c0.28		0.02			0.11			0.02
v/c Ratio	0.80	0.97	0.69	1.03	0.72	0.06	0.86	0.94	0.28	0.88	0.77	0.09
Uniform Delay, d1	41.2	60.9	37.7	52.1	50.2	40.0	62.9	46.8	33.3	76.2	56.2	35.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.56	0.42	0.08	1.00	1.00	1.00
Incremental Delay, d2	14.3	25.0	2.9	55.5	2.3	0.0	6.1	5.9	0.6	62.7	4.6	0.1
Delay (s)	55.5	86.0	40.7	107.7	52.5	40.1	41.5	25.4	3.2	139.0	60.8	35.1
Level of Service	E	F	D	F	D	D	D	C	A	F	E	D
Approach Delay (s)		65.9			68.0			26.4			62.4	
Approach LOS		E			E			C			E	
Intersection Summary												
HCM 2000 Control Delay			49.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			26.2		
Intersection Capacity Utilization			97.5%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

5: Northwinds Pkwy/Bailey Johnson Ave & Kimball Bridge Rd

05/15/2017



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	Ø5	Ø7
Lane Configurations	↑	↑	↑	↑	↑	↑	↑↑	↑↑		
Traffic Volume (vph)	211	66	280	500	1	266	101	29		
Future Volume (vph)	211	66	280	500	1	266	101	29		
Lane Group Flow (vph)	271	92	318	581	4	309	372	40		
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA		
Protected Phases	2		1	6		3	8	4	5	7
Permitted Phases		2	6		6	8				
Detector Phase	2	2	1	6	6	3	8	4		
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	11.0	24.0	24.0	11.0	24.0	24.0	11.0	11.0
Total Split (s)	46.0	46.0	24.0	59.0	59.0	26.0	39.0	24.0	11.0	11.0
Total Split (%)	38.3%	38.3%	20.0%	49.2%	49.2%	21.7%	32.5%	20.0%	9%	9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lead/Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	Min	Min	None	None
v/c Ratio	0.64	0.17	0.63	0.64	0.00	0.67	0.29	0.14		
Control Delay	36.1	0.7	18.9	19.2	0.0	29.2	7.0	34.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	36.1	0.7	18.9	19.2	0.0	29.2	7.0	34.1		
Queue Length 50th (ft)	121	0	93	202	0	116	18	7		
Queue Length 95th (ft)	184	0	160	314	0	218	56	26		
Internal Link Dist (ft)	895			545			923	1095		
Turn Bay Length (ft)		160	130		150	150				
Base Capacity (vph)	975	945	569	1291	1156	531	1518	814		
Starvation Cap Reductn	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.28	0.10	0.56	0.45	0.00	0.58	0.25	0.05		

Intersection Summary

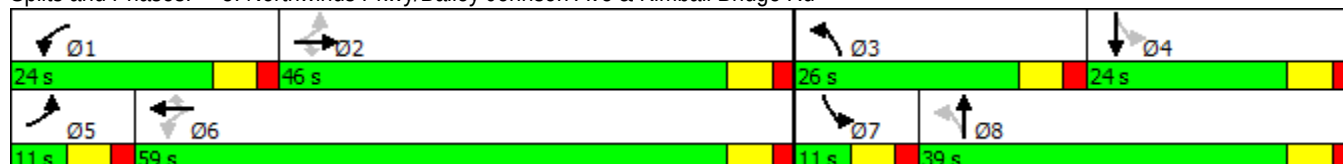
Cycle Length: 120

Actuated Cycle Length: 78.9

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Northwinds Pkwy/Bailey Johnson Ave & Kimball Bridge Rd



HCM Signalized Intersection Capacity Analysis

5: Northwinds Pkwy/Bailey Johnson Ave & Kimball Bridge Rd

Future Build PM - Improved

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	211	66	280	500	1	266	101	194	0	29	4
Future Volume (vph)	0	211	66	280	500	1	266	101	194	0	29	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	0.95			0.95	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.89			0.97	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1863	1583	1770	1863	1583	1770	3165			3433	
Flt Permitted		1.00	1.00	0.33	1.00	1.00	0.38	1.00			1.00	
Satd. Flow (perm)		1863	1583	613	1863	1583	712	3165			3433	
Peak-hour factor, PHF	0.92	0.78	0.72	0.88	0.86	0.25	0.86	0.92	0.74	0.92	0.92	0.50
Adj. Flow (vph)	0	271	92	318	581	4	309	110	262	0	32	8
RTOR Reduction (vph)	0	0	71	0	0	2	0	168	0	0	7	0
Lane Group Flow (vph)	0	271	21	318	581	2	309	204	0	0	33	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)		18.1	18.1	38.3	38.3	38.3	28.2	28.2			6.6	
Effective Green, g (s)		18.1	18.1	38.3	38.3	38.3	28.2	28.2			6.6	
Actuated g/C Ratio		0.23	0.23	0.49	0.49	0.49	0.36	0.36			0.08	
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)		429	364	508	908	772	466	1136			288	
v/s Ratio Prot		0.15		0.11	c0.31		c0.13	0.06			0.01	
v/s Ratio Perm			0.01	0.19		0.00	c0.11					
v/c Ratio		0.63	0.06	0.63	0.64	0.00	0.66	0.18			0.11	
Uniform Delay, d1		27.2	23.6	13.6	15.0	10.3	19.8	17.2			33.2	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2		3.0	0.1	2.4	1.5	0.0	3.5	0.1			0.2	
Delay (s)		30.2	23.6	16.0	16.5	10.3	23.4	17.3			33.4	
Level of Service		C	C	B	B	B	C	B			C	
Approach Delay (s)		28.5			16.3			20.1			33.4	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			20.2									
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			78.5									
Intersection Capacity Utilization			66.9%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

05/15/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	2276	26	303	2121	319	109	49	267	401	20	149
Future Volume (vph)	139	2276	26	303	2121	319	109	49	267	401	20	149
Lane Group Flow (vph)	176	2474	43	337	2256	354	158	98	297	446	80	162
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	5.0	8.0	8.0	6.0	8.0	8.0
Minimum Split (s)	13.0	30.7	30.7	13.0	36.7	36.7	11.0	43.0	43.0	13.0	43.0	43.0
Total Split (s)	18.0	77.0	77.0	27.0	86.0	86.0	15.0	43.0	43.0	24.0	52.0	52.0
Total Split (%)	10.5%	45.0%	45.0%	15.8%	50.3%	50.3%	8.8%	25.1%	25.1%	14.0%	30.4%	30.4%
Yellow Time (s)	4.0	4.7	4.7	4.0	4.7	4.7	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	1.8	1.8	3.0	1.8	1.8	2.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.12	0.95	0.05	1.35	0.78	0.37	0.65	0.48	0.86	1.31	0.27	0.41
Control Delay	151.6	48.2	0.1	223.6	32.6	13.0	68.3	77.6	47.7	213.8	62.6	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	151.6	48.2	0.1	223.6	32.6	13.0	68.3	77.6	47.7	213.8	62.6	10.4
Queue Length 50th (ft)	~173	936	0	~442	695	113	147	106	118	~329	80	0
Queue Length 95th (ft)	#286	#1215	0	#669	887	217	148	85	223	#447	33	64
Internal Link Dist (ft)		555			792			972			387	
Turn Bay Length (ft)	235		150	330		145	400			200		100
Base Capacity (vph)	157	2613	909	250	2880	963	243	392	487	341	490	535
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	0.95	0.05	1.35	0.78	0.37	0.65	0.25	0.61	1.31	0.16	0.30

Intersection Summary

Cycle Length: 171

Actuated Cycle Length: 171

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

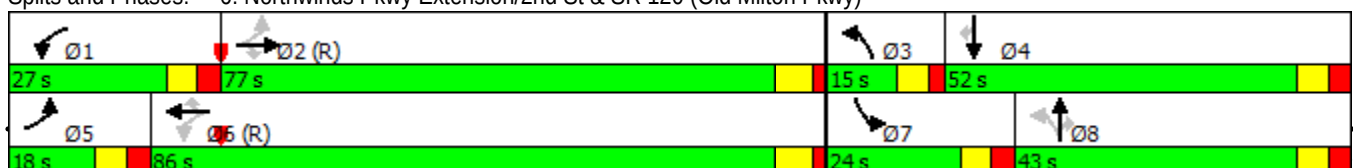
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)



HCM Signalized Intersection Capacity Analysis

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

Future Build PM - Improved

05/15/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					 		
Traffic Volume (vph)	139	2276	26	303	2121	319	109	49	267	401	20	149
Future Volume (vph)	139	2276	26	303	2121	319	109	49	267	401	20	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.05	1.00	1.00	0.04	1.00	1.00	0.70	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	85	5085	1583	79	5085	1583	1313	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.79	0.92	0.61	0.90	0.94	0.90	0.69	0.50	0.90	0.90	0.25	0.92
Adj. Flow (vph)	176	2474	43	337	2256	354	158	98	297	446	80	162
RTOR Reduction (vph)	0	0	21	0	0	66	0	0	174	0	0	136
Lane Group Flow (vph)	176	2474	22	337	2256	288	158	98	123	446	80	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	98.9	87.9	87.9	114.9	96.9	96.9	27.6	18.6	18.6	17.0	27.6	27.6
Effective Green, g (s)	98.9	87.9	87.9	114.9	96.9	96.9	27.6	18.6	18.6	17.0	27.6	27.6
Actuated g/C Ratio	0.58	0.51	0.51	0.67	0.57	0.57	0.16	0.11	0.11	0.10	0.16	0.16
Clearance Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	157	2613	813	250	2881	897	235	202	172	341	300	255
v/s Ratio Prot	0.07	0.49		c0.16	0.44		0.04	0.05		c0.13	0.04	
v/s Ratio Perm	0.58		0.01	c0.75		0.18	0.07		c0.08			0.02
v/c Ratio	1.12	0.95	0.03	1.35	0.78	0.32	0.67	0.49	0.72	1.31	0.27	0.10
Uniform Delay, d1	52.8	39.3	20.5	63.1	28.9	19.6	66.3	71.7	73.7	77.0	62.8	61.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	108.0	8.9	0.1	180.8	2.2	0.9	7.4	1.8	13.3	158.2	0.5	0.2
Delay (s)	160.8	48.3	20.5	243.8	31.1	20.6	73.7	73.5	86.9	235.2	63.3	61.3
Level of Service	F	D	C	F	C	C	E	E	F	F	E	E
Approach Delay (s)		55.2			54.1			80.8			174.3	
Approach LOS		E			D			F			F	
Intersection Summary												
HCM 2000 Control Delay			68.7				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			171.0				Sum of lost time (s)			27.5		
Intersection Capacity Utilization			96.0%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Northwinds Pkwy

Future Build PM - Improved
05/15/2017

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗	
Traffic Volume (veh/h)	261	74	78	711	227	265	
Future Volume (Veh/h)	261	74	78	711	227	265	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	284	80	85	773	247	288	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						8	
Median type	None			None			
Median storage veh							
Upstream signal (ft)	1257						
pX, platoon unblocked							
vC, conflicting volume			364		840	142	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			364		840	142	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			93		12	67	
cM capacity (veh/h)			1191		282	880	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	142	142	80	85	386	386	535
Volume Left	0	0	0	85	0	0	247
Volume Right	0	0	80	0	0	0	288
cSH	1700	1700	1700	1191	1700	1700	611
Volume to Capacity	0.08	0.08	0.05	0.07	0.23	0.23	0.88
Queue Length 95th (ft)	0	0	0	6	0	0	255
Control Delay (s)	0.0	0.0	0.0	8.3	0.0	0.0	36.4
Lane LOS				A			E
Approach Delay (s)	0.0			0.8			36.4
Approach LOS							E
Intersection Summary							
Average Delay			11.5				
Intersection Capacity Utilization			38.9%		ICU Level of Service		A
Analysis Period (min)			15				

“BUILD” INTERSECTION ANALYSIS ADDITIONAL SCENARIO

Queues

Future Build AM - Improved

1: Haynes Bridge Rd & GA 400 NB Ramps

05/23/2017



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔↔	↑↑↑	↔↔	↔↔	↑↑↑
Traffic Volume (vph)	1559	457	1746	619	271	1491
Future Volume (vph)	1559	457	1746	619	271	1491
Lane Group Flow (vph)	1641	491	1898	652	295	1621
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0	15.0	7.0	15.0
Minimum Split (s)	15.0	15.0	33.0	33.0	14.0	33.0
Total Split (s)	78.0	78.0	63.0	63.0	19.0	82.0
Total Split (%)	48.8%	48.8%	39.4%	39.4%	11.9%	51.3%
Yellow Time (s)	3.8	3.8	4.9	4.9	3.6	4.9
All-Red Time (s)	2.3	2.3	1.9	1.9	2.4	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.8	6.8	6.0	6.8
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	Min	C-Min
v/c Ratio	1.06	0.38	1.06	0.55	1.06	0.68
Control Delay	84.2	25.6	89.2	22.1	133.2	32.5
Queue Delay	0.0	0.0	15.6	0.0	0.0	0.0
Total Delay	84.2	25.6	104.9	22.1	133.2	32.5
Queue Length 50th (ft)	~971	162	~797	157	~173	533
Queue Length 95th (ft)	#1105	214	#890	227	#277	600
Internal Link Dist (ft)			688			809
Turn Bay Length (ft)	500	500		220	340	
Base Capacity (vph)	1542	1292	1786	1185	278	2389
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	107	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.38	1.13	0.55	1.06	0.68

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 86 (54%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

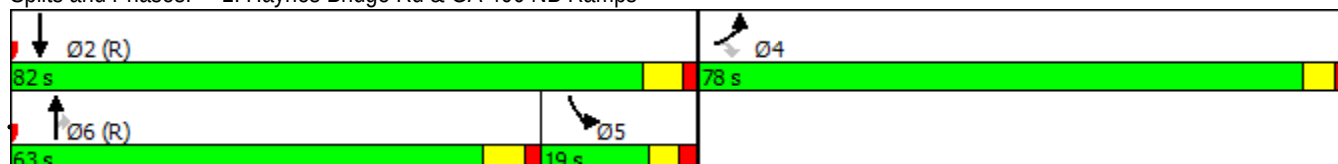
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Haynes Bridge Rd & GA 400 NB Ramps



HCM Signalized Intersection Capacity Analysis

Future Build AM - Improved

1: Haynes Bridge Rd & GA 400 NB Ramps

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1559	0	457	0	0	0	0	1746	619	271	1491	0
Future Volume (vph)	1559	0	457	0	0	0	0	1746	619	271	1491	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Lane Util. Factor	0.97		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		2787					5085	2787	3433	5085	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		2787					5085	2787	3433	5085	
Peak-hour factor, PHF	0.95	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	1641	0	491	0	0	0	0	1898	652	295	1621	0
RTOR Reduction (vph)	0	0	40	0	0	0	0	0	207	0	0	0
Lane Group Flow (vph)	1641	0	451	0	0	0	0	1898	445	295	1621	0
Turn Type	Prot		Perm					NA	Perm	Prot	NA	
Protected Phases	4							6		5	2	
Permitted Phases			4						6			
Actuated Green, G (s)	71.9		71.9					56.2	56.2	13.0	75.2	
Effective Green, g (s)	71.9		71.9					56.2	56.2	13.0	75.2	
Actuated g/C Ratio	0.45		0.45					0.35	0.35	0.08	0.47	
Clearance Time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Vehicle Extension (s)	3.0		3.0					5.1	5.1	4.1	5.1	
Lane Grp Cap (vph)	1542		1252					1786	978	278	2389	
v/s Ratio Prot	c0.48							c0.37		c0.09	0.32	
v/s Ratio Perm			0.16						0.16			
v/c Ratio	1.06		0.36					1.06	0.46	1.06	0.68	
Uniform Delay, d1	44.0		28.9					51.9	40.1	73.5	33.0	
Progression Factor	1.00		1.00					1.00	1.00	0.97	0.94	
Incremental Delay, d2	42.2		0.2					40.2	1.5	67.7	1.4	
Delay (s)	86.2		29.1					92.1	41.6	139.2	32.3	
Level of Service	F		C					F	D	F	C	
Approach Delay (s)		73.1			0.0			79.2			48.8	
Approach LOS		E			A			E			D	
Intersection Summary												
HCM 2000 Control Delay			68.4		HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			160.0		Sum of lost time (s)				18.9			
Intersection Capacity Utilization			99.9%		ICU Level of Service				F			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Improved

2: Haynes Bridge Rd & GA 400 SB Ramps

05/23/2017

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	554	230	548	139	64	150	2158	869	392	998	527
Future Volume (vph)	554	230	548	139	64	150	2158	869	392	998	527
Lane Group Flow (vph)	421	431	596	151	145	163	2272	945	426	1085	573
Turn Type	Split	NA	pt+ov	Split	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	3 1	4	4	1	6		5	2	3
Permitted Phases								6			2
Detector Phase	3	3	3 1	4	4	1	6	6	5	2	3
Switch Phase											
Minimum Initial (s)	5.0	5.0		5.0	5.0	6.0	15.0	15.0	6.0	15.0	5.0
Minimum Split (s)	43.0	43.0		44.0	44.0	12.0	51.4	51.4	12.0	51.4	43.0
Total Split (s)	39.0	39.0		43.0	43.0	26.0	55.0	55.0	23.0	52.0	39.0
Total Split (%)	24.4%	24.4%		26.9%	26.9%	16.3%	34.4%	34.4%	14.4%	32.5%	24.4%
Yellow Time (s)	4.0	4.0		3.4	3.4	3.0	4.4	4.4	3.3	4.4	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	2.8	1.7	1.7	2.6	1.7	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		6.4	6.4	5.8	6.1	6.1	5.9	6.1	7.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	1.19	1.25	0.64	0.57	0.45	0.34	0.98	1.02	2.25	0.50	0.46
Control Delay	162.8	183.0	35.8	79.3	38.0	47.6	29.4	31.1	599.2	25.2	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.9	0.0	0.0	0.0
Total Delay	162.8	183.0	35.8	79.3	38.0	47.6	29.4	57.0	599.2	25.2	1.9
Queue Length 50th (ft)	~529	~588	231	79	36	75	715	~814	~717	371	0
Queue Length 95th (ft)	#750	#823	275	117	74	m70	m678	m453	m#878	430	m61
Internal Link Dist (ft)		420			220		809			959	
Turn Bay Length (ft)			250			385		225	300		360
Base Capacity (vph)	354	346	927	785	804	481	2323	923	189	2156	1233
Starvation Cap Reductn	0	0	0	0	0	0	0	59	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	1.25	0.64	0.19	0.18	0.34	0.98	1.09	2.25	0.50	0.46

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 100 (63%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

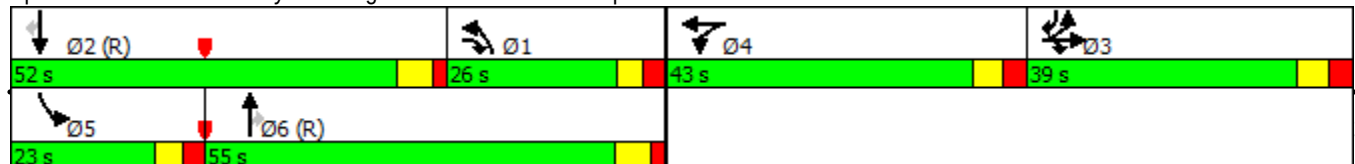
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Haynes Bridge Rd & GA 400 SB Ramps



HCM Signalized Intersection Capacity Analysis

2: Haynes Bridge Rd & GA 400 SB Ramps

Future Build AM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	554	230	548	139	64	68	150	2158	869	392	998	527
Future Volume (vph)	554	230	548	139	64	68	150	2158	869	392	998	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.4	6.4		5.8	6.1	6.1	5.9	6.1	7.0
Lane Util. Factor	*1.00	0.95	0.88	0.97	0.95		0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1733	2787	3433	3265		3433	5085	1583	1770	5085	1583
Flt Permitted	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1733	2787	3433	3265		3433	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	602	250	596	151	70	75	163	2272	945	426	1085	573
RTOR Reduction (vph)	0	0	0	0	69	0	0	0	200	0	0	207
Lane Group Flow (vph)	421	431	596	151	76	0	163	2272	745	426	1085	366
Turn Type	Split	NA	pt+ov	Split	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	3 1	4	4		1	6		5	2	3
Permitted Phases									6			2
Actuated Green, G (s)	32.0	32.0	54.5	12.4	12.4		22.5	73.1	73.1	17.1	67.8	99.8
Effective Green, g (s)	32.0	32.0	54.5	12.4	12.4		22.5	73.1	73.1	17.1	67.8	99.8
Actuated g/C Ratio	0.20	0.20	0.34	0.08	0.08		0.14	0.46	0.46	0.11	0.42	0.62
Clearance Time (s)	7.0	7.0		6.4	6.4		5.8	6.1	6.1	5.9	6.1	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	3.0
Lane Grp Cap (vph)	354	346	949	266	253		482	2323	723	189	2154	1056
v/s Ratio Prot	0.24	c0.25	0.21	c0.04	0.02		0.05	0.45		c0.24	0.21	0.07
v/s Ratio Perm									c0.47			0.16
v/c Ratio	1.19	1.25	0.63	0.57	0.30		0.34	0.98	1.03	2.25	0.50	0.35
Uniform Delay, d1	64.0	64.0	44.2	71.2	69.7		62.0	42.7	43.5	71.5	33.8	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.75	0.61	0.49	0.60	0.73	1.02
Incremental Delay, d2	109.9	132.5	1.3	2.8	0.7		0.0	2.5	19.2	576.0	0.6	0.1
Delay (s)	173.9	196.5	45.6	74.0	70.4		46.5	28.6	40.6	618.6	25.2	14.9
Level of Service	F	F	D	E	E		D	C	D	F	C	B
Approach Delay (s)		127.8			72.2			32.8			143.6	
Approach LOS		F			E			C			F	
Intersection Summary												
HCM 2000 Control Delay			85.6			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.19									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			25.4			
Intersection Capacity Utilization			112.7%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Improved

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

05/23/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↰	↑	↰↰	↰↰	↑	↰	↰↰	↑↑↑	↰	↑↑↑	↰
Traffic Volume (vph)	43	162	300	67	204	138	945	1314	612	1459	146
Future Volume (vph)	43	162	300	67	204	138	945	1314	612	1459	146
Lane Group Flow (vph)	57	180	326	120	272	156	1005	1941	680	1536	162
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm
Protected Phases	3	8	5	7	4		5	2	1	6	
Permitted Phases	8		8			4			6		6
Detector Phase	3	8	5	7	4	4	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	11.0	49.4	11.0	11.2	47.4	47.4	11.0	42.7	11.4	37.7	37.7
Total Split (s)	14.4	44.4	50.0	17.0	47.0	47.0	50.0	60.6	38.0	48.6	48.6
Total Split (%)	9.0%	27.8%	31.3%	10.6%	29.4%	29.4%	31.3%	37.9%	23.8%	30.4%	30.4%
Yellow Time (s)	4.2	4.4	3.2	3.2	4.4	4.4	3.2	4.5	3.4	4.5	4.5
All-Red Time (s)	3.0	3.0	2.8	3.0	3.0	3.0	2.8	2.2	3.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.4	6.7	6.7
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio	0.31	0.63	0.24	0.59	0.80	0.37	1.06	0.92	1.71	0.87	0.25
Control Delay	62.8	72.8	15.5	85.5	79.3	8.5	68.4	32.3	350.3	31.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	72.8	15.5	85.5	79.3	8.5	68.4	32.3	350.3	31.6	0.7
Queue Length 50th (ft)	53	178	71	63	290	0	~586	764	~1036	312	0
Queue Length 95th (ft)	77	251	96	60	330	34	m#573	m#798	m#1095	m#633	m0
Internal Link Dist (ft)		469			1131			959		721	
Turn Bay Length (ft)	90		150			150	225		200		180
Base Capacity (vph)	213	430	1379	231	435	494	944	2104	398	1775	659
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.42	0.24	0.52	0.63	0.32	1.06	0.92	1.71	0.87	0.25

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 15 (9%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

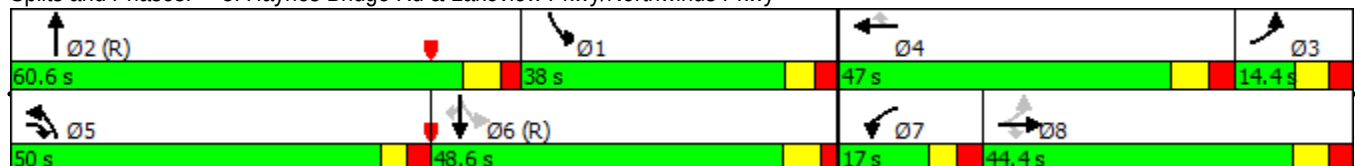
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy



HCM Signalized Intersection Capacity Analysis

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

Future Build AM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	162	300	67	204	138	945	1314	513	612	1459	146
Future Volume (vph)	43	162	300	67	204	138	945	1314	513	612	1459	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7		6.4	6.7	6.7
Lane Util. Factor	1.00	1.00	0.88	0.97	0.95	0.95	0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	2787	3433	1753	1504	3433	4866		1770	5085	1583
Flt Permitted	0.55	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.17	1.00	1.00
Satd. Flow (perm)	1018	1863	2787	3433	1753	1504	3433	4866		323	5085	1583
Peak-hour factor, PHF	0.75	0.90	0.92	0.56	0.80	0.80	0.94	0.95	0.92	0.90	0.95	0.90
Adj. Flow (vph)	57	180	326	120	255	172	1005	1383	558	680	1536	162
RTOR Reduction (vph)	0	0	64	0	2	126	0	40	0	0	0	107
Lane Group Flow (vph)	57	180	262	120	270	30	1005	1901	0	680	1536	55
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA		pm+pt	NA	Perm
Protected Phases	3	8	5	7	4		5	2		1	6	
Permitted Phases	8		8			4				6		6
Actuated Green, G (s)	26.1	25.9	69.9	9.4	30.7	30.7	44.0	66.4		54.7	54.4	54.4
Effective Green, g (s)	26.1	25.9	69.9	9.4	30.7	30.7	44.0	66.4		54.7	54.4	54.4
Actuated g/C Ratio	0.16	0.16	0.44	0.06	0.19	0.19	0.28	0.42		0.34	0.34	0.34
Clearance Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7		6.4	6.7	6.7
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	182	301	1217	201	336	288	944	2019		396	1728	538
v/s Ratio Prot	0.01	c0.10	0.06	0.03	c0.15		c0.29	0.39		c0.34	0.30	
v/s Ratio Perm	0.04		0.03			0.02				c0.25		0.03
v/c Ratio	0.31	0.60	0.22	0.60	0.80	0.10	1.06	0.94		1.72	0.89	0.10
Uniform Delay, d1	60.4	62.2	28.0	73.5	61.8	53.3	58.0	44.9		54.9	49.9	36.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.65	0.72		0.63	0.57	0.06
Incremental Delay, d2	0.4	2.7	0.0	3.2	12.7	0.1	31.7	1.2		327.2	3.3	0.2
Delay (s)	60.8	64.9	28.0	76.6	74.5	53.4	69.1	33.7		362.1	31.6	2.4
Level of Service	E	E	C	E	E	D	E	C		F	C	A
Approach Delay (s)		43.1			69.0			45.8			124.1	
Approach LOS		D			E			D			F	
Intersection Summary												
HCM 2000 Control Delay			76.5				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			27.7		
Intersection Capacity Utilization			110.7%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Improved

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	520	453	337	1213	45	580	875	149	59	1406	216
Future Volume (vph)	83	520	453	337	1213	45	580	875	149	59	1406	216
Lane Group Flow (vph)	92	565	492	366	1251	49	630	921	157	66	1449	232
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2	6		6
Detector Phase	3	8	5	7	4	4	5	2	2	1	6	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0	4.0	10.0	5.0
Minimum Split (s)	11.6	51.7	11.4	11.4	51.7	51.7	11.4	38.7	38.7	11.0	51.7	11.6
Total Split (s)	12.8	51.7	33.0	23.0	61.9	61.9	33.0	73.3	73.3	12.0	52.3	12.8
Total Split (%)	8.0%	32.3%	20.6%	14.4%	38.7%	38.7%	20.6%	45.8%	45.8%	7.5%	32.7%	8.0%
Yellow Time (s)	3.6	3.9	3.4	3.4	3.9	3.9	3.4	4.7	4.7	3.5	4.7	3.6
All-Red Time (s)	3.0	2.8	3.0	3.0	2.8	2.8	3.0	1.8	1.8	2.8	1.8	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	0.80	0.57	0.59	1.10	1.03	0.08	1.11	0.43	0.21	0.30	1.00	0.34
Control Delay	75.6	51.9	25.4	114.2	83.1	0.2	120.9	11.5	1.0	27.7	78.9	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	51.9	25.4	114.2	83.1	0.2	120.9	11.5	1.0	27.7	78.9	13.6
Queue Length 50th (ft)	58	267	283	~318	~730	0	~376	143	11	36	557	54
Queue Length 95th (ft)	#147	332	405	#559	#871	0	m#446	m101	m0	65	#669	125
Internal Link Dist (ft)		761			667			721			604	
Turn Bay Length (ft)	200		200	165		200	250		260	350		160
Base Capacity (vph)	115	995	831	332	1220	647	570	2125	753	222	1455	677
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.57	0.59	1.10	1.03	0.08	1.11	0.43	0.21	0.30	1.00	0.34

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 159 (99%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

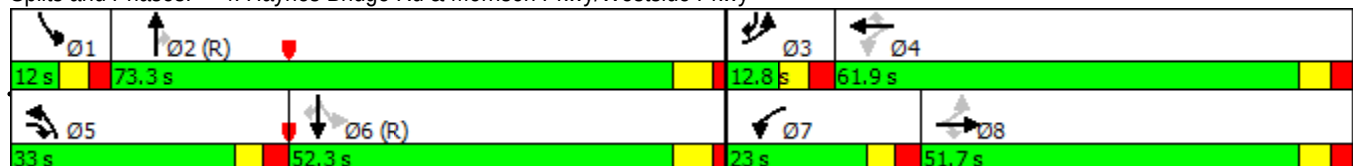
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy



HCM Signalized Intersection Capacity Analysis

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

Future Build AM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	520	453	337	1213	45	580	875	149	59	1406	216
Future Volume (vph)	83	520	453	337	1213	45	580	875	149	59	1406	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.09	1.00	1.00	0.25	1.00	1.00	0.95	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	166	3539	1583	461	3539	1583	3433	5085	1583	555	5085	1583
Peak-hour factor, PHF	0.90	0.92	0.92	0.92	0.97	0.92	0.92	0.95	0.95	0.90	0.97	0.93
Adj. Flow (vph)	92	565	492	366	1251	49	630	921	157	66	1449	232
RTOR Reduction (vph)	0	0	62	0	0	32	0	0	91	0	0	105
Lane Group Flow (vph)	92	565	430	366	1251	17	630	921	66	66	1449	127
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2	6		6
Actuated Green, G (s)	51.2	45.0	71.6	68.0	55.2	55.2	26.6	66.9	66.9	51.4	45.8	52.0
Effective Green, g (s)	51.2	45.0	71.6	68.0	55.2	55.2	26.6	66.9	66.9	51.4	45.8	52.0
Actuated g/C Ratio	0.32	0.28	0.45	0.42	0.35	0.35	0.17	0.42	0.42	0.32	0.29	0.32
Clearance Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Vehicle Extension (s)	2.5	2.5	3.0	2.5	2.5	2.5	3.0	5.5	5.5	2.0	5.5	2.5
Lane Grp Cap (vph)	115	995	708	331	1220	546	570	2126	661	220	1455	514
v/s Ratio Prot	0.03	0.16	0.10	c0.11	0.35		c0.18	0.18		0.01	c0.28	0.01
v/s Ratio Perm	0.23		0.17	c0.35		0.01			0.04	0.09		0.07
v/c Ratio	0.80	0.57	0.61	1.11	1.03	0.03	1.11	0.43	0.10	0.30	1.00	0.25
Uniform Delay, d1	44.5	49.2	33.5	40.4	52.4	34.7	66.7	33.1	28.3	38.3	57.0	39.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.34	0.17	1.00	1.00	1.00
Incremental Delay, d2	30.8	0.6	1.5	81.0	32.4	0.0	62.3	0.4	0.2	0.3	22.6	0.2
Delay (s)	75.3	49.8	35.0	121.4	84.8	34.7	128.2	11.5	5.0	38.6	79.6	39.8
Level of Service	E	D	D	F	F	C	F	B	A	D	E	D
Approach Delay (s)		45.5			91.4			53.9			72.8	
Approach LOS		D			F			D			E	
Intersection Summary												
HCM 2000 Control Delay			67.6			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.10									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			26.2			
Intersection Capacity Utilization			103.7%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Improved

5: Northwinds Pkwy/Northwinds Extension & Kimball Bridge Rd

05/23/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	Ø7
Lane Configurations	↰	↱	↰	↰	↱	↰	↱	↱	
Traffic Volume (vph)	4	594	348	350	268	52	28	162	
Future Volume (vph)	4	594	348	350	268	52	28	162	
Lane Group Flow (vph)	8	612	387	376	298	104	178	184	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	NA	
Protected Phases	5	2		1	6	3	8	4	7
Permitted Phases	2		2	6		8			
Detector Phase	5	2	2	1	6	3	8	4	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	24.0	11.0	24.0	11.0	24.0	24.0	11.0
Total Split (s)	11.0	56.0	56.0	29.0	74.0	11.0	24.0	24.0	11.0
Total Split (%)	9.2%	46.7%	46.7%	24.2%	61.7%	9.2%	20.0%	20.0%	9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	Min	None
v/c Ratio	0.01	0.78	0.48	0.77	0.25	0.48	0.23	0.49	
Control Delay	8.2	33.6	10.0	23.9	8.9	45.1	10.2	49.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	8.2	33.6	10.0	23.9	8.9	45.1	10.2	49.3	
Queue Length 50th (ft)	2	337	60	100	69	62	8	64	
Queue Length 95th (ft)	4	531	152	225	155	62	39	104	
Internal Link Dist (ft)		801			544		923	1121	
Turn Bay Length (ft)	130		160	130		150			
Base Capacity (vph)	546	942	920	566	1342	217	790	644	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.01	0.65	0.42	0.66	0.22	0.48	0.23	0.29	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Northwinds Pkwy/Northwinds Extension & Kimball Bridge Rd

Ø1	Ø2	Ø3	Ø4
29 s	56 s	11 s	24 s
Ø5	Ø6	Ø7	Ø8
11 s	74 s	11 s	24 s

HCM Signalized Intersection Capacity Analysis

5: Northwinds Pkwy/Northwinds Extension & Kimball Bridge Rd

Future Build AM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	594	348	350	268	0	52	28	133	0	162	1
Future Volume (vph)	4	594	348	350	268	0	52	28	133	0	162	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95			0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.88			1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863		1770	3098			3528	
Flt Permitted	0.58	1.00	1.00	0.19	1.00		0.41	1.00			1.00	
Satd. Flow (perm)	1077	1863	1583	362	1863		766	3098			3528	
Peak-hour factor, PHF	0.50	0.97	0.90	0.93	0.90	0.92	0.50	0.92	0.90	0.92	0.90	0.25
Adj. Flow (vph)	8	612	387	376	298	0	104	30	148	0	180	4
RTOR Reduction (vph)	0	0	132	0	0	0	0	117	0	0	2	0
Lane Group Flow (vph)	8	612	255	376	298	0	104	61	0	0	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	49.1	48.2	48.2	72.1	65.2		22.1	22.1			11.0	
Effective Green, g (s)	49.1	48.2	48.2	72.1	65.2		22.1	22.1			11.0	
Actuated g/C Ratio	0.46	0.45	0.45	0.68	0.61		0.21	0.21			0.10	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	503	845	718	483	1143		207	644			365	
v/s Ratio Prot	0.00	0.33		c0.13	0.16		c0.02	0.02			0.05	
v/s Ratio Perm	0.01		0.16	c0.40			c0.08					
v/c Ratio	0.02	0.72	0.36	0.78	0.26		0.50	0.09			0.50	
Uniform Delay, d1	15.4	23.6	18.9	15.6	9.4		35.7	34.0			45.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	3.1	0.3	7.8	0.1		1.9	0.1			1.1	
Delay (s)	15.4	26.7	19.2	23.4	9.5		37.6	34.0			46.1	
Level of Service	B	C	B	C	A		D	C			D	
Approach Delay (s)		23.7			17.3			35.4			46.1	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay	25.1			HCM 2000 Level of Service					C			
HCM 2000 Volume to Capacity ratio	0.78											
Actuated Cycle Length (s)	106.2			Sum of lost time (s)					24.0			
Intersection Capacity Utilization	79.9%			ICU Level of Service					D			
Analysis Period (min)	15											
c Critical Lane Group												

Queues

Future Build AM - Improved

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					 		
Traffic Volume (vph)	140	1468	41	586	2061	321	38	32	92	100	5	37
Future Volume (vph)	140	1468	41	586	2061	321	38	32	92	100	5	37
Lane Group Flow (vph)	175	1596	55	637	2216	357	68	64	219	109	20	77
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	5.0	8.0	8.0	6.0	8.0	8.0
Minimum Split (s)	13.0	30.7	30.7	13.0	36.7	36.7	11.0	43.0	43.0	13.0	43.0	43.0
Total Split (s)	23.0	58.0	58.0	57.0	92.0	92.0	11.0	43.0	43.0	13.0	45.0	45.0
Total Split (%)	13.5%	33.9%	33.9%	33.3%	53.8%	53.8%	6.4%	25.1%	25.1%	7.6%	26.3%	26.3%
Yellow Time (s)	4.0	4.7	4.7	4.0	4.7	4.7	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	1.8	1.8	3.0	1.8	1.8	2.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.86	0.71	0.07	1.11	0.67	0.33	0.44	0.51	0.70	0.91	0.14	0.29
Control Delay	84.9	41.1	0.2	115.8	20.1	9.5	75.1	90.0	21.0	139.8	73.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.9	41.1	0.2	115.8	20.1	9.5	75.1	90.0	21.0	139.8	73.6	2.8
Queue Length 50th (ft)	127	525	0	~742	547	107	69	71	0	63	21	0
Queue Length 95th (ft)	#191	613	0	#1001	646	181	71	66	0	#129	14	0
Internal Link Dist (ft)		555			792			972			387	
Turn Bay Length (ft)	235		150	330		145	400			200		100
Base Capacity (vph)	221	2256	787	575	3318	1076	153	392	506	120	414	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.71	0.07	1.11	0.67	0.33	0.44	0.16	0.43	0.91	0.05	0.16

Intersection Summary

Cycle Length: 171

Actuated Cycle Length: 171

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

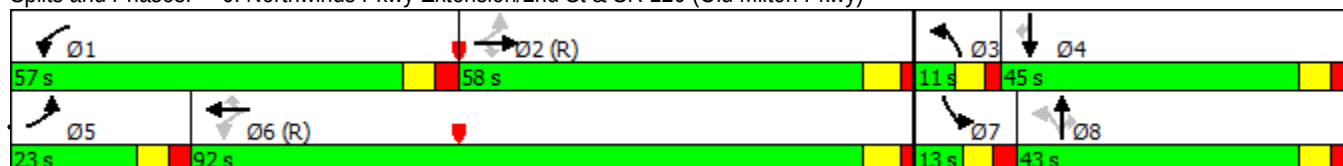
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)



HCM Signalized Intersection Capacity Analysis

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

Future Build AM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	1468	41	586	2061	321	38	32	92	100	5	37
Future Volume (vph)	140	1468	41	586	2061	321	38	32	92	100	5	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.07	1.00	1.00	0.06	1.00	1.00	0.74	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	127	5085	1583	121	5085	1583	1386	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.80	0.92	0.75	0.92	0.93	0.90	0.56	0.50	0.42	0.92	0.25	0.48
Adj. Flow (vph)	175	1596	55	637	2216	357	68	64	219	109	20	77
RTOR Reduction (vph)	0	0	31	0	0	44	0	0	204	0	0	71
Lane Group Flow (vph)	175	1596	24	637	2216	313	68	64	15	109	20	6
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	90.2	75.9	75.9	132.9	111.6	111.6	16.6	11.6	11.6	6.0	13.6	13.6
Effective Green, g (s)	90.2	75.9	75.9	132.9	111.6	111.6	16.6	11.6	11.6	6.0	13.6	13.6
Actuated g/C Ratio	0.53	0.44	0.44	0.78	0.65	0.65	0.10	0.07	0.07	0.04	0.08	0.08
Clearance Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	204	2257	702	576	3318	1033	145	126	107	120	148	125
v/s Ratio Prot	0.07	0.31		c0.32	0.44		0.01	c0.03		c0.03	0.01	
v/s Ratio Perm	0.38		0.02	c0.54		0.20	0.03		0.01			0.00
v/c Ratio	0.86	0.71	0.03	1.11	0.67	0.30	0.47	0.51	0.14	0.91	0.14	0.05
Uniform Delay, d1	43.5	38.5	26.9	52.2	18.3	12.9	72.5	76.9	75.0	82.2	73.2	72.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.1	1.9	0.1	69.9	1.1	0.8	2.4	3.2	0.6	54.0	0.4	0.2
Delay (s)	71.7	40.4	27.0	122.1	19.4	13.6	74.9	80.1	75.6	136.3	73.6	72.9
Level of Service	E	D	C	F	B	B	E	F	E	F	E	E
Approach Delay (s)		43.0			39.1			76.3			106.5	
Approach LOS		D			D			E			F	
Intersection Summary												
HCM 2000 Control Delay			45.2									
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			171.0									
Intersection Capacity Utilization			87.4%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Northwinds Pkwy

Future Build AM - Improved
05/23/2017

	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗	
Traffic Volume (veh/h)	765	388	411	299	70	82	
Future Volume (Veh/h)	765	388	411	299	70	82	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	832	422	447	325	76	89	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						8	
Median type	None			None			
Median storage veh							
Upstream signal (ft)	1211						
pX, platoon unblocked							
vC, conflicting volume			1254		1888	416	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1254		1888	416	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			19		0	85	
cM capacity (veh/h)			551		12	585	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	416	416	422	447	162	162	165
Volume Left	0	0	0	447	0	0	76
Volume Right	0	0	422	0	0	0	89
cSH	1700	1700	1700	551	1700	1700	25
Volume to Capacity	0.24	0.24	0.25	0.81	0.10	0.10	6.65
Queue Length 95th (ft)	0	0	0	200	0	0	Err
Control Delay (s)	0.0	0.0	0.0	33.9	0.0	0.0	Err
Lane LOS				D			F
Approach Delay (s)	0.0			19.6			Err
Approach LOS							F
Intersection Summary							
Average Delay			759.9				
Intersection Capacity Utilization			57.8%	ICU Level of Service			B
Analysis Period (min)			15				

Queues

Future Build PM - Improved

05/23/2017

1: Haynes Bridge Rd & GA 400 NB Ramps



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1081	410	1997	934	1071	2635
Future Volume (vph)	1081	410	1997	934	1071	2635
Lane Group Flow (vph)	1114	432	2059	973	1116	2716
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0	15.0	7.0	15.0
Minimum Split (s)	15.0	15.0	33.0	33.0	14.0	33.0
Total Split (s)	49.0	49.0	64.0	64.0	47.0	111.0
Total Split (%)	30.6%	30.6%	40.0%	40.0%	29.4%	69.4%
Yellow Time (s)	3.8	3.8	4.9	4.9	3.6	4.9
All-Red Time (s)	2.3	2.3	1.9	1.9	2.4	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.8	6.8	6.0	6.8
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	Min	C-Min
v/c Ratio	1.21	0.54	1.13	0.76	1.27	0.82
Control Delay	153.6	44.2	113.6	28.1	164.0	16.6
Queue Delay	0.0	0.0	0.2	0.0	0.0	28.8
Total Delay	153.6	44.2	113.8	28.1	164.0	45.4
Queue Length 50th (ft)	~730	184	~913	294	~746	732
Queue Length 95th (ft)	#868	248	#1002	392	m#596	m595
Internal Link Dist (ft)			688			809
Turn Bay Length (ft)	500	500		220	340	
Base Capacity (vph)	920	799	1817	1280	879	3311
Starvation Cap Reductn	0	0	0	0	0	744
Spillback Cap Reductn	0	0	94	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.21	0.54	1.20	0.76	1.27	1.06

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 94 (59%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

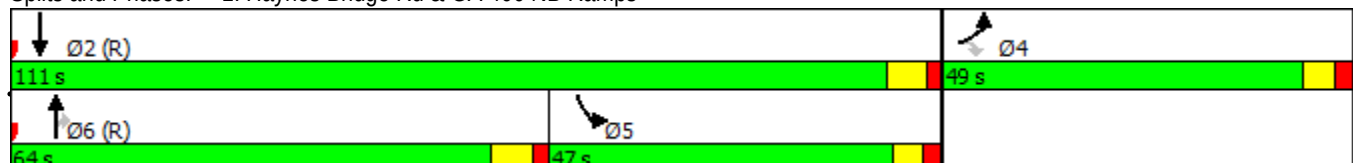
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Haynes Bridge Rd & GA 400 NB Ramps



HCM Signalized Intersection Capacity Analysis

1: Haynes Bridge Rd & GA 400 NB Ramps

Future Build PM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1081	0	410	0	0	0	0	1997	934	1071	2635	0
Future Volume (vph)	1081	0	410	0	0	0	0	1997	934	1071	2635	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Lane Util. Factor	0.97		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		2787					5085	2787	3433	5085	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		2787					5085	2787	3433	5085	
Peak-hour factor, PHF	0.97	0.92	0.95	0.92	0.92	0.92	0.92	0.97	0.96	0.96	0.97	0.92
Adj. Flow (vph)	1114	0	432	0	0	0	0	2059	973	1116	2716	0
RTOR Reduction (vph)	0	0	53	0	0	0	0	0	285	0	0	0
Lane Group Flow (vph)	1114	0	379	0	0	0	0	2059	688	1116	2716	0
Turn Type	Prot		Perm					NA	Perm	Prot	NA	
Protected Phases	4							6		5	2	
Permitted Phases			4						6			
Actuated Green, G (s)	42.9		42.9					57.2	57.2	41.0	104.2	
Effective Green, g (s)	42.9		42.9					57.2	57.2	41.0	104.2	
Actuated g/C Ratio	0.27		0.27					0.36	0.36	0.26	0.65	
Clearance Time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Vehicle Extension (s)	3.0		3.0					5.1	5.1	4.1	5.1	
Lane Grp Cap (vph)	920		747					1817	996	879	3311	
v/s Ratio Prot	c0.32							c0.40		c0.33	0.53	
v/s Ratio Perm			0.14						0.25			
v/c Ratio	1.21		0.51					1.13	0.69	1.27	0.82	
Uniform Delay, d1	58.5		49.6					51.4	43.9	59.5	20.9	
Progression Factor	1.00		1.00					1.00	1.00	0.86	0.77	
Incremental Delay, d2	105.0		0.5					67.4	3.9	122.2	0.2	
Delay (s)	163.6		50.2					118.8	47.8	173.5	16.4	
Level of Service	F		D					F	D	F	B	
Approach Delay (s)		131.9			0.0			96.0			62.1	
Approach LOS		F			A			F			E	
Intersection Summary												
HCM 2000 Control Delay			87.2		HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			160.0		Sum of lost time (s)				18.9			
Intersection Capacity Utilization			114.0%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

2: Haynes Bridge Rd & GA 400 SB Ramps

05/23/2017

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	235	66	651	843	376	643	2139	266	129	2172	1133
Future Volume (vph)	235	66	651	843	376	643	2139	266	129	2172	1133
Lane Group Flow (vph)	161	166	693	897	850	663	2205	289	140	2239	1168
Turn Type	Split	NA	pt+ov	Split	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	3 1	4	4	1	6		5	2	3
Permitted Phases								6			2
Detector Phase	3	3	3 1	4	4	1	6	6	5	2	3
Switch Phase											
Minimum Initial (s)	5.0	5.0		5.0	5.0	6.0	15.0	15.0	6.0	15.0	5.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	30.0	30.0	13.0	30.0	13.0
Total Split (s)	27.0	27.0		27.0	27.0	32.0	77.0	77.0	29.0	74.0	27.0
Total Split (%)	16.9%	16.9%		16.9%	16.9%	20.0%	48.1%	48.1%	18.1%	46.3%	16.9%
Yellow Time (s)	4.0	4.0		3.4	3.4	3.0	4.4	4.4	3.3	4.4	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	2.8	1.7	1.7	2.6	1.7	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		6.4	6.4	5.8	6.1	6.1	5.9	6.1	7.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	0.77	0.77	0.89	2.03	1.57	1.18	0.91	0.35	0.72	1.04	1.22
Control Delay	90.9	91.0	49.0	505.0	299.4	119.0	15.0	2.8	67.4	61.7	128.4
Queue Delay	0.0	0.0	6.4	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.1
Total Delay	90.9	91.0	55.4	505.0	299.4	119.0	15.8	2.8	67.4	61.7	128.5
Queue Length 50th (ft)	174	180	273	~755	~592	~421	374	35	137	~921	~1470
Queue Length 95th (ft)	#294	#302	#356	#890	#730	m#307	m323	m34	m132	m#918	m#1494
Internal Link Dist (ft)		418			220		809			956	
Turn Bay Length (ft)			250			385		225	300		360
Base Capacity (vph)	210	215	783	441	542	562	2426	831	255	2157	956
Starvation Cap Reductn	0	0	0	0	0	0	62	0	0	0	18
Spillback Cap Reductn	0	0	62	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.77	0.96	2.03	1.57	1.18	0.93	0.35	0.55	1.04	1.25

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 88 (55%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

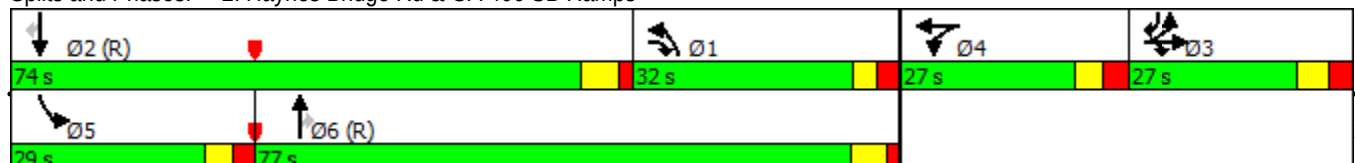
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Haynes Bridge Rd & GA 400 SB Ramps



HCM Signalized Intersection Capacity Analysis

2: Haynes Bridge Rd & GA 400 SB Ramps

Future Build PM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	66	651	843	376	415	643	2139	266	129	2172	1133
Future Volume (vph)	235	66	651	843	376	415	643	2139	266	129	2172	1133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.4	6.4		5.8	6.1	6.1	5.9	6.1	7.0
Lane Util. Factor	0.95	0.95	0.88	0.97	0.95		0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1721	2787	3433	3264		3433	5085	1583	1770	5085	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1721	2787	3433	3264		3433	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.94	0.94	0.92	0.94	0.97	0.97	0.92	0.92	0.97	0.97
Adj. Flow (vph)	255	72	693	897	409	441	663	2205	289	140	2239	1168
RTOR Reduction (vph)	0	0	0	0	123	0	0	0	76	0	0	29
Lane Group Flow (vph)	161	166	693	897	727	0	663	2205	213	140	2239	1139
Turn Type	Split	NA	pt+ov	Split	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	3 1	4	4		1	6		5	2	3
Permitted Phases									6			2
Actuated Green, G (s)	20.0	20.0	46.2	20.6	20.6		26.2	76.3	76.3	17.7	67.9	87.9
Effective Green, g (s)	20.0	20.0	46.2	20.6	20.6		26.2	76.3	76.3	17.7	67.9	87.9
Actuated g/C Ratio	0.12	0.12	0.29	0.13	0.13		0.16	0.48	0.48	0.11	0.42	0.55
Clearance Time (s)	7.0	7.0		6.4	6.4		5.8	6.1	6.1	5.9	6.1	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	3.0
Lane Grp Cap (vph)	210	215	804	441	420		562	2424	754	195	2157	938
v/s Ratio Prot	0.10	0.10	0.25	c0.26	0.22		c0.19	0.43		0.08	0.44	c0.15
v/s Ratio Perm									0.13			0.57
v/c Ratio	0.77	0.77	0.86	2.03	1.73		1.18	0.91	0.28	0.72	1.04	1.21
Uniform Delay, d1	67.7	67.8	53.9	69.7	69.7		66.9	38.7	25.3	68.7	46.0	36.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.59	0.34	0.20	0.88	0.86	0.79
Incremental Delay, d2	15.3	15.7	9.4	473.2	338.9		82.7	0.7	0.1	4.3	22.9	99.9
Delay (s)	83.1	83.5	63.3	542.9	408.6		122.1	14.0	5.2	64.7	62.5	128.3
Level of Service	F	F	E	F	F		F	B	A	E	E	F
Approach Delay (s)		69.7			477.6			35.9			84.3	
Approach LOS		E			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			139.1			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.40									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			25.4			
Intersection Capacity Utilization			128.5%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

05/23/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	113	166	1046	591	222	641	345	2102	163	1598	55
Future Volume (vph)	113	166	1046	591	222	641	345	2102	163	1598	55
Lane Group Flow (vph)	126	184	1113	642	480	443	375	2283	181	1682	60
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm
Protected Phases	3	8	5	7	4		5	2	1	6	
Permitted Phases	8		8			4			6		6
Detector Phase	3	8	5	7	4	4	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	14.0	12.0	13.0	14.0	14.0	12.0	30.0	13.0	30.0	30.0
Total Split (s)	14.0	33.0	29.0	46.0	65.0	65.0	29.0	65.0	16.0	52.0	52.0
Total Split (%)	8.8%	20.6%	18.1%	28.8%	40.6%	40.6%	18.1%	40.6%	10.0%	32.5%	32.5%
Yellow Time (s)	4.2	4.4	3.2	3.2	4.4	4.4	3.2	4.5	3.4	4.5	4.5
All-Red Time (s)	3.0	3.0	2.8	3.0	3.0	3.0	2.8	2.2	3.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.4	6.7	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio	0.84	0.69	1.07	0.88	0.91	0.77	0.76	1.08	1.19	0.99	0.09
Control Delay	80.7	78.4	92.1	75.1	71.0	39.4	52.9	78.6	161.8	57.0	0.9
Queue Delay	0.0	0.0	5.0	3.6	0.0	0.1	0.0	7.7	0.0	23.3	0.0
Total Delay	80.7	78.4	97.2	78.7	71.0	39.5	52.9	86.3	161.8	80.4	0.9
Queue Length 50th (ft)	84	184	~652	338	473	287	198	~997	~196	~690	0
Queue Length 95th (ft)	#163	271	#792	396	602	410	m217	m#1062	m#296	m#832	m1
Internal Link Dist (ft)		469			1177			956		723	
Turn Bay Length (ft)	90		150			150	225		200		180
Base Capacity (vph)	150	299	1038	853	611	647	493	2109	152	1705	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	12	133	0	6	0	199	0	120	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.62	1.08	0.89	0.79	0.69	0.76	1.20	1.19	1.06	0.09

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 32 (20%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

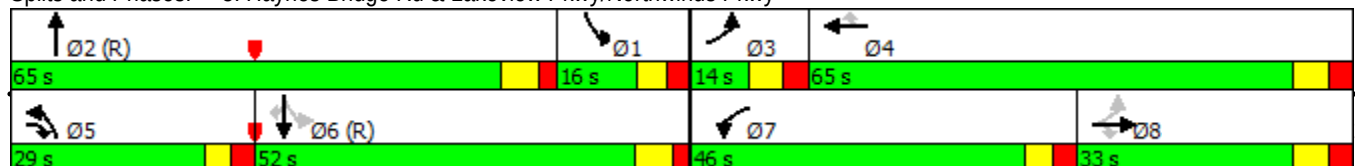
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy



HCM Signalized Intersection Capacity Analysis

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

Future Build PM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	166	1046	591	222	641	345	2102	56	163	1598	55
Future Volume (vph)	113	166	1046	591	222	641	345	2102	56	163	1598	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7		6.4	6.7	6.7
Lane Util. Factor	1.00	1.00	0.88	0.97	0.95	0.95	0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.93	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	2787	3433	1637	1504	3433	5062		1770	5085	1583
Flt Permitted	0.28	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.09	1.00	1.00
Satd. Flow (perm)	517	1863	2787	3433	1637	1504	3433	5062		168	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.94	0.92	0.92	0.94	0.92	0.95	0.80	0.90	0.95	0.92
Adj. Flow (vph)	126	184	1113	642	241	682	375	2213	70	181	1682	60
RTOR Reduction (vph)	0	0	115	0	24	114	0	2	0	0	0	40
Lane Group Flow (vph)	126	184	998	642	456	329	375	2281	0	181	1682	20
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA		pm+pt	NA	Perm
Protected Phases	3	8	5	7	4		5	2		1	6	
Permitted Phases	8		8			4				6		6
Actuated Green, G (s)	29.8	23.0	46.0	34.0	49.2	49.2	23.0	66.7		54.0	53.7	53.7
Effective Green, g (s)	29.8	23.0	46.0	34.0	49.2	49.2	23.0	66.7		54.0	53.7	53.7
Actuated g/C Ratio	0.19	0.14	0.29	0.21	0.31	0.31	0.14	0.42		0.34	0.34	0.34
Clearance Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7		6.4	6.7	6.7
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	149	267	801	729	503	462	493	2110		152	1706	531
v/s Ratio Prot	0.04	0.10	c0.18	c0.19	c0.28		0.11	c0.45		c0.07	0.33	
v/s Ratio Perm	0.12		0.18			0.22				c0.33		0.01
v/c Ratio	0.85	0.69	1.25	0.88	0.91	0.71	0.76	1.08		1.19	0.99	0.04
Uniform Delay, d1	60.8	65.1	57.0	61.0	53.2	49.1	65.9	46.6		70.6	52.8	35.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.76	0.89		0.88	0.84	1.00
Incremental Delay, d2	32.2	6.6	120.9	11.7	19.8	4.8	1.5	39.0		113.9	12.5	0.1
Delay (s)	93.0	71.7	177.9	72.8	72.9	53.9	51.5	80.3		176.2	56.9	35.8
Level of Service	F	E	F	E	E	D	D	F		F	E	D
Approach Delay (s)		156.6			67.5			76.2			67.5	
Approach LOS		F			E			E			E	
Intersection Summary												
HCM 2000 Control Delay			87.3				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.13									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			27.7		
Intersection Capacity Utilization			105.0%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	761	526	339	710	69	625	1958	273	53	926	115
Future Volume (vph)	194	761	526	339	710	69	625	1958	273	53	926	115
Lane Group Flow (vph)	223	801	572	368	763	90	679	2128	297	65	1007	125
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2			6
Detector Phase	3	8	5	7	4	4	5	2	2	1	6	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0	4.0	10.0	5.0
Minimum Split (s)	13.0	18.0	13.0	13.0	18.0	18.0	13.0	28.0	28.0	12.0	24.0	13.0
Total Split (s)	24.0	42.0	40.0	33.0	51.0	51.0	40.0	72.0	72.0	13.0	45.0	24.0
Total Split (%)	15.0%	26.3%	25.0%	20.6%	31.9%	31.9%	25.0%	45.0%	45.0%	8.1%	28.1%	15.0%
Yellow Time (s)	3.6	3.9	3.4	3.4	3.9	3.9	3.4	4.7	4.7	3.5	4.7	3.6
All-Red Time (s)	3.0	2.8	3.0	3.0	2.8	2.8	3.0	1.8	1.8	2.8	1.8	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	0.85	1.03	0.74	1.08	0.77	0.16	0.94	1.02	0.40	0.88	0.82	0.20
Control Delay	61.8	99.1	20.3	117.1	58.8	0.6	44.5	37.9	2.2	148.1	64.2	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	0.0	0.0
Total Delay	61.8	99.1	20.3	117.1	58.8	0.6	44.5	48.4	2.2	148.1	64.2	4.5
Queue Length 50th (ft)	152	~468	196	~376	390	0	335	~763	14	69	368	4
Queue Length 95th (ft)	#257	#604	282	#591	470	0	m320	m429	m7	#145	427	29
Internal Link Dist (ft)		761			667			723			604	
Turn Bay Length (ft)	200		200	165		200	250		260	350		160
Base Capacity (vph)	272	780	772	341	997	558	720	2081	746	74	1223	625
Starvation Cap Reductn	0	0	0	0	0	0	0	57	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	1.03	0.74	1.08	0.77	0.16	0.94	1.05	0.40	0.88	0.82	0.20

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 8 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

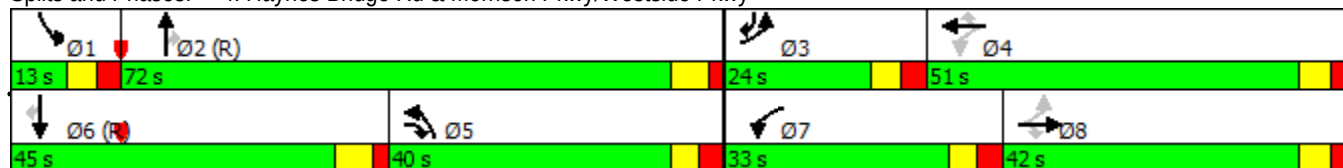
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy



HCM Signalized Intersection Capacity Analysis

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

Future Build PM - Improved

05/23/2017

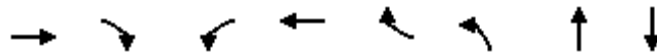
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	761	526	339	710	69	625	1958	273	53	926	115
Future Volume (vph)	194	761	526	339	710	69	625	1958	273	53	926	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.19	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	360	3539	1583	179	3539	1583	3433	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.87	0.95	0.92	0.92	0.93	0.77	0.92	0.92	0.92	0.81	0.92	0.92
Adj. Flow (vph)	223	801	572	368	763	90	679	2128	297	65	1007	125
RTOR Reduction (vph)	0	0	88	0	0	65	0	0	98	0	0	74
Lane Group Flow (vph)	223	801	484	368	763	25	679	2128	199	65	1007	51
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2			6
Actuated Green, G (s)	51.9	35.3	68.9	68.3	45.1	45.1	33.6	65.5	65.5	6.7	38.5	55.1
Effective Green, g (s)	51.9	35.3	68.9	68.3	45.1	45.1	33.6	65.5	65.5	6.7	38.5	55.1
Actuated g/C Ratio	0.32	0.22	0.43	0.43	0.28	0.28	0.21	0.41	0.41	0.04	0.24	0.34
Clearance Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Vehicle Extension (s)	2.5	2.5	3.0	2.5	2.5	2.5	3.0	5.5	5.5	2.0	5.5	2.5
Lane Grp Cap (vph)	263	780	681	340	997	446	720	2081	648	74	1223	545
v/s Ratio Prot	0.09	0.23	0.15	c0.18	0.22		0.20	c0.42		0.04	c0.20	0.01
v/s Ratio Perm	0.19		0.16	c0.28		0.02			0.13			0.02
v/c Ratio	0.85	1.03	0.71	1.08	0.77	0.06	0.94	1.02	0.31	0.88	0.82	0.09
Uniform Delay, d1	43.1	62.4	37.4	52.0	52.6	41.9	62.3	47.2	31.9	76.2	57.5	35.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.56	0.41	0.12	1.00	1.00	1.00
Incremental Delay, d2	21.3	39.3	3.5	72.6	3.4	0.0	8.4	17.1	0.4	62.7	6.4	0.1
Delay (s)	64.4	101.6	40.9	124.6	56.0	42.0	43.0	36.6	4.3	139.0	63.9	35.6
Level of Service	E	F	D	F	E	D	D	D	A	F	E	D
Approach Delay (s)		74.6			75.6			34.9			65.0	
Approach LOS		E			E			C			E	
Intersection Summary												
HCM 2000 Control Delay			55.9									
HCM 2000 Level of Service												E
HCM 2000 Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			160.0									
Sum of lost time (s)											26.2	
Intersection Capacity Utilization			102.6%									
ICU Level of Service												G
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

5: Northwinds Pkwy/Bailey Johnson Ave & Kimball Bridge Rd

05/23/2017



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	Ø5	Ø7
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑		
Traffic Volume (vph)	211	84	289	500	1	375	170	43		
Future Volume (vph)	211	84	289	500	1	375	170	43		
Lane Group Flow (vph)	271	117	328	581	4	436	509	55		
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA		
Protected Phases	2		1	6		3	8	4	5	7
Permitted Phases		2	6		6	8				
Detector Phase	2	2	1	6	6	3	8	4		
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	11.0	24.0	24.0	11.0	24.0	24.0	11.0	11.0
Total Split (s)	41.0	41.0	25.0	55.0	55.0	30.0	43.0	24.0	11.0	11.0
Total Split (%)	34.2%	34.2%	20.8%	45.8%	45.8%	25.0%	35.8%	20.0%	9%	9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lead/Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	Min	Min	None	None
v/c Ratio	0.66	0.22	0.67	0.66	0.00	0.83	0.35	0.20		
Control Delay	40.0	0.9	22.6	22.1	0.0	38.4	8.1	39.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	40.0	0.9	22.6	22.1	0.0	38.4	8.1	39.2		
Queue Length 50th (ft)	144	0	119	249	0	193	34	13		
Queue Length 95th (ft)	197	0	182	346	0	#346	83	35		
Internal Link Dist (ft)	895			545			923	1095		
Turn Bay Length (ft)		160	130		150	150				
Base Capacity (vph)	769	797	541	1098	1011	576	1591	741		
Starvation Cap Reductn	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.35	0.15	0.61	0.53	0.00	0.76	0.32	0.07		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 87.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Northwinds Pkwy/Bailey Johnson Ave & Kimball Bridge Rd

Ø1	Ø2	Ø3	Ø4
25 s	41 s	30 s	24 s
Ø5	Ø6	Ø7	Ø8
11 s	55 s	11 s	43 s

HCM Signalized Intersection Capacity Analysis

5: Northwinds Pkwy/Bailey Johnson Ave & Kimball Bridge Rd

Future Build PM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	211	84	289	500	1	375	170	240	0	43	4
Future Volume (vph)	0	211	84	289	500	1	375	170	240	0	43	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	0.95			0.95	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.90			0.98	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1863	1583	1770	1863	1583	1770	3201			3462	
Flt Permitted		1.00	1.00	0.31	1.00	1.00	0.39	1.00			1.00	
Satd. Flow (perm)		1863	1583	587	1863	1583	721	3201			3462	
Peak-hour factor, PHF	0.92	0.78	0.72	0.88	0.86	0.25	0.86	0.92	0.74	0.92	0.92	0.50
Adj. Flow (vph)	0	271	117	328	581	4	436	185	324	0	47	8
RTOR Reduction (vph)	0	0	91	0	0	2	0	198	0	0	7	0
Lane Group Flow (vph)	0	271	26	328	581	2	436	311	0	0	48	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)		19.5	19.5	41.1	41.1	41.1	33.8	33.8			7.0	
Effective Green, g (s)		19.5	19.5	41.1	41.1	41.1	33.8	33.8			7.0	
Actuated g/C Ratio		0.22	0.22	0.47	0.47	0.47	0.39	0.39			0.08	
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)		418	355	489	881	748	531	1245			278	
v/s Ratio Prot		0.15		0.12	c0.31		c0.20	0.10			0.01	
v/s Ratio Perm			0.02	c0.20		0.00	c0.12					
v/c Ratio		0.65	0.07	0.67	0.66	0.00	0.82	0.25			0.17	
Uniform Delay, d1		30.6	26.6	16.0	17.5	12.1	21.8	18.0			37.2	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2		3.4	0.1	3.6	1.8	0.0	9.9	0.1			0.3	
Delay (s)		34.0	26.7	19.6	19.3	12.1	31.7	18.1			37.5	
Level of Service		C	C	B	B	B	C	B			D	
Approach Delay (s)		31.8			19.4			24.4			37.5	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			24.0				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			86.9				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			72.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Improved

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	2276	26	317	2121	319	109	49	336	401	20	149
Future Volume (vph)	139	2276	26	317	2121	319	109	49	336	401	20	149
Lane Group Flow (vph)	176	2474	43	352	2256	354	158	98	373	446	80	162
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	5.0	8.0	8.0	6.0	8.0	8.0
Minimum Split (s)	13.0	30.7	30.7	13.0	36.7	36.7	11.0	43.0	43.0	13.0	43.0	43.0
Total Split (s)	18.0	76.0	76.0	28.0	86.0	86.0	15.0	43.0	43.0	24.0	52.0	52.0
Total Split (%)	10.5%	44.4%	44.4%	16.4%	50.3%	50.3%	8.8%	25.1%	25.1%	14.0%	30.4%	30.4%
Yellow Time (s)	4.0	4.7	4.7	4.0	4.7	4.7	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	1.8	1.8	3.0	1.8	1.8	2.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.13	1.05	0.05	1.35	0.85	0.39	0.52	0.34	0.92	1.31	0.21	0.36
Control Delay	153.3	76.2	0.1	223.6	39.9	15.7	55.2	65.8	60.8	213.8	55.1	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	153.3	76.2	0.1	223.6	39.9	15.7	55.2	65.8	60.8	213.8	55.1	8.6
Queue Length 50th (ft)	~178	~1113	0	~467	791	130	136	99	212	~329	75	0
Queue Length 95th (ft)	#287	#1300	0	#696	952	233	140	82	334	#447	31	61
Internal Link Dist (ft)		555			792			972			387	
Turn Bay Length (ft)	235		150	330		145	400			200		100
Base Capacity (vph)	156	2359	840	260	2656	900	301	392	487	341	490	535
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	1.05	0.05	1.35	0.85	0.39	0.52	0.25	0.77	1.31	0.16	0.30

Intersection Summary

Cycle Length: 171

Actuated Cycle Length: 171

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

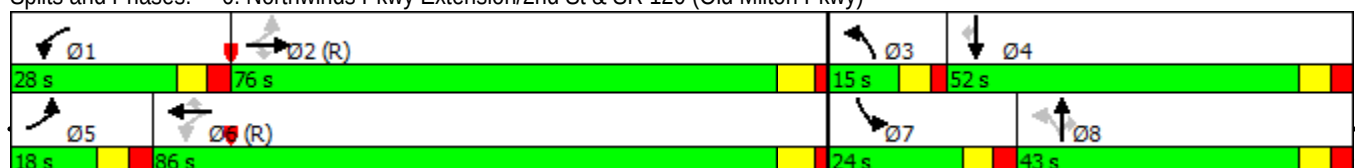
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)



HCM Signalized Intersection Capacity Analysis

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

Future Build PM - Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	2276	26	317	2121	319	109	49	336	401	20	149
Future Volume (vph)	139	2276	26	317	2121	319	109	49	336	401	20	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.05	1.00	1.00	0.05	1.00	1.00	0.70	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	94	5085	1583	86	5085	1583	1313	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.79	0.92	0.61	0.90	0.94	0.90	0.69	0.50	0.90	0.90	0.25	0.92
Adj. Flow (vph)	176	2474	43	352	2256	354	158	98	373	446	80	162
RTOR Reduction (vph)	0	0	23	0	0	73	0	0	165	0	0	129
Lane Group Flow (vph)	176	2474	20	352	2256	281	158	98	208	446	80	33
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	90.3	79.3	79.3	107.3	89.3	89.3	35.2	26.2	26.2	17.0	35.2	35.2
Effective Green, g (s)	90.3	79.3	79.3	107.3	89.3	89.3	35.2	26.2	26.2	17.0	35.2	35.2
Actuated g/C Ratio	0.53	0.46	0.46	0.63	0.52	0.52	0.21	0.15	0.15	0.10	0.21	0.21
Clearance Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	157	2358	734	260	2655	826	294	285	242	341	383	325
v/s Ratio Prot	0.07	0.49		c0.17	0.44		0.03	0.05		c0.13	0.04	
v/s Ratio Perm	0.52		0.01	c0.68		0.18	0.08		c0.13			0.02
v/c Ratio	1.12	1.05	0.03	1.35	0.85	0.34	0.54	0.34	0.86	1.31	0.21	0.10
Uniform Delay, d1	52.4	45.9	24.9	62.2	35.1	23.7	59.4	64.7	70.6	77.0	56.3	55.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	108.0	33.0	0.1	182.4	3.6	1.1	1.9	0.7	24.8	158.2	0.3	0.1
Delay (s)	160.4	78.9	25.0	244.6	38.7	24.9	61.3	65.4	95.4	235.2	56.6	55.2
Level of Service	F	E	C	F	D	C	E	E	F	F	E	E
Approach Delay (s)		83.4			61.5			82.2			172.1	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			82.7			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			171.0			Sum of lost time (s)			27.5			
Intersection Capacity Utilization			96.7%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Northwinds Pkwy

Future Build PM - Improved
05/23/2017

											
Movement	EBT	EBR	WBL	WBT	NBL	NBR					
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗					
Traffic Volume (veh/h)	261	114	120	711	419	489					
Future Volume (Veh/h)	261	114	120	711	419	489					
Sign Control	Free			Free	Stop						
Grade	0%			0%	0%						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92					
Hourly flow rate (vph)	284	124	130	773	455	532					
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)						8					
Median type	None		None								
Median storage veh											
Upstream signal (ft)	1257										
pX, platoon unblocked											
vC, conflicting volume			408	930		142					
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol			408	930		142					
tC, single (s)			4.1	6.8		6.9					
tC, 2 stage (s)											
tF (s)			2.2	3.5		3.3					
p0 queue free %			89	0		40					
cM capacity (veh/h)			1147	236		880					
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1				
Volume Total	142	142	124	130	386	386	987				
Volume Left	0	0	0	130	0	0	455				
Volume Right	0	0	124	0	0	0	532				
cSH	1700	1700	1700	1147	1700	1700	406				
Volume to Capacity	0.08	0.08	0.07	0.11	0.23	0.23	2.43				
Queue Length 95th (ft)	0	0	0	10	0	0	1936				
Control Delay (s)	0.0	0.0	0.0	8.5	0.0	0.0	673.6				
Lane LOS				A			F				
Approach Delay (s)	0.0			1.2			673.6				
Approach LOS											
Intersection Summary											
Average Delay	289.8										
Intersection Capacity Utilization	49.5%			ICU Level of Service			A				
Analysis Period (min)	15										

**“BUILD” INTERSECTION ANALYSIS ADDITIONAL SCENARIO
(WITH IMPROVEMENTS)**

Queues

Future Build AM - Further Improved

1: Haynes Bridge Rd & GA 400 NB Ramps

05/23/2017



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔↔	↗	↑↑↑	↗↗	↗↗	↑↑↑
Traffic Volume (vph)	1559	457	1746	619	271	1491
Future Volume (vph)	1559	457	1746	619	271	1491
Lane Group Flow (vph)	1641	491	1898	652	295	1621
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		6		
Detector Phase	4		6	6	5	2
Switch Phase						
Minimum Initial (s)	7.0		15.0	15.0	7.0	15.0
Minimum Split (s)	15.0		33.0	33.0	14.0	33.0
Total Split (s)	63.0		74.0	74.0	23.0	97.0
Total Split (%)	39.4%		46.3%	46.3%	14.4%	60.6%
Yellow Time (s)	3.8		4.9	4.9	3.6	4.9
All-Red Time (s)	2.3		1.9	1.9	2.4	1.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1		6.8	6.8	6.0	6.8
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Recall Mode	None		C-Min	C-Min	Min	C-Min
v/c Ratio	0.93	0.31	0.88	0.47	0.82	0.56
Control Delay	60.6	0.5	48.1	15.2	86.8	22.0
Queue Delay	0.0	0.0	0.8	0.0	0.0	0.0
Total Delay	60.6	0.5	49.0	15.2	86.8	22.0
Queue Length 50th (ft)	585	0	668	121	156	462
Queue Length 95th (ft)	651	0	736	181	#226	547
Internal Link Dist (ft)			688			809
Turn Bay Length (ft)	500	500		220	340	
Base Capacity (vph)	1774	1583	2160	1389	364	2883
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	82	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.31	0.91	0.47	0.81	0.56

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 89 (56%), Referenced to phase 2:SBT and 6:NBT, Start of Green

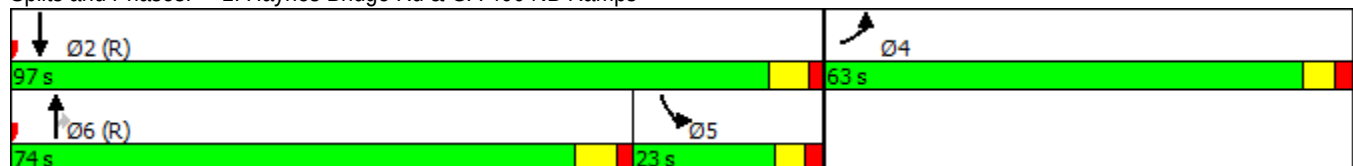
Natural Cycle: 90

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Haynes Bridge Rd & GA 400 NB Ramps



HCM Signalized Intersection Capacity Analysis

1: Haynes Bridge Rd & GA 400 NB Ramps

Future Build AM - Further Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1559	0	457	0	0	0	0	1746	619	271	1491	0
Future Volume (vph)	1559	0	457	0	0	0	0	1746	619	271	1491	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		4.0					6.8	6.8	6.0	6.8	
Lane Util. Factor	0.94		1.00					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	4990		1583					5085	2787	3433	5085	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	4990		1583					5085	2787	3433	5085	
Peak-hour factor, PHF	0.95	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	1641	0	491	0	0	0	0	1898	652	295	1621	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	205	0	0	0
Lane Group Flow (vph)	1641	0	491	0	0	0	0	1898	447	295	1621	0
Turn Type	Prot		Free					NA	Perm	Prot	NA	
Protected Phases	4							6		5	2	
Permitted Phases			Free						6			
Actuated Green, G (s)	56.4		160.0					68.0	68.0	16.7	90.7	
Effective Green, g (s)	56.4		160.0					68.0	68.0	16.7	90.7	
Actuated g/C Ratio	0.35		1.00					0.42	0.42	0.10	0.57	
Clearance Time (s)	6.1							6.8	6.8	6.0	6.8	
Vehicle Extension (s)	3.0							5.1	5.1	4.1	5.1	
Lane Grp Cap (vph)	1758		1583					2161	1184	358	2882	
v/s Ratio Prot	c0.33							c0.37		c0.09	0.32	
v/s Ratio Perm			0.31						0.16			
v/c Ratio	0.93		0.31					0.88	0.38	0.82	0.56	
Uniform Delay, d1	50.0		0.0					42.2	31.5	70.2	22.0	
Progression Factor	1.00		1.00					1.00	1.00	0.99	0.96	
Incremental Delay, d2	9.6		0.5					5.5	0.9	13.8	0.7	
Delay (s)	59.6		0.5					47.7	32.4	83.2	21.8	
Level of Service	E		A					D	C	F	C	
Approach Delay (s)		46.0			0.0			43.8			31.3	
Approach LOS		D			A			D			C	
Intersection Summary												
HCM 2000 Control Delay			40.9									HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio			0.89									D
Actuated Cycle Length (s)			160.0									Sum of lost time (s)
Intersection Capacity Utilization			85.1%									18.9
Analysis Period (min)			15									ICU Level of Service
c Critical Lane Group												E

Queues

2: Haynes Bridge Rd & GA 400 SB Ramps

Future Build AM - Further Improved

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	554	230	548	139	64	68	150	2158	869	392	998	527
Future Volume (vph)	554	230	548	139	64	68	150	2158	869	392	998	527
Lane Group Flow (vph)	400	408	565	143	66	70	155	2225	896	404	1029	543
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	1	4	4	5	1	6		5	2	3
Permitted Phases			3			4			6			2
Detector Phase	3	3	1	4	4	5	1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	6.0	5.0	5.0	6.0	6.0	15.0	15.0	6.0	15.0	5.0
Minimum Split (s)	43.0	43.0	12.0	44.0	44.0	12.0	12.0	51.4	51.4	12.0	51.4	43.0
Total Split (s)	39.0	39.0	26.0	43.0	43.0	23.0	26.0	55.0	55.0	23.0	52.0	39.0
Total Split (%)	24.4%	24.4%	16.3%	26.9%	26.9%	14.4%	16.3%	34.4%	34.4%	14.4%	32.5%	24.4%
Yellow Time (s)	4.0	4.0	3.0	3.4	3.4	3.3	3.0	4.4	4.4	3.3	4.4	4.0
All-Red Time (s)	3.0	3.0	2.8	3.0	3.0	2.6	2.8	1.7	1.7	2.6	1.7	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	5.8	6.4	6.4	5.9	5.8	6.1	6.1	5.9	6.1	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	1.13	1.18	0.57	0.55	0.47	0.18	0.30	0.95	0.97	2.14	0.48	0.27
Control Delay	143.5	159.9	31.3	79.3	81.5	1.9	49.7	33.1	30.3	547.6	27.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1	0.0	0.0	0.0
Total Delay	143.5	159.9	31.3	79.3	81.5	1.9	49.7	33.1	51.4	547.6	27.6	0.4
Queue Length 50th (ft)	~483	~535	212	75	68	0	72	698	591	~675	353	0
Queue Length 95th (ft)	#700	#766	256	112	119	6	m84	#963	m#960	m#859	m424	m0
Internal Link Dist (ft)		420			220			809			959	
Turn Bay Length (ft)			250			150	385		225	300		360
Base Capacity (vph)	354	346	992	785	426	382	510	2334	919	189	2124	2015
Starvation Cap Reductn	0	0	0	0	0	0	0	0	67	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	1.18	0.57	0.18	0.15	0.18	0.30	0.95	1.05	2.14	0.48	0.27

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 105 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

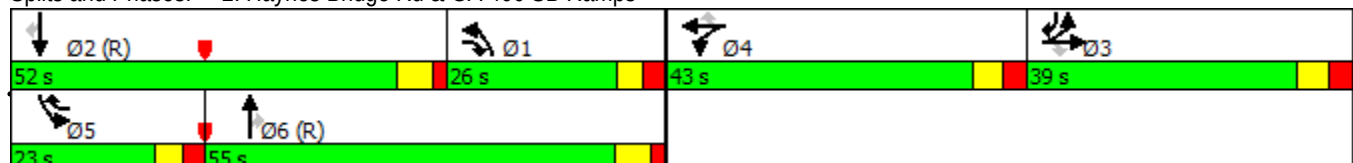
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Haynes Bridge Rd & GA 400 SB Ramps



HCM Signalized Intersection Capacity Analysis

2: Haynes Bridge Rd & GA 400 SB Ramps

Future Build AM - Further Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	554	230	548	139	64	68	150	2158	869	392	998	527
Future Volume (vph)	554	230	548	139	64	68	150	2158	869	392	998	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	5.8	6.4	6.4	5.9	5.8	6.1	6.1	5.9	6.1	7.0
Lane Util. Factor	*1.00	0.95	0.88	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1733	2787	3433	1863	1583	3433	5085	1583	1770	5085	2787
Flt Permitted	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1733	2787	3433	1863	1583	3433	5085	1583	1770	5085	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	571	237	565	143	66	70	155	2225	896	404	1029	543
RTOR Reduction (vph)	0	0	0	0	0	57	0	0	192	0	0	207
Lane Group Flow (vph)	400	408	565	143	66	13	155	2225	704	404	1029	336
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	1	4	4	5	1	6		5	2	3
Permitted Phases			3			4			6			2
Actuated Green, G (s)	32.0	32.0	55.8	12.0	12.0	29.1	23.8	73.5	73.5	17.1	66.9	98.9
Effective Green, g (s)	32.0	32.0	55.8	12.0	12.0	29.1	23.8	73.5	73.5	17.1	66.9	98.9
Actuated g/C Ratio	0.20	0.20	0.35	0.08	0.08	0.18	0.15	0.46	0.46	0.11	0.42	0.62
Clearance Time (s)	7.0	7.0	5.8	6.4	6.4	5.9	5.8	6.1	6.1	5.9	6.1	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	3.0
Lane Grp Cap (vph)	354	346	971	257	139	287	510	2335	727	189	2126	1844
v/s Ratio Prot	0.23	c0.24	0.09	c0.04	0.04	0.00	0.05	0.44		c0.23	0.20	0.04
v/s Ratio Perm			0.12			0.00			c0.44			0.08
v/c Ratio	1.13	1.18	0.58	0.56	0.47	0.04	0.30	0.95	0.97	2.14	0.48	0.18
Uniform Delay, d1	64.0	64.0	42.6	71.4	71.0	54.0	60.7	41.6	42.1	71.5	34.0	13.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.66	0.58	0.61	0.80	0.29
Incremental Delay, d2	87.9	106.5	0.9	2.6	2.5	0.1	0.1	5.2	15.1	523.2	0.5	0.0
Delay (s)	151.9	170.5	43.5	74.0	73.5	54.0	47.9	32.5	39.6	566.6	27.6	3.9
Level of Service	F	F	D	E	E	D	D	C	D	F	C	A
Approach Delay (s)		112.8			68.9			35.1			131.3	
Approach LOS		F			E			D			F	
Intersection Summary												
HCM 2000 Control Delay			79.5									
HCM 2000 Level of Service											E	
HCM 2000 Volume to Capacity ratio			1.13									
Actuated Cycle Length (s)			160.0									
Sum of lost time (s)											25.4	
Intersection Capacity Utilization			112.7%									
ICU Level of Service											H	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Further Improved

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

05/23/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	162	300	67	204	138	945	1314	513	612	1459	146
Future Volume (vph)	43	162	300	67	204	138	945	1314	513	612	1459	146
Lane Group Flow (vph)	57	180	326	120	272	156	1005	1383	558	680	1536	162
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8	5	7	4		5	2		1	6	
Permitted Phases	8		8			4			2			6
Detector Phase	3	8	5	7	4	4	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	11.0	49.4	11.0	11.2	47.4	47.4	11.0	42.7	42.7	11.4	37.7	37.7
Total Split (s)	11.0	49.4	49.0	12.2	50.6	50.6	49.0	59.2	59.2	39.2	49.4	49.4
Total Split (%)	6.9%	30.9%	30.6%	7.6%	31.6%	31.6%	30.6%	37.0%	37.0%	24.5%	30.9%	30.9%
Yellow Time (s)	4.2	4.4	3.2	3.2	4.4	4.4	3.2	4.5	4.5	3.4	4.5	4.5
All-Red Time (s)	3.0	3.0	2.8	3.0	3.0	3.0	2.8	2.2	2.2	3.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.7	6.4	6.7	6.7
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.32	0.57	0.23	0.94	0.81	0.37	1.09	0.65	0.72	0.97	0.84	0.24
Control Delay	60.7	66.6	14.6	138.7	79.4	8.5	84.7	22.9	16.6	56.8	29.7	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	66.6	14.6	138.7	79.4	8.5	84.7	22.9	16.6	56.8	29.7	0.6
Queue Length 50th (ft)	51	174	68	65	290	0	~597	364	277	325	260	0
Queue Length 95th (ft)	74	242	90	62	329	34	m#620	m445	m388	m#348	m#627	m0
Internal Link Dist (ft)		469			1131			959			721	
Turn Bay Length (ft)	90		150			150	225		100	200		180
Base Capacity (vph)	176	489	1410	128	475	524	922	2138	772	703	1826	673
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.37	0.23	0.94	0.57	0.30	1.09	0.65	0.72	0.97	0.84	0.24

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 15 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

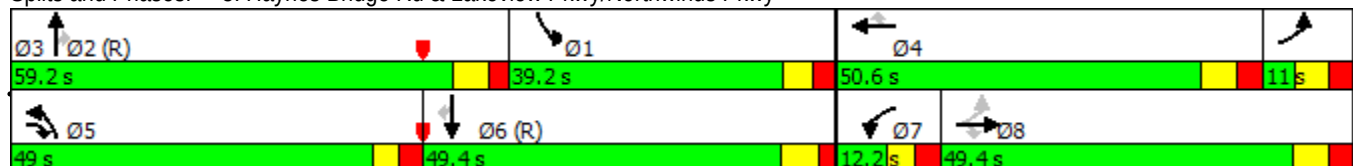
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy



HCM Signalized Intersection Capacity Analysis

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

Future Build AM - Further Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	162	300	67	204	138	945	1314	513	612	1459	146
Future Volume (vph)	43	162	300	67	204	138	945	1314	513	612	1459	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.7	6.4	6.7	6.7
Lane Util. Factor	1.00	1.00	0.88	0.97	0.95	0.95	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	2787	3433	1753	1504	3433	5085	1583	3433	5085	1583
Flt Permitted	0.47	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	883	1863	2787	3433	1753	1504	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.75	0.90	0.92	0.56	0.80	0.80	0.94	0.95	0.92	0.90	0.95	0.90
Adj. Flow (vph)	57	180	326	120	255	172	1005	1383	558	680	1536	162
RTOR Reduction (vph)	0	0	62	0	2	126	0	0	108	0	0	105
Lane Group Flow (vph)	57	180	264	120	270	30	1005	1383	450	680	1536	57
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8	5	7	4		5	2		1	6	
Permitted Phases	8		8			4			2			6
Actuated Green, G (s)	28.8	28.6	71.6	6.0	30.6	30.6	43.0	65.9	65.9	32.8	56.1	56.1
Effective Green, g (s)	28.8	28.6	71.6	6.0	30.6	30.6	43.0	65.9	65.9	32.8	56.1	56.1
Actuated g/C Ratio	0.18	0.18	0.45	0.04	0.19	0.19	0.27	0.41	0.41	0.20	0.35	0.35
Clearance Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.7	6.4	6.7	6.7
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	175	333	1247	128	335	287	922	2094	651	703	1782	555
v/s Ratio Prot	0.01	c0.10	0.06	0.03	c0.15		c0.29	0.27		c0.20	c0.30	
v/s Ratio Perm	0.05		0.04			0.02			0.28			0.04
v/c Ratio	0.33	0.54	0.21	0.94	0.81	0.10	1.09	0.66	0.69	0.97	0.86	0.10
Uniform Delay, d1	61.1	59.7	27.0	76.8	61.9	53.4	58.5	38.0	38.7	63.1	48.3	35.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.58	0.54	0.63	0.55	0.04
Incremental Delay, d2	0.4	1.4	0.0	59.3	12.9	0.1	47.2	0.6	2.0	15.4	2.7	0.2
Delay (s)	61.5	61.1	27.0	136.1	74.8	53.5	86.2	22.8	22.7	55.3	29.4	1.6
Level of Service	E	E	C	F	E	D	F	C	C	E	C	A
Approach Delay (s)		41.4			82.2			44.4			35.0	
Approach LOS		D			F			D			C	
Intersection Summary												
HCM 2000 Control Delay			43.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			27.7		
Intersection Capacity Utilization			94.8%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Further Improved

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	520	453	337	1213	45	580	875	149	59	1406	216
Future Volume (vph)	83	520	453	337	1213	45	580	875	149	59	1406	216
Lane Group Flow (vph)	92	565	477	355	1251	49	611	921	157	61	1449	223
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2	6		6
Detector Phase	3	8	5	7	4	4	5	2	2	1	6	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0	4.0	10.0	5.0
Minimum Split (s)	11.6	51.7	11.4	11.4	51.7	51.7	11.4	38.7	38.7	11.0	51.7	11.6
Total Split (s)	12.8	49.0	33.0	26.0	62.2	62.2	33.0	73.0	73.0	12.0	52.0	12.8
Total Split (%)	8.0%	30.6%	20.6%	16.3%	38.9%	38.9%	20.6%	45.6%	45.6%	7.5%	32.5%	8.0%
Yellow Time (s)	3.6	3.9	3.4	3.4	3.9	3.9	3.4	4.7	4.7	3.5	4.7	3.6
All-Red Time (s)	3.0	2.8	3.0	3.0	2.8	2.8	3.0	1.8	1.8	2.8	1.8	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	0.80	0.60	0.59	1.02	1.02	0.08	1.07	0.42	0.20	0.28	1.00	0.33
Control Delay	75.9	54.7	26.4	87.8	81.5	0.2	105.1	12.3	1.8	27.4	80.6	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.9	54.7	26.4	87.8	81.5	0.2	105.1	12.3	1.8	27.4	80.6	12.8
Queue Length 50th (ft)	58	274	278	~271	~726	0	~346	243	25	33	~561	47
Queue Length 95th (ft)	#147	340	398	#457	#867	0	#475	119	0	61	#673	117
Internal Link Dist (ft)		761			667			721			604	
Turn Bay Length (ft)	200		200	165		200	250		260	350		160
Base Capacity (vph)	115	935	807	349	1227	650	570	2189	770	221	1446	674
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.60	0.59	1.02	1.02	0.08	1.07	0.42	0.20	0.28	1.00	0.33

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

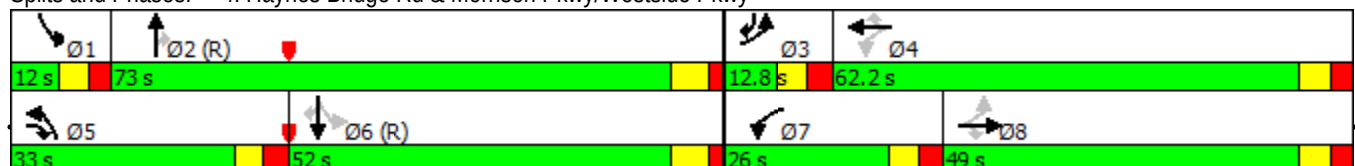
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy



HCM Signalized Intersection Capacity Analysis

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

Future Build AM - Further Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	  			  	
Traffic Volume (vph)	83	520	453	337	1213	45	580	875	149	59	1406	216
Future Volume (vph)	83	520	453	337	1213	45	580	875	149	59	1406	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.09	1.00	1.00	0.23	1.00	1.00	0.95	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	176	3539	1583	433	3539	1583	3433	5085	1583	555	5085	1583
Peak-hour factor, PHF	0.90	0.92	0.95	0.95	0.97	0.92	0.95	0.95	0.95	0.97	0.97	0.97
Adj. Flow (vph)	92	565	477	355	1251	49	611	921	157	61	1449	223
RTOR Reduction (vph)	0	0	64	0	0	32	0	0	91	0	0	105
Lane Group Flow (vph)	92	565	413	355	1251	17	611	921	66	61	1449	118
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2	6		6
Actuated Green, G (s)	48.5	42.3	68.9	68.3	55.5	55.5	26.6	67.6	67.6	50.1	45.5	51.7
Effective Green, g (s)	48.5	42.3	68.9	68.3	55.5	55.5	26.6	67.6	67.6	50.1	45.5	51.7
Actuated g/C Ratio	0.30	0.26	0.43	0.43	0.35	0.35	0.17	0.42	0.42	0.31	0.28	0.32
Clearance Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Vehicle Extension (s)	2.5	2.5	3.0	2.5	2.5	2.5	3.0	5.5	5.5	2.0	5.5	2.5
Lane Grp Cap (vph)	115	935	681	348	1227	549	570	2148	668	208	1446	511
v/s Ratio Prot	0.03	0.16	0.10	c0.12	c0.35		c0.18	0.18		0.01	c0.28	0.01
v/s Ratio Perm	0.21		0.16	0.31		0.01			0.04	0.08		0.07
v/c Ratio	0.80	0.60	0.61	1.02	1.02	0.03	1.07	0.43	0.10	0.29	1.00	0.23
Uniform Delay, d1	45.8	51.5	35.1	38.7	52.2	34.5	66.7	32.6	27.8	39.1	57.2	39.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.37	0.34	1.00	1.00	1.00
Incremental Delay, d2	30.8	0.9	1.5	53.5	30.7	0.0	55.1	0.5	0.2	0.3	24.2	0.2
Delay (s)	76.6	52.5	36.6	92.2	83.0	34.5	108.3	12.4	9.8	39.4	81.4	39.8
Level of Service	E	D	D	F	F	C	F	B	A	D	F	D
Approach Delay (s)		47.8			83.5			46.9			74.6	
Approach LOS		D			F			D			E	
Intersection Summary												
HCM 2000 Control Delay			64.5				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			26.2		
Intersection Capacity Utilization			103.7%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Further Improved

5: Northwinds Pkwy/Northwinds Extension & Kimball Bridge Rd

05/23/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	Ø7
Lane Configurations	↰	↑	↱	↰	↑	↰	↑↑	↑↑	
Traffic Volume (vph)	4	594	348	350	268	52	28	162	
Future Volume (vph)	4	594	348	350	268	52	28	162	
Lane Group Flow (vph)	8	612	387	376	298	104	178	184	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	NA	
Protected Phases	5	2		1	6	3	8	4	7
Permitted Phases	2		2	6		8			
Detector Phase	5	2	2	1	6	3	8	4	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	24.0	11.0	24.0	11.0	24.0	24.0	11.0
Total Split (s)	11.0	56.0	56.0	29.0	74.0	11.0	24.0	24.0	11.0
Total Split (%)	9.2%	46.7%	46.7%	24.2%	61.7%	9.2%	20.0%	20.0%	9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	Min	None
v/c Ratio	0.01	0.78	0.48	0.77	0.25	0.48	0.23	0.49	
Control Delay	8.2	33.6	10.0	23.9	8.9	45.1	10.2	49.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	8.2	33.6	10.0	23.9	8.9	45.1	10.2	49.3	
Queue Length 50th (ft)	2	337	60	100	69	62	8	64	
Queue Length 95th (ft)	4	531	152	225	155	62	39	104	
Internal Link Dist (ft)		801			544		923	1121	
Turn Bay Length (ft)	130		160	130		150			
Base Capacity (vph)	546	942	920	566	1342	217	790	644	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.01	0.65	0.42	0.66	0.22	0.48	0.23	0.29	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Northwinds Pkwy/Northwinds Extension & Kimball Bridge Rd

Ø1	Ø2	Ø3	Ø4
29 s	56 s	11 s	24 s
Ø5	Ø6	Ø7	Ø8
11 s	74 s	11 s	24 s

HCM Signalized Intersection Capacity Analysis

Future Build AM - Further Improved

5: Northwinds Pkwy/Northwinds Extension & Kimball Bridge Rd

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	594	348	350	268	0	52	28	133	0	162	1
Future Volume (vph)	4	594	348	350	268	0	52	28	133	0	162	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95			0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.88			1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863		1770	3098			3528	
Flt Permitted	0.58	1.00	1.00	0.19	1.00		0.41	1.00			1.00	
Satd. Flow (perm)	1077	1863	1583	362	1863		766	3098			3528	
Peak-hour factor, PHF	0.50	0.97	0.90	0.93	0.90	0.92	0.50	0.92	0.90	0.92	0.90	0.25
Adj. Flow (vph)	8	612	387	376	298	0	104	30	148	0	180	4
RTOR Reduction (vph)	0	0	132	0	0	0	0	117	0	0	2	0
Lane Group Flow (vph)	8	612	255	376	298	0	104	61	0	0	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	49.1	48.2	48.2	72.1	65.2		22.1	22.1			11.0	
Effective Green, g (s)	49.1	48.2	48.2	72.1	65.2		22.1	22.1			11.0	
Actuated g/C Ratio	0.46	0.45	0.45	0.68	0.61		0.21	0.21			0.10	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	503	845	718	483	1143		207	644			365	
v/s Ratio Prot	0.00	0.33		c0.13	0.16		c0.02	0.02			0.05	
v/s Ratio Perm	0.01		0.16	c0.40			c0.08					
v/c Ratio	0.02	0.72	0.36	0.78	0.26		0.50	0.09			0.50	
Uniform Delay, d1	15.4	23.6	18.9	15.6	9.4		35.7	34.0			45.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	3.1	0.3	7.8	0.1		1.9	0.1			1.1	
Delay (s)	15.4	26.7	19.2	23.4	9.5		37.6	34.0			46.1	
Level of Service	B	C	B	C	A		D	C			D	
Approach Delay (s)		23.7			17.3			35.4			46.1	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			25.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			106.2			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			79.9%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build AM - Further Improved

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					 		
Traffic Volume (vph)	140	1468	41	586	2061	321	38	32	92	100	5	37
Future Volume (vph)	140	1468	41	586	2061	321	38	32	92	100	5	37
Lane Group Flow (vph)	175	1596	55	637	2216	357	68	64	219	109	20	77
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	5.0	8.0	8.0	6.0	8.0	8.0
Minimum Split (s)	13.0	30.7	30.7	13.0	36.7	36.7	11.0	43.0	43.0	13.0	43.0	43.0
Total Split (s)	23.0	58.0	58.0	57.0	92.0	92.0	11.0	43.0	43.0	13.0	45.0	45.0
Total Split (%)	13.5%	33.9%	33.9%	33.3%	53.8%	53.8%	6.4%	25.1%	25.1%	7.6%	26.3%	26.3%
Yellow Time (s)	4.0	4.7	4.7	4.0	4.7	4.7	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	1.8	1.8	3.0	1.8	1.8	2.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.86	0.71	0.07	1.11	0.67	0.33	0.44	0.51	0.70	0.91	0.14	0.29
Control Delay	84.9	41.1	0.2	115.8	20.1	9.5	75.1	90.0	21.0	139.8	73.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.9	41.1	0.2	115.8	20.1	9.5	75.1	90.0	21.0	139.8	73.6	2.8
Queue Length 50th (ft)	127	525	0	~742	547	107	69	71	0	63	21	0
Queue Length 95th (ft)	#191	613	0	#1001	646	181	71	66	0	#129	14	0
Internal Link Dist (ft)		555			792			972			387	
Turn Bay Length (ft)	235		150	330		145	400			200		100
Base Capacity (vph)	221	2256	787	575	3318	1076	153	392	506	120	414	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.71	0.07	1.11	0.67	0.33	0.44	0.16	0.43	0.91	0.05	0.16

Intersection Summary

Cycle Length: 171

Actuated Cycle Length: 171

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

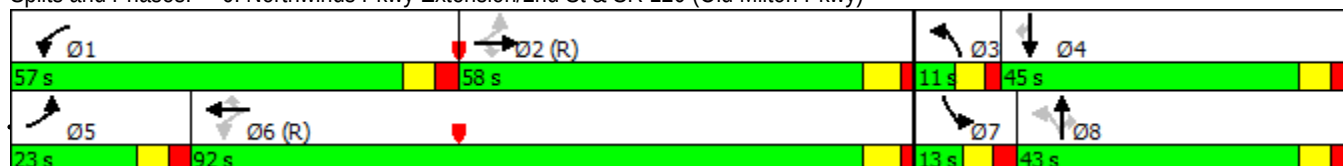
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)



HCM Signalized Intersection Capacity Analysis

Future Build AM - Further Improved

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					 		
Traffic Volume (vph)	140	1468	41	586	2061	321	38	32	92	100	5	37
Future Volume (vph)	140	1468	41	586	2061	321	38	32	92	100	5	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.07	1.00	1.00	0.06	1.00	1.00	0.74	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	127	5085	1583	121	5085	1583	1386	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.80	0.92	0.75	0.92	0.93	0.90	0.56	0.50	0.42	0.92	0.25	0.48
Adj. Flow (vph)	175	1596	55	637	2216	357	68	64	219	109	20	77
RTOR Reduction (vph)	0	0	31	0	0	44	0	0	204	0	0	71
Lane Group Flow (vph)	175	1596	24	637	2216	313	68	64	15	109	20	6
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	90.2	75.9	75.9	132.9	111.6	111.6	16.6	11.6	11.6	6.0	13.6	13.6
Effective Green, g (s)	90.2	75.9	75.9	132.9	111.6	111.6	16.6	11.6	11.6	6.0	13.6	13.6
Actuated g/C Ratio	0.53	0.44	0.44	0.78	0.65	0.65	0.10	0.07	0.07	0.04	0.08	0.08
Clearance Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	204	2257	702	576	3318	1033	145	126	107	120	148	125
v/s Ratio Prot	0.07	0.31		c0.32	0.44		0.01	c0.03		c0.03	0.01	
v/s Ratio Perm	0.38		0.02	c0.54		0.20	0.03		0.01			0.00
v/c Ratio	0.86	0.71	0.03	1.11	0.67	0.30	0.47	0.51	0.14	0.91	0.14	0.05
Uniform Delay, d1	43.5	38.5	26.9	52.2	18.3	12.9	72.5	76.9	75.0	82.2	73.2	72.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.1	1.9	0.1	69.9	1.1	0.8	2.4	3.2	0.6	54.0	0.4	0.2
Delay (s)	71.7	40.4	27.0	122.1	19.4	13.6	74.9	80.1	75.6	136.3	73.6	72.9
Level of Service	E	D	C	F	B	B	E	F	E	F	E	E
Approach Delay (s)		43.0			39.1			76.3			106.5	
Approach LOS		D			D			E			F	
Intersection Summary												
HCM 2000 Control Delay			45.2									
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			171.0									
Intersection Capacity Utilization			87.4%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Northwinds Pkwy

Future Build AM - Further Improved

05/23/2017

														
Movement	EBT	EBR	WBL	WBT	NBL	NBR								
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗								
Traffic Volume (veh/h)	765	388	411	299	70	82								
Future Volume (Veh/h)	765	388	411	299	70	82								
Sign Control	Free			Free	Stop									
Grade	0%			0%	0%									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92								
Hourly flow rate (vph)	832	422	447	325	76	89								
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)						8								
Median type	None		None											
Median storage veh														
Upstream signal (ft)	1211													
pX, platoon unblocked														
vC, conflicting volume			1254	1888		416								
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol			1254	1888		416								
tC, single (s)			4.1	6.8		6.9								
tC, 2 stage (s)														
tF (s)			2.2	3.5		3.3								
p0 queue free %			19	0		85								
cM capacity (veh/h)			551	12		585								
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1							
Volume Total	416	416	422	447	162	162	165							
Volume Left	0	0	0	447	0	0	76							
Volume Right	0	0	422	0	0	0	89							
cSH	1700	1700	1700	551	1700	1700	25							
Volume to Capacity	0.24	0.24	0.25	0.81	0.10	0.10	6.65							
Queue Length 95th (ft)	0	0	0	200	0	0	Err							
Control Delay (s)	0.0	0.0	0.0	33.9	0.0	0.0	Err							
Lane LOS				D			F							
Approach Delay (s)	0.0			19.6			Err							
Approach LOS							F							
Intersection Summary														
Average Delay	759.9													
Intersection Capacity Utilization	57.8%			ICU Level of Service			B							
Analysis Period (min)	15													

Queues

Future Build PM - Further Improved

1: Haynes Bridge Rd & GA 400 NB Ramps

05/23/2017



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations	←←←	→	←←←	→	←←	→→→
Traffic Volume (vph)	1081	410	1997	934	1071	2635
Future Volume (vph)	1081	410	1997	934	1071	2635
Lane Group Flow (vph)	1114	432	2059	973	1116	2716
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0	15.0	7.0	15.0
Minimum Split (s)	15.0	15.0	33.0	33.0	14.0	33.0
Total Split (s)	39.0	39.0	69.0	69.0	52.0	121.0
Total Split (%)	24.4%	24.4%	43.1%	43.1%	32.5%	75.6%
Yellow Time (s)	3.8	3.8	4.9	4.9	3.6	4.9
All-Red Time (s)	2.3	2.3	1.9	1.9	2.4	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.8	6.8	6.0	6.8
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	Min	C-Min
v/c Ratio	1.09	1.13	1.04	0.71	1.13	0.75
Control Delay	112.3	132.5	79.2	23.6	121.3	23.0
Queue Delay	0.0	0.0	6.3	0.0	0.0	16.6
Total Delay	112.3	132.5	85.5	23.6	121.3	39.7
Queue Length 50th (ft)	~462	~459	~849	265	~711	0
Queue Length 95th (ft)	#556	#685	#939	356	m#601	m0
Internal Link Dist (ft)			688			809
Turn Bay Length (ft)	500	500		220	340	
Base Capacity (vph)	1026	382	1976	1368	986	3629
Starvation Cap Reductn	0	0	0	0	0	981
Spillback Cap Reductn	0	0	30	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.09	1.13	1.06	0.71	1.13	1.03

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 95 (59%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

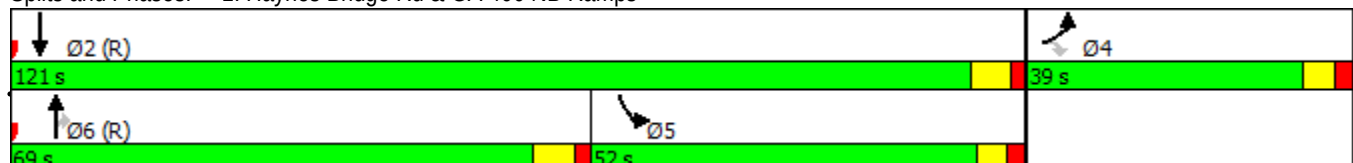
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Haynes Bridge Rd & GA 400 NB Ramps



HCM Signalized Intersection Capacity Analysis

1: Haynes Bridge Rd & GA 400 NB Ramps

Future Build PM - Further Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1081	0	410	0	0	0	0	1997	934	1071	2635	0
Future Volume (vph)	1081	0	410	0	0	0	0	1997	934	1071	2635	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Lane Util. Factor	0.94		1.00					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	4990		1583					5085	2787	3433	5085	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	4990		1583					5085	2787	3433	5085	
Peak-hour factor, PHF	0.97	0.92	0.95	0.92	0.92	0.92	0.92	0.97	0.96	0.96	0.97	0.92
Adj. Flow (vph)	1114	0	432	0	0	0	0	2059	973	1116	2716	0
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	285	0	0	0
Lane Group Flow (vph)	1114	0	375	0	0	0	0	2059	688	1116	2716	0
Turn Type	Prot		Perm					NA	Perm	Prot	NA	
Protected Phases	4							6		5	2	
Permitted Phases			4						6			
Actuated Green, G (s)	32.9		32.9					62.2	62.2	46.0	114.2	
Effective Green, g (s)	32.9		32.9					62.2	62.2	46.0	114.2	
Actuated g/C Ratio	0.21		0.21					0.39	0.39	0.29	0.71	
Clearance Time (s)	6.1		6.1					6.8	6.8	6.0	6.8	
Vehicle Extension (s)	3.0		3.0					5.1	5.1	4.1	5.1	
Lane Grp Cap (vph)	1026		325					1976	1083	986	3629	
v/s Ratio Prot	0.22							c0.40		c0.33	0.53	
v/s Ratio Perm			c0.24						0.25			
v/c Ratio	1.09		1.15					1.04	0.64	1.13	0.75	
Uniform Delay, d1	63.5		63.5					48.9	39.7	57.0	14.1	
Progression Factor	1.00		1.00					1.00	1.00	1.23	1.60	
Incremental Delay, d2	54.4		98.2					32.2	2.8	60.7	0.1	
Delay (s)	117.9		161.8					81.1	42.5	131.0	22.7	
Level of Service	F		F					F	D	F	C	
Approach Delay (s)		130.2			0.0			68.7			54.2	
Approach LOS		F			A			E			D	
Intersection Summary												
HCM 2000 Control Delay			73.4		HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio			1.10									
Actuated Cycle Length (s)			160.0		Sum of lost time (s)				18.9			
Intersection Capacity Utilization			103.7%		ICU Level of Service				G			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Further Improved

2: Haynes Bridge Rd & GA 400 SB Ramps

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	66	651	843	376	415	643	2139	266	129	2172	1133
Future Volume (vph)	235	66	651	843	376	415	643	2139	266	129	2172	1133
Lane Group Flow (vph)	161	166	693	897	409	441	663	2205	289	140	2239	1168
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	1	4	4	5	1	6		5	2	3
Permitted Phases			3			4			6			2
Detector Phase	3	3	1	4	4	5	1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	6.0	5.0	5.0	6.0	6.0	15.0	15.0	6.0	15.0	5.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	30.0	30.0	13.0	30.0	13.0
Total Split (s)	20.0	20.0	32.0	36.0	36.0	20.0	32.0	84.0	84.0	20.0	72.0	20.0
Total Split (%)	12.5%	12.5%	20.0%	22.5%	22.5%	12.5%	20.0%	52.5%	52.5%	12.5%	45.0%	12.5%
Yellow Time (s)	4.0	4.0	3.0	3.4	3.4	3.3	3.0	4.4	4.4	3.3	4.4	4.0
All-Red Time (s)	3.0	3.0	2.8	3.0	3.0	2.6	2.8	1.7	1.7	2.6	1.7	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	5.8	6.4	6.4	5.9	5.8	6.1	6.1	5.9	6.1	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	1.18	1.19	0.86	1.41	1.19	0.77	1.18	0.89	0.34	0.90	1.07	0.84
Control Delay	194.2	196.6	65.9	240.0	164.1	47.3	117.6	9.6	2.7	86.5	75.7	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0
Total Delay	194.2	196.6	65.9	240.0	164.1	47.3	117.6	10.6	2.7	86.5	75.7	22.4
Queue Length 50th (ft)	~211	~218	392	~647	~513	325	~422	408	49	143	~963	431
Queue Length 95th (ft)	#377	#388	#486	#782	#732	472	m#381	m338	m44	m147	m#974	m438
Internal Link Dist (ft)		418			220			809			956	
Turn Bay Length (ft)			250			150	385		225	300		360
Base Capacity (vph)	136	139	804	635	344	571	562	2476	851	155	2094	1391
Starvation Cap Reductn	0	0	0	0	0	0	0	96	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.19	0.86	1.41	1.19	0.77	1.18	0.93	0.34	0.90	1.07	0.84

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 92 (58%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

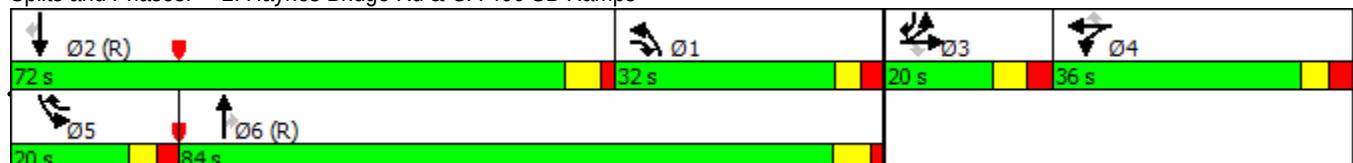
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Haynes Bridge Rd & GA 400 SB Ramps



HCM Signalized Intersection Capacity Analysis

2: Haynes Bridge Rd & GA 400 SB Ramps

Future Build PM - Further Improved

05/23/2017

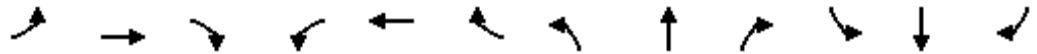
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	66	651	843	376	415	643	2139	266	129	2172	1133
Future Volume (vph)	235	66	651	843	376	415	643	2139	266	129	2172	1133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	5.8	6.4	6.4	5.9	5.8	6.1	6.1	5.9	6.1	7.0
Lane Util. Factor	0.95	0.95	0.88	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1721	2787	3433	1863	1583	3433	5085	1583	1770	5085	2787
Flt Permitted	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1721	2787	3433	1863	1583	3433	5085	1583	1770	5085	2787
Peak-hour factor, PHF	0.92	0.92	0.94	0.94	0.92	0.94	0.97	0.97	0.92	0.92	0.97	0.97
Adj. Flow (vph)	255	72	693	897	409	441	663	2205	289	140	2239	1168
RTOR Reduction (vph)	0	0	0	0	0	80	0	0	81	0	0	33
Lane Group Flow (vph)	161	166	693	897	409	361	663	2205	208	140	2239	1135
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	3	1	4	4	5	1	6		5	2	3
Permitted Phases			3			4			6			2
Actuated Green, G (s)	13.0	13.0	39.2	29.6	29.6	43.7	26.2	77.9	77.9	14.1	65.9	78.9
Effective Green, g (s)	13.0	13.0	39.2	29.6	29.6	43.7	26.2	77.9	77.9	14.1	65.9	78.9
Actuated g/C Ratio	0.08	0.08	0.25	0.19	0.19	0.27	0.16	0.49	0.49	0.09	0.41	0.49
Clearance Time (s)	7.0	7.0	5.8	6.4	6.4	5.9	5.8	6.1	6.1	5.9	6.1	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	3.0
Lane Grp Cap (vph)	136	139	783	635	344	432	562	2475	770	155	2094	1374
v/s Ratio Prot	0.10	c0.10	0.14	c0.26	0.22	0.07	c0.19	0.43		0.08	c0.44	0.07
v/s Ratio Perm			0.10			0.15			0.13			0.34
v/c Ratio	1.18	1.19	0.89	1.41	1.19	0.84	1.18	0.89	0.27	0.90	1.07	0.83
Uniform Delay, d1	73.5	73.5	58.2	65.2	65.2	54.8	66.9	37.2	24.3	72.3	47.0	34.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.56	0.24	0.24	0.90	0.91	0.79
Incremental Delay, d2	135.0	137.9	11.7	194.9	110.4	13.1	82.7	0.5	0.1	19.3	34.8	1.3
Delay (s)	208.5	211.4	69.9	260.1	175.6	67.9	120.1	9.5	5.9	84.4	77.5	28.7
Level of Service	F	F	E	F	F	E	F	A	A	F	E	C
Approach Delay (s)		114.8			191.8			32.4			61.7	
Approach LOS		F			F			C			E	
Intersection Summary												
HCM 2000 Control Delay	81.6			HCM 2000 Level of Service					F			
HCM 2000 Volume to Capacity ratio	1.18											
Actuated Cycle Length (s)	160.0			Sum of lost time (s)					25.4			
Intersection Capacity Utilization	113.7%			ICU Level of Service					H			
Analysis Period (min)	15											
c Critical Lane Group												

Queues

Future Build PM - Further Improved

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

05/23/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	166	1046	591	222	641	345	2102	56	163	1598	55
Future Volume (vph)	113	166	1046	591	222	641	345	2102	56	163	1598	55
Lane Group Flow (vph)	120	177	1113	629	475	443	363	2213	59	172	1682	58
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8	5	7	4		5	2		1	6	
Permitted Phases	8		8			4			2			6
Detector Phase	3	8	5	7	4	4	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	14.0	12.0	13.0	14.0	14.0	12.0	30.0	30.0	13.0	30.0	30.0
Total Split (s)	14.0	28.0	36.0	36.0	50.0	50.0	36.0	81.0	81.0	15.0	60.0	60.0
Total Split (%)	8.8%	17.5%	22.5%	22.5%	31.3%	31.3%	22.5%	50.6%	50.6%	9.4%	37.5%	37.5%
Yellow Time (s)	4.2	4.4	3.2	3.2	4.4	4.4	3.2	4.5	4.5	3.4	4.5	4.5
All-Red Time (s)	3.0	3.0	2.8	3.0	3.0	3.0	2.8	2.2	2.2	3.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.7	6.4	6.7	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.98	0.74	1.00	0.98	1.04	0.86	0.56	0.94	0.07	0.93	0.99	0.09
Control Delay	121.5	86.0	69.9	95.8	104.0	51.6	42.0	43.9	0.1	102.8	62.5	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5	0.0	18.8	0.0	0.0	0.0	0.0
Total Delay	121.5	86.0	69.9	95.8	104.0	52.1	42.0	62.6	0.1	102.8	62.5	0.7
Queue Length 50th (ft)	87	181	593	342	~534	315	170	858	0	97	676	0
Queue Length 95th (ft)	#215	#288	#773	#472	#778	#516	m184	m904	m0	m#132	m#708	m0
Internal Link Dist (ft)		469			1177			956			723	
Turn Bay Length (ft)	90		150			150	225		100	200		180
Base Capacity (vph)	122	239	1113	639	458	518	643	2361	824	184	1693	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	6	0	226	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.74	1.00	0.98	1.04	0.87	0.56	1.04	0.07	0.93	0.99	0.09

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 30 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

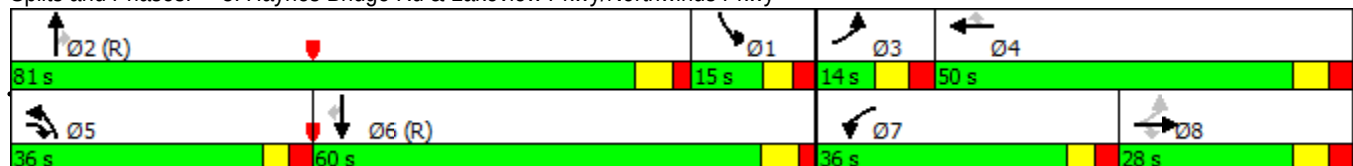
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy



HCM Signalized Intersection Capacity Analysis

3: Haynes Bridge Rd & Lakeview Pkwy/Northwinds Pkwy

Future Build PM - Further Improved

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	166	1046	591	222	641	345	2102	56	163	1598	55
Future Volume (vph)	113	166	1046	591	222	641	345	2102	56	163	1598	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.7	6.4	6.7	6.7
Lane Util. Factor	1.00	1.00	0.88	0.97	0.95	0.95	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.92	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	2787	3433	1636	1504	3433	5085	1583	3433	5085	1583
Flt Permitted	0.19	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	362	1863	2787	3433	1636	1504	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	120	177	1113	629	236	682	363	2213	59	172	1682	58
RTOR Reduction (vph)	0	0	111	0	23	118	0	0	32	0	0	39
Lane Group Flow (vph)	120	177	1002	629	452	325	363	2213	27	172	1682	19
Turn Type	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8	5	7	4		5	2		1	6	
Permitted Phases	8		8			4			2			6
Actuated Green, G (s)	27.4	20.6	50.6	29.8	42.6	42.6	30.0	74.3	74.3	8.6	53.3	53.3
Effective Green, g (s)	27.4	20.6	50.6	29.8	42.6	42.6	30.0	74.3	74.3	8.6	53.3	53.3
Actuated g/C Ratio	0.17	0.13	0.32	0.19	0.27	0.27	0.19	0.46	0.46	0.05	0.33	0.33
Clearance Time (s)	7.2	7.4	6.0	6.2	7.4	7.4	6.0	6.7	6.7	6.4	6.7	6.7
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	121	239	881	639	435	400	643	2361	735	184	1693	527
v/s Ratio Prot	0.04	0.10	c0.21	c0.18	c0.28		0.11	0.44		0.05	c0.33	
v/s Ratio Perm	0.13		0.15			0.22			0.02			0.01
v/c Ratio	0.99	0.74	1.14	0.98	1.04	0.81	0.56	0.94	0.04	0.93	0.99	0.04
Uniform Delay, d1	64.0	67.1	54.7	64.9	58.7	55.0	59.1	40.6	23.4	75.4	53.2	36.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.68	0.97	1.00	0.94	0.92	1.00
Incremental Delay, d2	78.9	11.1	75.7	31.3	53.8	11.6	0.3	4.2	0.0	30.2	14.0	0.1
Delay (s)	142.9	78.2	130.4	96.2	112.5	66.6	40.5	43.8	23.4	101.4	62.9	36.1
Level of Service	F	E	F	F	F	E	D	D	C	F	E	D
Approach Delay (s)		124.9			92.7			42.9			65.6	
Approach LOS		F			F			D			E	
Intersection Summary												
HCM 2000 Control Delay			74.3				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			27.7		
Intersection Capacity Utilization			100.1%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Further Improved

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	761	526	339	710	69	625	1958	273	53	926	115
Future Volume (vph)	194	761	526	339	710	69	625	1958	273	53	926	115
Lane Group Flow (vph)	204	801	554	365	763	74	679	2128	297	58	1007	125
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2			6
Detector Phase	3	8	5	7	4	4	5	2	2	1	6	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0	4.0	10.0	5.0
Minimum Split (s)	13.0	18.0	13.0	13.0	18.0	18.0	13.0	28.0	28.0	12.0	24.0	13.0
Total Split (s)	20.0	45.0	40.0	30.0	55.0	55.0	40.0	73.0	73.0	12.0	45.0	20.0
Total Split (%)	12.5%	28.1%	25.0%	18.8%	34.4%	34.4%	25.0%	45.6%	45.6%	7.5%	28.1%	12.5%
Yellow Time (s)	3.6	3.9	3.4	3.4	3.9	3.9	3.4	4.7	4.7	3.5	4.7	3.6
All-Red Time (s)	3.0	2.8	3.0	3.0	2.8	2.8	3.0	1.8	1.8	2.8	1.8	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	None
v/c Ratio	0.85	0.96	0.70	1.19	0.72	0.13	0.94	1.00	0.39	0.92	0.81	0.21
Control Delay	63.1	82.7	17.9	154.4	54.7	0.4	50.8	35.4	2.8	166.0	63.2	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	0.0	0.0	0.0	0.0
Total Delay	63.1	82.7	17.9	154.4	54.7	0.4	50.8	44.2	2.8	166.0	63.2	4.9
Queue Length 50th (ft)	137	437	184	~405	376	0	339	~712	17	62	368	5
Queue Length 95th (ft)	#244	#566	265	#620	453	0	m#391	m#914	m21	#159	427	32
Internal Link Dist (ft)		761			667			723			604	
Turn Bay Length (ft)	200		200	165		200	250		260	350		160
Base Capacity (vph)	242	847	794	307	1068	586	720	2131	760	63	1241	593
Starvation Cap Reductn	0	0	0	0	0	0	0	62	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.95	0.70	1.19	0.71	0.13	0.94	1.03	0.39	0.92	0.81	0.21

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 8 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

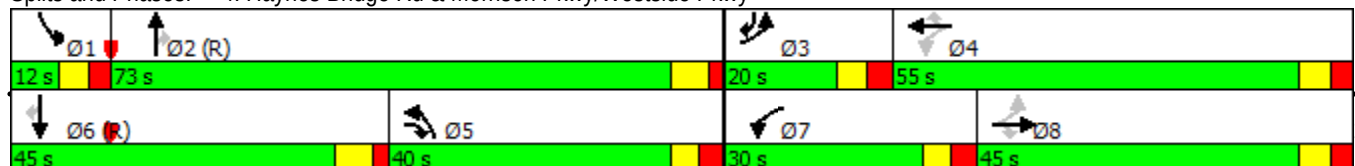
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy



HCM Signalized Intersection Capacity Analysis

4: Haynes Bridge Rd & Morrison Pkwy/Westside Pkwy

Future Build PM - Further Improved

05/23/2017

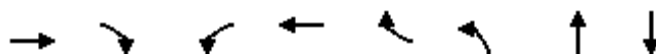
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	761	526	339	710	69	625	1958	273	53	926	115
Future Volume (vph)	194	761	526	339	710	69	625	1958	273	53	926	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.21	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	399	3539	1583	169	3539	1583	3433	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	204	801	554	365	763	74	679	2128	297	58	1007	125
RTOR Reduction (vph)	0	0	86	0	0	52	0	0	97	0	0	76
Lane Group Flow (vph)	204	801	468	365	763	22	679	2128	200	58	1007	49
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2		1	6	3
Permitted Phases	8		8	4		4			2			6
Actuated Green, G (s)	51.0	37.7	71.3	67.7	47.8	47.8	33.6	67.1	67.1	5.7	39.1	52.4
Effective Green, g (s)	51.0	37.7	71.3	67.7	47.8	47.8	33.6	67.1	67.1	5.7	39.1	52.4
Actuated g/C Ratio	0.32	0.24	0.45	0.42	0.30	0.30	0.21	0.42	0.42	0.04	0.24	0.33
Clearance Time (s)	6.6	6.7	6.4	6.4	6.7	6.7	6.4	6.5	6.5	6.3	6.5	6.6
Vehicle Extension (s)	2.5	2.5	3.0	2.5	2.5	2.5	3.0	5.5	5.5	2.0	5.5	2.5
Lane Grp Cap (vph)	241	833	705	307	1057	472	720	2132	663	63	1242	518
v/s Ratio Prot	0.07	0.23	0.14	c0.18	0.22		0.20	c0.42		0.03	c0.20	0.01
v/s Ratio Perm	0.20		0.16	c0.33		0.01			0.13			0.02
v/c Ratio	0.85	0.96	0.66	1.19	0.72	0.05	0.94	1.00	0.30	0.92	0.81	0.09
Uniform Delay, d1	44.0	60.4	34.9	51.9	50.2	39.9	62.3	46.4	30.9	76.9	57.0	37.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.62	0.48	0.16	1.00	1.00	1.00
Incremental Delay, d2	22.7	22.2	2.4	112.8	2.3	0.0	10.6	11.9	0.5	84.4	5.8	0.1
Delay (s)	66.7	82.6	37.3	164.7	52.5	39.9	49.3	34.3	5.4	161.3	62.8	37.4
Level of Service	E	F	D	F	D	D	D	C	A	F	E	D
Approach Delay (s)		64.4			85.8			34.8			64.9	
Approach LOS		E			F			C			E	
Intersection Summary												
HCM 2000 Control Delay			55.1									
HCM 2000 Volume to Capacity ratio			1.13									
Actuated Cycle Length (s)			160.0									
Intersection Capacity Utilization			102.6%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Northwinds Pkwy/Bailey Johnson Ave & Kimball Bridge Rd

Future Build PM - Further Improved

05/23/2017



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	Ø5	Ø7
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑		
Traffic Volume (vph)	211	84	289	500	1	375	170	43		
Future Volume (vph)	211	84	289	500	1	375	170	43		
Lane Group Flow (vph)	271	117	328	581	4	436	509	55		
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA		
Protected Phases	2		1	6		3	8	4	5	7
Permitted Phases		2	6		6	8				
Detector Phase	2	2	1	6	6	3	8	4		
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	11.0	24.0	24.0	11.0	24.0	24.0	11.0	11.0
Total Split (s)	41.0	41.0	25.0	55.0	55.0	30.0	43.0	24.0	11.0	11.0
Total Split (%)	34.2%	34.2%	20.8%	45.8%	45.8%	25.0%	35.8%	20.0%	9%	9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lead/Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	Min	Min	None	None
v/c Ratio	0.66	0.22	0.67	0.66	0.00	0.83	0.35	0.20		
Control Delay	40.0	0.9	22.6	22.1	0.0	38.4	8.1	39.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	40.0	0.9	22.6	22.1	0.0	38.4	8.1	39.2		
Queue Length 50th (ft)	144	0	119	249	0	193	34	13		
Queue Length 95th (ft)	197	0	182	346	0	#346	83	35		
Internal Link Dist (ft)	895			545			923	1095		
Turn Bay Length (ft)		160	130		150	150				
Base Capacity (vph)	769	797	541	1098	1011	576	1591	741		
Starvation Cap Reductn	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.35	0.15	0.61	0.53	0.00	0.76	0.32	0.07		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 87.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Northwinds Pkwy/Bailey Johnson Ave & Kimball Bridge Rd



HCM Signalized Intersection Capacity Analysis

Future Build PM - Further Improved

5: Northwinds Pkwy/Bailey Johnson Ave & Kimball Bridge Rd

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	211	84	289	500	1	375	170	240	0	43	4
Future Volume (vph)	0	211	84	289	500	1	375	170	240	0	43	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	0.95			0.95	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.90			0.98	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1863	1583	1770	1863	1583	1770	3201			3462	
Flt Permitted		1.00	1.00	0.31	1.00	1.00	0.39	1.00			1.00	
Satd. Flow (perm)		1863	1583	587	1863	1583	721	3201			3462	
Peak-hour factor, PHF	0.92	0.78	0.72	0.88	0.86	0.25	0.86	0.92	0.74	0.92	0.92	0.50
Adj. Flow (vph)	0	271	117	328	581	4	436	185	324	0	47	8
RTOR Reduction (vph)	0	0	91	0	0	2	0	198	0	0	7	0
Lane Group Flow (vph)	0	271	26	328	581	2	436	311	0	0	48	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)		19.5	19.5	41.1	41.1	41.1	33.8	33.8			7.0	
Effective Green, g (s)		19.5	19.5	41.1	41.1	41.1	33.8	33.8			7.0	
Actuated g/C Ratio		0.22	0.22	0.47	0.47	0.47	0.39	0.39			0.08	
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)		418	355	489	881	748	531	1245			278	
v/s Ratio Prot		0.15		0.12	c0.31		c0.20	0.10			0.01	
v/s Ratio Perm			0.02	c0.20		0.00	c0.12					
v/c Ratio		0.65	0.07	0.67	0.66	0.00	0.82	0.25			0.17	
Uniform Delay, d1		30.6	26.6	16.0	17.5	12.1	21.8	18.0			37.2	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2		3.4	0.1	3.6	1.8	0.0	9.9	0.1			0.3	
Delay (s)		34.0	26.7	19.6	19.3	12.1	31.7	18.1			37.5	
Level of Service		C	C	B	B	B	C	B			D	
Approach Delay (s)		31.8			19.4			24.4			37.5	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			24.0									
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			86.9									
Intersection Capacity Utilization			72.9%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Future Build PM - Further Improved

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

05/23/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	2276	26	317	2121	319	109	49	336	401	20	149
Future Volume (vph)	139	2276	26	317	2121	319	109	49	336	401	20	149
Lane Group Flow (vph)	176	2474	43	352	2256	354	158	98	373	446	80	162
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	5.0	8.0	8.0	6.0	8.0	8.0
Minimum Split (s)	13.0	30.7	30.7	13.0	36.7	36.7	11.0	43.0	43.0	13.0	43.0	43.0
Total Split (s)	18.0	76.0	76.0	28.0	86.0	86.0	15.0	43.0	43.0	24.0	52.0	52.0
Total Split (%)	10.5%	44.4%	44.4%	16.4%	50.3%	50.3%	8.8%	25.1%	25.1%	14.0%	30.4%	30.4%
Yellow Time (s)	4.0	4.7	4.7	4.0	4.7	4.7	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	1.8	1.8	3.0	1.8	1.8	2.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.13	1.00	0.05	1.35	0.81	0.38	0.59	0.41	0.90	1.31	0.24	0.39
Control Delay	149.6	60.2	0.1	231.2	35.9	14.5	60.9	70.7	48.7	213.8	58.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	149.6	60.2	0.1	231.2	35.9	14.5	60.9	70.7	48.7	213.8	58.5	9.3
Queue Length 50th (ft)	~176	998	0	~466	736	120	142	103	156	~329	78	0
Queue Length 95th (ft)	#294	#1300	0	#704	952	233	140	82	270	#447	31	61
Internal Link Dist (ft)		555			792			972			387	
Turn Bay Length (ft)	235		150	330		145	400			200		100
Base Capacity (vph)	156	2478	850	260	2776	933	270	392	525	341	490	535
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	1.00	0.05	1.35	0.81	0.38	0.59	0.25	0.71	1.31	0.16	0.30

Intersection Summary

Cycle Length: 171

Actuated Cycle Length: 171

Offset: 161 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

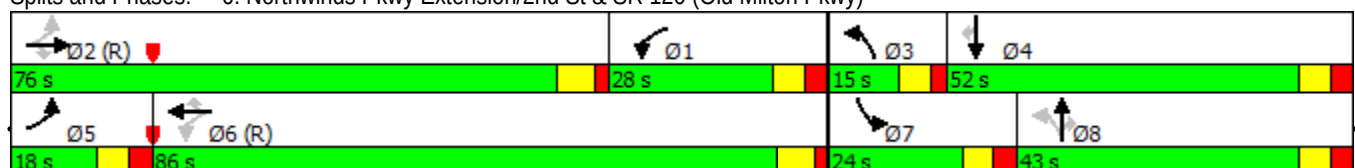
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)



HCM Signalized Intersection Capacity Analysis

Future Build PM - Further Improved

6: Northwinds Pkwy Extension/2nd St & SR 120 (Old Milton Pkwy)

05/23/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					 		
Traffic Volume (vph)	139	2276	26	317	2121	319	109	49	336	401	20	149
Future Volume (vph)	139	2276	26	317	2121	319	109	49	336	401	20	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.06	1.00	1.00	0.06	1.00	1.00	0.70	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	103	5085	1583	103	5085	1583	1313	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.79	0.92	0.61	0.90	0.94	0.90	0.69	0.50	0.90	0.90	0.25	0.92
Adj. Flow (vph)	176	2474	43	352	2256	354	158	98	373	446	80	162
RTOR Reduction (vph)	0	0	22	0	0	69	0	0	212	0	0	133
Lane Group Flow (vph)	176	2474	21	352	2256	285	158	98	161	446	80	29
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	83.4	83.4	83.4	93.4	93.4	93.4	31.1	22.1	22.1	17.0	31.1	31.1
Effective Green, g (s)	83.4	83.4	83.4	93.4	93.4	93.4	31.1	22.1	22.1	17.0	31.1	31.1
Actuated g/C Ratio	0.49	0.49	0.49	0.55	0.55	0.55	0.18	0.13	0.13	0.10	0.18	0.18
Clearance Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	6.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	157	2480	772	260	2777	864	262	240	204	341	338	287
v/s Ratio Prot	0.07	c0.49		c0.17	0.44		0.03	0.05		c0.13	0.04	
v/s Ratio Perm	0.47		0.01	c0.57		0.18	0.08		c0.10			0.02
v/c Ratio	1.12	1.00	0.03	1.35	0.81	0.33	0.60	0.41	0.79	1.31	0.24	0.10
Uniform Delay, d1	53.3	43.7	22.7	69.7	31.7	21.5	63.1	68.4	72.2	77.0	59.8	58.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	108.0	17.5	0.1	182.4	2.7	1.0	3.9	1.1	18.6	158.2	0.4	0.2
Delay (s)	161.3	61.2	22.8	252.0	34.4	22.5	67.0	69.6	90.8	235.2	60.2	58.5
Level of Service	F	E	C	F	C	C	E	E	F	F	E	E
Approach Delay (s)		67.1			58.8			81.5			173.2	
Approach LOS		E			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			75.4			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.24									
Actuated Cycle Length (s)			171.0			Sum of lost time (s)			27.5			
Intersection Capacity Utilization			96.7%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Northwinds Pkwy

Future Build PM - Further Improved

05/23/2017

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑	
Traffic Volume (veh/h)	261	114	120	711	419	489	
Future Volume (Veh/h)	261	114	120	711	419	489	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	284	124	130	773	455	532	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						8	
Median type	None		None				
Median storage veh							
Upstream signal (ft)	1257						
pX, platoon unblocked							
vC, conflicting volume			408		930	142	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			408		930	142	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			89		0	40	
cM capacity (veh/h)			1147		236	880	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	142	142	124	130	386	386	987
Volume Left	0	0	0	130	0	0	455
Volume Right	0	0	124	0	0	0	532
cSH	1700	1700	1700	1147	1700	1700	406
Volume to Capacity	0.08	0.08	0.07	0.11	0.23	0.23	2.43
Queue Length 95th (ft)	0	0	0	10	0	0	1936
Control Delay (s)	0.0	0.0	0.0	8.5	0.0	0.0	673.6
Lane LOS				A	F		
Approach Delay (s)	0.0			1.2			673.6
Approach LOS					F		
Intersection Summary							
Average Delay	289.8						
Intersection Capacity Utilization	49.5%			ICU Level of Service			A
Analysis Period (min)	15						

CITIZEN PARTICIPATION FORM - PART B

This form must be completed and submitted to the City of Alpharetta Community Development Department a minimum of twenty (20) working days prior to the scheduled Public Hearing. Failure to do so will result in cancellation of the scheduled hearing.

Public Hearing or Project Name: Northwinds Summit

Contact Name: Don Rolader

Telephone: 770-442-0330

Please describe comments and concerns provided by any and all individuals contacted as part of the the Citizen Participation Program. If any individuals provided written correspondence, please attach copies of same to this report.

One adjoining property owner (Tom Murtaugh) called and inquired

about the proposed use and the possibility of selling his property.

Method by which these individuals were contacted. Please mark all that apply. *Please provide samples of any and all written communications used to provide notification.*



Letter



Personal Visits



Telephone



Group Meeting



Email



Other (Please Specify) _____

Attach a list of people who have been notified of this application and provided information describing the subject proposal. Please note that ALL adjoining property owners MUST be notified.

Those property owners listed on the attached Exhibit "A" were contacted.

I, the undersigned, as an authorized representative of the applicant and Public Hearing item identified above, do solemnly swear and attest, subject to criminal penalties for false swearing, that the information provided in this Citizen Participation Form - Part B and in any and all documents provided in support of this report are true and accurate. I further understand that any false statements provided by representatives of the applicant as part of this report may result in penalties up to and including denial of the subject application.

Signature of Authorized Agent: Donald A. Rolader

Donald A. Rolader

Date: 4-17-2017

Print Form

Exhibit "A"

Parcel	Parcel Id	Street Address	Owner	Owner Address
1	12-286007530132	0 Haynes Bridge Road	Metro M3 Inc.	PO Box 420253, Atlanta, Ga. 30342
2	12-271007520341	11385 Haynes Bridge Road	AREG HDP FFIS Alpharetta Owner LLC	3414 Peachtree Rd, NE Atlanta, GA 30326
3	12-285007520655	11417 Haynes Bridge Road	BRE COH GA LLC	PO Box #A-3879, Chicago, Il. 60690-3879
4	12-271007520278	0 Haynes Bridge Road	LWV TPA GA 400 LLC	3350 Riverwood Parkway, Suite 750, Atlanta, GA. 30339
5	12-271007520309	0 Haynes Bridge Road	LWV TPA GA 400 LLC	3350 Riverwood Parkway, Suite 750, Atlanta, GA. 30339
6	12-272007530264	0 Haynes Bridge Road	LWV TPA GA 400 LLC	3350 Riverwood Parkway, Suite 750, Atlanta, GA. 30339
7	12-272007440258	0 Haynes Bridge Road	LWV TPA GA 400 LLC	3350 Riverwood Parkway, Suite 750, Atlanta, GA. 30339
8	12-271007520630	2475 Northwinds Parkway	BRE COH GA LLC	PO Box #A-3879, Chicago, Il. 60690-3879
9	12-271007510664	2520 Northwinds Parkway	BRE COH GA LLC	PO Box #A-3879, Chicago, Il. 60690-3879
10	12-285007990601	2550 Northwinds Parkway	BRE COH GA LLC	PO Box #A-3879, Chicago, Il. 60690-3879
11	12-285008060586	2555 Northwinds Parkway	Devry/Jackson Healthcare	



March 9, 2017

Metro M3, Inc.
P.O. Box 420253
Atlanta, GA 30342

RE: Parcel ID: 12-286007530132 - Rezoning Application of Pope & Land Real Estate for 24.83 acres at the intersection of Haynes Bridge Road and Georgia 400; Rezoning from O&I to CUP for office, retail, hotel, condominium, restaurant and multifamily "for rent" housing

Dear Property Owner:

Pope & Land Real Estate has filed a rezoning application for the property listed above. A site plan is attached for your consideration. The application requests 1,200,000 square feet of office space, 30,000 square feet of flex office space, 32 residential condominiums, 140 multifamily "for rent" units, a 140 room hotel and 30,000 square feet of retail/restaurant space.

The development will include a portion of the Alpharetta Loop, a road connection to Northwinds Parkway and substantial open space.

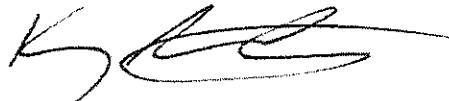
The application also includes a master plan amendment, Comprehensive Plan Amendment, Conditional Use request and Variances listed in the application.

If you have questions or would like additional information, please contact our representative, Don Rolader. His address is 1865 Lockeway Drive, Suite 601, Alpharetta, GA 30004. His phone number is 770-442-0330 and his fax number is 770-442-0641. His email address is don@roladerandrolader.com.

Thank you for your consideration of this application.

Sincerely,

Pope & Land Real Estate

A handwritten signature in black ink, appearing to read 'Kerry Armstrong', with a stylized flourish extending to the right.

Kerry Armstrong
Managing Director / Development Partner

Attachment (1)

cc: City of Alpharetta Community Development Department
Don Rolader



KEY LEGEND

- OFFICE - 350,000 SF A
- FLEX OFFICE - 30,000 SF B
- OFFICE - 150,000 SF C
- OFFICE - 400,000 SF D
- OFFICE - 300,000 E
- STACKED FLAT CONDOMINIUMS - 32 UNITS F
- MULTIFAMILY - 140 UNITS G
- HOTEL - 140 ROOMS H
- RETAIL / RESTAURANT / LEASING / AMENITY - 30,000 SF I

ROLADER & ROLADER, P.C.

ATTORNEYS AND COUNSELORS AT LAW

1865 LOCKEWAY DRIVE, SUITE 601

ALPHARETTA, GEORGIA 30004

Telephone (770) 442-0330

Fax (770) 442-0641

www.roladerandrolader.com

DONALD A. ROLADER
don@roladerandrolader.com

D.W. "Pete" ROLADER
1924 - 2011

May 25, 2017

Mayor and City Council
City of Alpharetta
2 Park Plaza
Alpharetta, GA 30009

RE: Application of Pope & Land Real Estate for Rezoning, Conditional Use, Comprehensive Plan Amendment, Master Plan Amendment and Variances on 24.83 acres on Haynes Bridge Road, City of Alpharetta, Georgia; **Revision to Page Two of Letter of Intent**

Dear Mayor and Council:

Together with this revision to the Letter of Intent dated March 1, 2017, Applicant has filed a revised Variance Request Page 3 to replace the page originally filed. A revised Page 3 is attached.

Applicant hereby revises Page Two of the Letter of Intent by deleting the words "3.2" in subsection (c) of the second paragraph on Page Two, and replacing those words with the words "3.0".

Please note this change.

Sincerely,



Donald A. Rolader, Esq.

cc: Kerry Armstrong
Michael Woodman

BOARD OF ZONING APPEALS REVIEW CRITERIA

Please respond to the following ONLY if you are applying for a zoning variance.

Are there extraordinary and exceptional conditions pertaining to the subject property because of its size, shape, or topography? Please describe them.

No.

Would the application of the Zoning Code standards as they relate to the subject property create an unnecessary hardship? Please explain.

Requiring parking at 4 spaces per 1,000 sf of office space would create additional impervious area, and over park the project. Tenants seeking signature, anchor tenant space in this area expect a parking ratio of 3.0 spaces per 1,000 sf. Providing parking beyond market requirements is expensive, wasteful and counter productive. The City commonly grants parking space variances in large office developments.

Are there conditions that are peculiar to the subject property? Please describe them in detail.

The property is planned for 1,200,000 square feet of office development. There is no benefit to creating more parking and impervious space than is needed. Major office tenants generally require no more than 3.0 parking spaces per 1,000 sf. To require 4.0 spaces per 1,000 sf would not benefit the City or the property owner.

Would relief, if granted, cause substantial detriment to the public good or impair the purpose and intent of the Zoning Code? Please defend your response.

Approving this variance will not cause any detriment to the public good or impair the purpose or intent of the UDC. It will reduce impervious area.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

CITY OF ALPHARETTA

PUBLIC HEARING APPLICATION

FOR OFFICE USE ONLY

Case #: _____

☐ Fee Paid Initial: _____

COMMUNITY DEVELOPMENT DEPARTMENT

2 PARK PLAZA

ALPHARETTA, GA 30009

1. This page should be the first page in each of your completed application packets.
2. It is preferred that all responses be typed. Illegible applications will not be accepted.
3. Prior to signing and submitting your application, please check all information supplied on the following pages to ensure that all responses are complete and accurate. Incomplete applications will not be accepted.
4. Payment of all applicable fees must be made at the time of application. Payment may be made via cash, credit card (American Express, Master Card or Visa), or check made payable to "City of Alpharetta."
5. Applications will be accepted only on the designated submittal dates between the hours of 8:30 AM and 3:30 PM.
6. If you have any questions regarding this form, please contact the Community Development Department by calling 678-297-6070.

Contact Information:

Contact Name: Pope and Land Real Estate / Kerry Armstrong

Telephone: 770-980-0808

Address: 3330 Cumberland Blvd., SE

Suite: 300

City Atlanta

State: GA

Zip: 30339

Fax: _____

Mobile Tel: 678-362-0276

Email: karmstrong@popeandland.com

Subject Property Information:

Address: Haynes Bridge Road

Current Zoning: O-I

District: 1

Section: 2

Land Lot: 752, 753
798, 799

Parcel ID: 12-285007520648, 12-271007520630

Proposed Zoning: CUP

Current Use: O & I

This Application For (Check All That Apply):

☒ Conditional Use

☒ Master Plan Amendment

☒ Rezoning

☐ Master Plan Review

☒ Variance

☐ Public Hearing

☒ Comprehensive Plan Amendment

☐ Other (Specify): _____

APPLICANT REQUEST AND INTENT

What is the proposed use(s) of the property?

The proposed use of the property is "mixed use".

Applicant's Request (Please itemize the proposal):

Applicant is requesting rezoning from O&I to CUP, Conditional Use for "for rent" housing, and variances a) to permit less than 100 acres to be zoned CUP; b) reduction in parking for office 4 spaces per 1000 sf to 3.2 spaces per 1000 sf for office parcels A, C, D and E; c) reduction of 1 bike space per 25 parking spaces to 1 per 50 parking spaces; d) 1 electric car charging station from 1 per 25 parking spaces to 1 per 50 parking spaces; e) variance to permit apartment units on ground floor abutting streets; and f) request to not be required to include a store selling groceries in the development.

Applicant's Intent (Please describe what the proposal would facilitate):

Applicant intends to construct a mixed use development as shown on the site plan including office buildings, flex office space, stacked flat condominiums, multi-family rental units, a hotel and retail/restaurant opportunities.

PROPERTY OWNER AUTHORIZATION

Property Owner Information:

Contact Name: Northwinds Land, LP / Kerry Armstrong Telephone: 770-980-0808
Address: 3330 Cumberland Blvd., SE Suite: 300
City Atlanta State: GA Zip: 30339 -

Authorization:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that I am the legal owner, as reflected in the records of Fulton County, Georgia, of the property identified below, which is the subject of the attached Application for Public Hearing before the City of Alpharetta, Georgia.

As the legal owner of record of the subject property, I hereby authorize the individual named below to act as the applicant in the pursuit of the Application for Public Hearing in request of the items indicated below.

- | | |
|---|---|
| ☐ Annexation | ☐ Special Use |
| ☒ Rezoning | ☒ Conditional Use |
| ☒ Variance | ☐ Master Plan |
| ☐ Land Use Application | ☐ Other _____ |

Identify Authorized Applicant:

Name of Authorized Applicant: Pope & Land Real Estate Telephone: 770-980-0808
Address: 3330 Cumberland Blvd., SE Suite: 300
City Atlanta State: GA Zip: 30339 -

So Sworn and Attested: Northwinds Land, LP
Pope & Land Northwind II, L.P. By: P&L Manager, LLC
By: Lawrence P. Kelly, Manager

Owner Signature: Pope & Land Northwind, L.P. By: P&L NW Manager, L.L.C.
By: Pope & Land Enterprises, Inc.
Notary: Lawrence P. Kelly, President Date: 2/28/17

Notary Signature: Catherine Cunningham Date: 2/28/17

Catherine Cunningham
NOTARY PUBLIC
Douglas County, GEORGIA
My Comm. Exp.
05/15/2017

PROPERTY OWNER AUTHORIZATION

Property Owner Information:

Contact Name: F7 NWO, LLC

Telephone: 404 364 8080

Address: 3455 PEACHTREE ROAD, NE

Suite: 650

City ATLANTA

State: GA

Zip: 30326

Authorization:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that I am the legal owner, as reflected in the records of Fulton County, Georgia, of the property identified below, which is the subject of the attached Application for Public Hearing before the City of Alpharetta, Georgia.

As the legal owner of record of the subject property, I hereby authorize the individual named below to act as the applicant in the pursuit of the Application for Public Hearing in request of the items indicated below.

- | | |
|---|---|
| ☐ Annexation | ☐ Special Use |
| ☒ Rezoning | ☒ Conditional Use |
| ☒ Variance | ☐ Master Plan |
| ☐ Land Use Application | ☐ Other _____ |

Identify Authorized Applicant:

Name of Authorized Applicant: Pope & Land Real Estate

Telephone: 770-980-0808

Address: 3330 Cumberland Blvd., SE

Suite: 300

City Atlanta

State: GA

Zip: 30339

So Sworn and Attested:

F7 NWO, LLC

Owner Signature:

BY: BROOKLYN SEVEN REIT, LLC
FRED H. HENRITZ, PRESIDENT

Date:

3/1/17

Notary:

Notary Signature:

Date:

DISCLOSURE FORM

The Official Code of Georgia Annotated requires disclosure of campaign contributions to government officials by an applicant or opponent of a rezoning or public hearing petition (O.C.G.A. 36-67 A-1).

Applicants must file this form with the City of Alpharetta Community Development Department within ten (10) days after filing for rezoning or public hearing. Opponents to a rezoning or public hearing petition must file this form five (5) days prior to the Planning Commission meeting at which the subject rezoning or public hearing petition is scheduled to be heard.

Name of Applicant or Opponent: Pope & Land Real Estate

Subject Public Hearing Case: Northwinds CUP

Campaign Contribution Information:

Please provide the requested information for each contribution with a dollar amount or value of \$250 or more made within the past two (2) years to an Alpharetta Official by the individual identified above. *Please use a separate form for each Alpharetta Official to whom such a contribution as been made.*

If the individual identified above has made no such contributions to an Alpharetta Official within the past two (2) years, please indicate this by entering "N/A" on the appropriate lines below.

Name of Official: N/A Position: N/A

Description of Contribution: Value:

Description of Contribution: Value:

Description of Contribution: Value:

Description of Contribution: Value:

Description of Contribution: Value:

Campaign Contribution Information:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that the information provided in this Disclosure Form is true and accurate and that I have disclosed herein any and all campaign contributions made to an Official of the City of Alpharetta, Georgia in accordance with O.C.G.A. 36-67 A-1.

Northwinds Land, LLC

Signature:


Lawrence P. Kelly, Manager

Date:

2/28/17

DISCLOSURE FORM

The Official Code of Georgia Annotated requires disclosure of campaign contributions to government officials by an applicant or opponent of a rezoning or public hearing petition (O.C.G.A. 36-67 A-1).

Applicants must file this form with the City of Alpharetta Community Development Department within ten (10) days after filing for rezoning or public hearing. Opponents to a rezoning or public hearing petition must file this form five (5) days prior to the Planning Commission meeting at which the subject rezoning or public hearing petition is scheduled to be heard.

Name of Applicant or Opponent: Pope & Land Real Estate

Subject Public Hearing Case: Northwinds CUP

Campaign Contribution Information:

Please provide the requested information for each contribution with a dollar amount or value of \$250 or more made within the past two (2) years to an Alpharetta Official by the individual identified above. Please use a separate form for each Alpharetta Official to whom such a contribution as been made.

If the individual identified above has made no such contributions to an Alpharetta Official within the past two (2) years, please indicate this by entering "N/A" on the appropriate lines below.

Name of Official: N/A

Position: N/A

Description of Contribution:

Value:

Description of Contribution:

Value:

Description of Contribution:

Value:

Description of Contribution:

Value:

Description of Contribution:

Value:

Campaign Contribution Information:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that the information provided in this Disclosure Form is true and accurate and that I have disclosed herein any and all campaign contributions made to an Official of the City of Alpharetta, Georgia in accordance with O.C.G.A. 36-67 A-1.

F7 NWO, LLC

Signature:

By:

BY: BRIGGSDALE SEVEN REIT, LLC

FRED H. HENRETZE, PRESIDENT

Date:

3/1/17

ALPHARETTA PLANNING COMMISSION REVIEW CRITERIA

How will this proposal be compatible with surrounding properties?

The surrounding area is a mix of office campus buildings, restaurants, retail, townhomes and hotel uses. The proposed development provides all of these same uses in a walkable, amenitized, desirable village with extremely active indoor and outdoor spaces at the intersection of GA 400 and Haynes Bridge Road. The development is perfectly compatible with existing uses.

How will this proposal affect the use and value of the surrounding properties?

The creation of this mixed use village at a major intersection should enhance the desirability of nearby properties, and substantially increase surrounding property values.

Can the property be developed for a reasonable economic use as currently zoned? Please explain why or why not.

Yes, the property can be developed under the existing O&I zoning category. O&I does not permit the flexibility to create a mixed use village with multiple complimentary uses, so Applicant has requested CUP zoning in order to offer the best product possible.

What would be the increase to population and traffic if the proposal were approved?
See population estimate exhibit attached.

Traffic volumes are contained in the traffic generation report which is attached to the application.

What would be the impact to schools and utilities if the proposal were approved?

Sufficient infrastructure exists to provide all required utilities without taxing the existing system. There would be some increase in school enrollment, but it is minimized by the types of housing provided, and their location. This type of housing generates fewer school aged children than if located in a suburban environment.

How is the proposal consistent with the Alpharetta Comprehensive Plan; particularly the Future Land Use Map?

The proposed mix of uses is consistent with the Comprehensive Plan and the Future Land Use Map. The development will contain up to 1,230,000 sf of new office development.

Are there existing or changing conditions which affect the development of the property and support the proposed request?

Alpharetta is experiencing substantial growth in demand for quality office products for national and regional tenants, with new buildings already permitted, planned or under construction. These tenants demand housing and lifestyle amenities for their employees. This development is designed to meet that need.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

POPULATION ESTIMATE EXHIBIT

Office Areas:

Parcel A – 350,000 GSF Office = 1200 occupants

Parcel C – 150,000 SF Office/Flex = 520 occupants + 50 Restaurant Use

Parcel D – 400,000 SF Office = 1392 occupants

Parcel E – 300,000 SF Office = 880 occupants

Multifamily:

For Rent – 140 Units at 1.75 occupants per Unit = 245 Occupants + 60 for retail uses

For Sale – 32 Units at 1.75/unit = 56 occupants

Hotel – 140 Rooms = 150 occupants

BOARD OF ZONING APPEALS REVIEW CRITERIA

Please respond to the following ONLY if you are applying for a zoning variance.

Are there extraordinary and exceptional conditions pertaining to the subject property because of its size, shape, or topography? Please describe them.

The structure in the CUP containing the multifamily units also contains retail on one side and a parking deck on another side. The residential side is at the rear and faces a parking deck. The remaining side is an end which opens to the pool and greenspace. This extraordinary layout and design makes the applicability of UDC Section 2.7.0.8 burdensome and not necessary.

Would the application of the Zoning Code standards as they relate to the subject property create an unnecessary hardship? Please explain.

Applying UDC Section 2.7.0.8 would create an unnecessary hardship and cause a potential public safety risk to occupants of units along the rear side.

Are there conditions that are peculiar to the subject property? Please describe them in detail.

The multipurpose design of the structure containing retail, parking lot and multifamily uses combined with the location of the residential units at the rear of the property are peculiar to this design, and are not well served or practical if the standards of UDC Section 2.7.0.8 are applied.

Would relief, if granted, cause substantial detriment to the public good or impair the purpose and intent of the Zoning Code? Please defend your response.

Granting the requested variance would cause no substantial detriment to the public good or impair the purpose and intent of the Zoning Code. Granting the variance would benefit the public good and provide a more desirable product.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

BOARD OF ZONING APPEALS REVIEW CRITERIA

Please respond to the following ONLY if you are applying for a zoning variance.

Are there extraordinary and exceptional conditions pertaining to the subject property because of its size, shape, or topography? Please describe them.

The subject property contains 1.2 million square feet of office space, which is desirable to the City. Office building E and associated parking will be located 40 feet from the right of way of Northwinds Parkway to accommodate a roundabout, boulevard and green area together with roadway access to Northwinds Parkway. To achieve these aesthetic and traffic goals, the structure must be located less than 65 feet from Northwinds Parkway.

Would the application of the Zoning Code standards as they relate to the subject property create an unnecessary hardship? Please explain.

If the structure is required to be 65 feet from the right of way, the green areas and roundabout are negatively impacted and would have to be smaller and less functional. Operation of the roundabout would be negatively impacted.

Are there conditions that are peculiar to the subject property? Please describe them in detail.

The peculiar circumstances are that the development is in large part office space, connectivity is provided from GA 400 at Haynes Bridge Road to Northwinds Parkway, and a very attractive and highly landscaped corridor is provided throughout the development, encouraging pedestrian activity and connectivity to the Alpharetta Loop. Those advantages outweigh the strict application of the required setbacks.

Would relief, if granted, cause substantial detriment to the public good or impair the purpose and intent of the Zoning Code? Please defend your response.

Approval of this variance would have no negative impact or be detrimental to the public good, nor does it cause any public safety hazards. Granting this variance in a C.U.P. district does not impair the purpose and intent of the Zoning Ordinance. It allows the enhancement of the project.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

BOARD OF ZONING APPEALS REVIEW CRITERIA

Please respond to the following ONLY if you are applying for a zoning variance.

Are there extraordinary and exceptional conditions pertaining to the subject property because of its size, shape, or topography? Please describe them.

No.

Would the application of the Zoning Code standards as they relate to the subject property create an unnecessary hardship? Please explain.

Requiring parking at 4 spaces per 1,000 sf of office space would create additional impervious area, and over park the project. Tenants seeking signature, anchor tenant space in this area expect a parking ratio of 3.2 spaces per 1,000 sf. Providing parking beyond market requirements is expensive, wasteful and counter productive. The City commonly grants parking space variances in large office developments.

Are there conditions that are peculiar to the subject property? Please describe them in detail.

The property is planned for 1,200,000 square feet of office development. There is no benefit to creating more parking and impervious space than is needed. Major office tenants generally require no more than 3.2 parking spaces per 1,000 sf. To require 4.0 spaces per 1,000 sf would not benefit the City or the property owner.

Would relief, if granted, cause substantial detriment to the public good or impair the purpose and intent of the Zoning Code? Please defend your response.

Approving this variance will not cause any detriment to the public good or impair the purpose or intent of the UDC. It will reduce impervious area.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

BOARD OF ZONING APPEALS REVIEW CRITERIA

Please respond to the following ONLY if you are applying for a zoning variance.

Are there extraordinary and exceptional conditions pertaining to the subject property because of its size, shape, or topography? Please describe them.

No

Would the application of the Zoning Code standards as they relate to the subject property create an unnecessary hardship? Please explain.

Requiring one bicycle parking space for each 25 parking spaces will cause hardship and unnecessary expense to the Applicant. There is minimal demand for bicycle parking and providing one space for every 50 parking spaces is more than adequate to meet anticipated demand in the foreseeable future.

Are there conditions that are peculiar to the subject property? Please describe them in detail.

No.

Would relief, if granted, cause substantial detriment to the public good or impair the purpose and intent of the Zoning Code? Please defend your response.

Granting this variance provides more than adequate bicycle parking without any detriment to the public good. This reasonable parking ratio does not impair the purpose and intent of the UDC.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

BOARD OF ZONING APPEALS REVIEW CRITERIA

Please respond to the following ONLY if you are applying for a zoning variance.

Are there extraordinary and exceptional conditions pertaining to the subject property because of its size, shape, or topography? Please describe them.

No.

Would the application of the Zoning Code standards as they relate to the subject property create an unnecessary hardship? Please explain.

Requiring Applicant to provide an electric vehicle charging station for every 25 parking spaces is burdensome and creates hardships. Such stations are expensive and take up needed parking spaces. Providing one charging station for each 50 parking spaces more than satisfies foreseeable demand in the office market. Market demand does not justify additional charging facilities.

Are there conditions that are peculiar to the subject property? Please describe them in detail.

No.

Would relief, if granted, cause substantial detriment to the public good or impair the purpose and intent of the Zoning Code? Please defend your response.

Approving the variance will permit the Applicant to fully serve the needs of its tenants without causing any detriment to the public good, and without impairing the purpose and intent of the UDC. The demand for charging stations is very small in the major office market, and the requested variance meets the requirements of prospective tenants.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

CITIZEN PARTICIPATION FORM - PART A

This form must be completed and submitted with the applicant's completed Public Hearing Application. Applications submitted to the City of Alpharetta without a completed Citizen Participation Form - Part A will not be accepted.

Public Hearing or Project Name: Northwinds Summit

Contact Name: Don Rolader

Telephone: 770-442-0330

The following people will be notified of this application and provided information describing the subject proposal. Please note that ALL adjoining property owners MUST be notified. Use additional pages as needed.

All those entities listed on Exhibit "A" attached hereto and

incorporated herein by reference.

Method by which these individuals will be contacted. Please mark all that apply. If you select "Other," please provide a description of the method of contact that will be used.



Letter



Personal Visits



Telephone



Group Meeting



Email



Other (Please Specify) _____

Please describe the method(s) by which these individuals will have the opportunity to respond or contact the applicant with questions or concerns about the proposal.

Response may be by letter, telephone, phone call, email, personal visit or group meeting.

Exhibit "A"

Parcel	Parcel Id	Street Address	Owner	Owner Address
1	12-286007530132	0 Haynes Bridge Road	Metro M3 Inc.	PO Box 420253, Atlanta, Ga. 30342
2	12-271007520341	11385 Haynes Bridge Road	AREG HDP FFIS Alpharetta Owner LLC	3414 Peachtree Rd, NE Atlanta, GA 30326
3	12-285007520655	11417 Haynes Bridge Road	BRE COH GA LLC	PO Box #A-3879, Chicago, Il. 60690-3879
4	12-271007520278	0 Haynes Bridge Road	LWV TPA GA 400 LLC	3350 Riverwood Parkway, Suite 750, Atlanta, GA. 30339
5	12-271007520309	0 Haynes Bridge Road	LWV TPA GA 400 LLC	3350 Riverwood Parkway, Suite 750, Atlanta, GA. 30339
6	12-272007530264	0 Haynes Bridge Road	LWV TPA GA 400 LLC	3350 Riverwood Parkway, Suite 750, Atlanta, GA. 30339
7	12-272007440258	0 Haynes Bridge Road	LWV TPA GA 400 LLC	3350 Riverwood Parkway, Suite 750, Atlanta, GA. 30339
8	12-271007520630	2475 Northwinds Parkway	BRE COH GA LLC	PO Box #A-3879, Chicago, Il. 60690-3879
9	12-271007510664	2520 Northwinds Parkway	BRE COH GA LLC	PO Box #A-3879, Chicago, Il. 60690-3879
10	12-285007990601	2550 Northwinds Parkway	BRE COH GA LLC	PO Box #A-3879, Chicago, Il. 60690-3879
11	12-285008060586	2555 Northwinds Parkway	Devry/Jackson Healthcare	

TRACT 1

All that tract or parcel of land lying and being in Land Lots 752, 753, 798, and 799 of the 1st District, 2nd Section, City of Alpharetta of Fulton County, Georgia, and being more particularly described as follows:

Commencing at a concrete monument found at the intersection of the Northerly right-of-way of Georgia Highway 400 (variable right-of-way) and the Southeasterly right-of-way of Haynes Bridge Road (variable right-of-way); Thence along a curve to the left, an arc length of 162.84 feet, said curve having a radius of 7715.45 feet with a chord distance of 162.84 feet, at North 14 degrees 37 minutes 24 seconds West, to a 1/2" rebar found; said 1/2" rebar found, said point being the TRUE POINT OF BEGINNING. Thence continuing along said right-of-way the following courses and distances: along a curve to the left, an arc length of 259.52 feet, said curve having a radius of 7715.45 feet with a chord distance of 259.51 feet, at North 16 degrees 11 minutes 29 seconds West, to a concrete monument found; along a curve to the left, an arc length of 233.85 feet, said curve having a radius of 4659.27 feet with a chord distance of 233.83 feet, at North 18 degrees 31 minutes 54 seconds West, to a 1/2" rebar found; Thence leaving said right-of-way North 67 degrees 54 minutes 54 seconds East, a distance of 227.26 feet to a 1/2" rebar found; Thence North 22 degrees 14 minutes 43 seconds West, a distance of 159.46 feet to a 1/2" rebar found; Thence North 22 degrees 03 minutes 46 seconds West, a distance of 126.54 feet to a 1/2" rebar found; Thence North 67 degrees 55 minutes 45 seconds East, a distance of 370.38 feet to a PK nail found; Thence North 75 degrees 33 minutes 26 seconds East, a distance of 18.04 feet to a point; Thence along a curve to the left, an arc length of 2.27 feet, said curve having a radius of 542.00 feet with a chord distance of 2.27 feet, at North 28 degrees 15 minutes 20 seconds East to a 1/2" rebar found; Thence North 78 degrees 27 minutes 15 seconds East, a distance of 32.48 feet to a 1/2" rebar found; Thence North 55 degrees 30 minutes 30 seconds East, a distance of 40.01 feet to a 1/2" rebar found; Thence North 57 degrees 36 minutes 34 seconds East, a distance of 13.26 feet to a 1/2" rebar found; Thence along a curve to the left, an arc length of 20.56 feet, said curve having a radius of 143.29 feet with a chord distance of 20.54 feet, at North 64 degrees 59 minutes 52 seconds East, to a 1/2" rebar found; Thence along a curve to the left, an arc length of 160.73 feet, said curve having a radius of 176.96 feet with a chord distance of 155.26 feet, at North 40 degrees 23 minutes 16 seconds East, to a 1/2" rebar found on the Southwestern right-of-way of Northwinds Parkway (variable right-of-way); Thence along said right-of-way along a curve to the left, an arc length of 372.09 feet, said curve having a radius of 523.62 feet with a chord distance of 364.31 feet, at North 87 degrees 53 minutes 38 seconds East, to a 1/2" rebar found; Thence leaving said right-of-way South 32 degrees 26 minutes 41 seconds East, a distance of 89.52 feet to a point; Thence South 31 degrees 34 minutes 27 seconds East, a distance of 41.93 feet to a point; Thence South 15 degrees 05 minutes 55 seconds East, a distance of 31.11 feet to a point; Thence South 38 degrees 22 minutes 37 seconds East, a distance of 32.59 feet to a point; Thence South 46 degrees 33 minutes 11 seconds East, a distance of 43.83 feet to a point; Thence South 30 degrees 32 minutes 12 seconds East, a distance of 60.97 feet to a point; Thence South 84 degrees 20 minutes 45 seconds East, a distance of 39.15 feet to a point; Thence South 27 degrees 46 minutes 16 seconds East, a distance of 57.20 feet to a point; Thence South 05 degrees 57 minutes 04 seconds East, a distance of 21.78 feet to a point; Thence South 36 degrees 43 minutes 32 seconds East, a distance of 103.95 feet to a point; Thence South 42 degrees 31 minutes 13 seconds East, a distance of 61.84 feet to a point; Thence South 60 degrees 11 minutes 49 seconds East, a distance of 64.39 feet to a point; Thence South 25 degrees 29 minutes 48 seconds East, a distance of 50.47 feet to a point; Thence South 67 degrees 58 minutes 27 seconds East, a distance of 45.90 feet to a 5/8" rebar set; Thence South 52 degrees 26 minutes 18 seconds West, a distance of 40.04 feet to a concrete monument found; Thence South 49 degrees 30 minutes 01 seconds West, a distance of 219.05 feet to a concrete monument found; Thence along a curve to the right, an arc length of 820.85 feet, said curve having a radius of 3773.61 feet with a chord distance of 819.23 feet, at South 58 degrees 35 minutes 53 seconds West, to a concrete monument found; Thence South 89 degrees 54 minutes 51 seconds West, a distance of 432.59 feet to a 1/2" rebar found; said 1/2" rebar found being the TRUE POINT OF BEGINNING. Said tract contains 24.457 acres.

TRACT 2

All that tract or parcel of land lying and being in Land Lot 799 of the 1st District, 2nd Section, City of Alpharetta of Fulton County, Georgia, and being more particularly described as follows:

Commencing at a concrete monument found at the intersection of the Northerly right-of-way of Georgia Highway 400 (variable right-of-way) and the Southeasterly right-of-way of Haynes Bridge Road (variable right-of-way); Thence along a curve to the left, an arc length of 162.84 feet, said curve having a radius of 7715.45 feet with a chord distance of 162.84 feet, at North 14 degrees 37 minutes 24 seconds West, to a 1/2" rebar found; said 1/2" rebar found; Thence continuing along said right-of-way the following courses and distances: along a curve to the left, an arc length of 259.52 feet, said curve having a radius of 7715.45 feet with a chord distance of 259.51 feet, at North 16 degrees 11 minutes 29 seconds West, to a concrete monument found; along a curve to the left, an arc length of 233.85 feet, said curve having a radius of 4659.27 feet with a chord distance of 233.83 feet, at North 18 degrees 31 minutes 54 seconds West, to a 1/2" rebar found; Thence leaving said right-of-way North 67 degrees 54 minutes 54 seconds East, a distance of 227.26 feet to a 1/2" rebar found; Thence North 22 degrees 14 minutes 43 seconds West, a distance of 159.46 feet to a 1/2" rebar found; Thence North 22 degrees 03 minutes 46 seconds West, a distance of 126.54 feet to a 1/2" rebar found; Thence North 67 degrees 55 minutes 45 seconds East, a distance of 370.38 feet to a PK nail found; Thence North 75 degrees 33 minutes 26 seconds East, a distance of 18.04 feet to a point; Thence along a curve to the left, an arc length of 2.27 feet, said curve having a radius of 542.00 feet with a chord distance of 2.27 feet, at North 28 degrees 15 minutes 20 seconds East to a 1/2" rebar found, said point being the TRUE POINT OF BEGINNING; Thence North 28 degrees 07 minutes 31 seconds East, a distance of 228.07 feet to a 1/2" rebar found on the Southwestern right-of-way of Northwinds Parkway (variable right-of-way); Thence along said right-of-way along a curve to the left, an arc length of 95.70 feet, with a radius of 523.62 feet, being subtended by a chord bearing of South 66 degrees 35 minutes 53 seconds East, for a distance of 95.56 feet to a 1/2" rebar found; Thence leaving said right-of-way line, along a curve to the right having an arc length of 160.73 feet, with a radius of 176.96 feet, being subtended by a chord bearing of South 40 degrees 23 minutes 16 seconds West, for a distance of 155.26 feet to a 1/2" rebar found; Thence along a curve to the right having an arc length of 20.56 feet, with a radius of 143.29 feet, being subtended by a chord bearing of South 64 degrees 59 minutes 52 seconds West, for a distance of 20.54 feet to a 1/2" rebar found; Thence along a curve to the left having an arc length of 13.26 feet, with a radius of 143.29 feet, being subtended by a chord bearing of South 57 degrees 36 minutes 34 seconds West, for a distance of 13.26 feet to a 1/2" rebar found; Thence South 55 degrees 30 minutes 30 seconds West, a distance of 40.01 feet to a 1/2" rebar found; Thence South 78 degrees 27 minutes 15 seconds West, a distance of 32.48 feet to a 1/2" rebar found, said point being the TRUE POINT OF BEGINNING.

Said tract contains 0.373 acres.

CLUP-17-03/MP-17-05/Z-17-05/CU-17-05/
V-17-16 POPE & LAND
ROLADER & ROLADER, P.C.

ATTORNEYS AND COUNSELORS AT LAW
1865 LOCKEWAY DRIVE, SUITE 601
ALPHARETTA, GEORGIA 30004
Telephone (770) 442-0330
Fax (770) 442-0641
www.roladerandrolader.com

DONALD A. ROLADER
don@roladerandrolader.com

D.W. "Pete" ROLADER
1924 - 2011

March 1, 2017

Mayor and City Council
City of Alpharetta, Georgia
2 Park Plaza
Alpharetta, Georgia 30009

RE: Application of Pope & Land Real Estate for Rezoning, Conditional Use, Comprehensive Plan Amendment, Master Plan Amendment and Variances on 24.83 acres on Haynes Bridge Road, City of Alpharetta, Fulton County, Georgia (Northwinds Summit)

Dear Mayor and Councilpersons:

This firm represents Pope & Land Real Estate, the Applicant, seeking approval of this Rezoning, Conditional Use, Comprehensive Plan Amendment, Master Plan Amendment and Variances. This letter shall be construed as the Letter of Intent for this Application.

The subject property contains approximately 24.83 acres and is located on Haynes Bridge Road at its intersection with Georgia 400. It is a part of the Northwinds development. To the south is Georgia 400, a limited access highway. To the west is Haynes Bridge Road and an existing hotel. To the east and north it abuts developed portions of the Northwinds development. There is a pending application for mixed use across Haynes Bridge Road known as the MetLife site. The general character of nearby property is office campus, restaurant and retail.

Applicant requests approval for the construction of a mixed use development of 1,200,000 square feet of office space, 30,000 square feet of flex office space, 32 residential condominiums, 140 multifamily for rent units, a 140 room hotel and 30,000 square feet of retail/restaurant space. Surrounding property has been developed for office, retail and restaurant uses. There is substantial demand for mixed use in the area. Northwinds has been an extremely successful development. Road improvements and traffic signal modifications at Georgia 400 and Haynes Bridge Road have been completed to accommodate this project. This application approval is requested separately from the existing densities in the remainder of the Northwinds development, and is not intended to diminish or alter those approved uses and densities.

Mayor and City Council
City of Alpharetta, Georgia
March 1, 2017
Page 2

The granting of this Zoning Application will have no negative impact on adjoining or nearby properties, but will provide a compatible supporting use. This development will not unduly tax any City of Alpharetta services, including, but not limited to, fire and police protection, water service and garbage collection. Presently sewer is available through Fulton County. The development will have little impact on the Fulton County School System. To fail to approve this Application will be of no benefit to the citizens of Alpharetta, Georgia while causing a financial burden upon the property owners and the developer.

Applicant requests the following variances: (a) a variance to UDC Section 2.7.0. 8 regarding location and design of for rent housing units on the ground floor; (b) a variance to reduce the setback on Northwinds Parkway from 65 feet to 40 feet; (c) a variance to reduce the required parking for office pods A, C, D and E from 4 spaces per 1000 square feet to 3.2 spaces per 1000 square feet; (d) a variance to reduce the number of bicycle parking spaces from 1 per 25 spaces to 1 per 50 spaces; and (e) a variance to reduce the number of required electric vehicle recharging stations from 1 per 25 parking spaces to 1 per 50 parking spaces

Applicant is seeking approval of a conditional use to permit for rent housing in a CUP development.

Applicant has initially proposed phasing the development with Phase 1 containing buildings B & C, the hotel ("H"), a portion of the retail ("I"), and the multifamily building ("G") as shown on the site plan. Phase 2 is proposed to contain building F from the site plan. Phase 3 is proposed to contain building D. Phase 4 is proposed to contain building E, and Phase 5 is proposed to contain building A and the remainder of "I" as shown on the site plan. Market demand could accelerate or change priority of construction in the later Phases.

Applicant has attached Constitutional Objections which are incorporated herein by reference and made a part hereof.

Mayor and City Council
March 1, 2017
Page Three

Applicant respectfully requests that the Mayor and City Council approve this Application to allow the use of the property as indicated on the site plan, including the requested Conditional Use and Variances.

Very truly yours,

ROLADER & ROLADER, P.C.



Donald A. Rolader

DAR/ddf
attachment

CONSTITUTIONAL OBJECTIONS

Georgia Law and the procedures of the City of Alpharetta require us to raise Federal and State Constitutional objections during the rezoning application process. While the Owner anticipates a smooth application process, failure to raise constitutional objections at this stage may mean that the owner will be barred from raising important legal claims later in the process. Accordingly, we are required to raise the following constitutional objections at this time:

A denial of the Application would be unconstitutional in that it would destroy the Owner's property rights without first paying fair, adequate and just compensation for such rights, in violation of Article I, Section I, Paragraph I of the Constitution of the State of Georgia of 1983, Article I, Section III, Paragraph I of the Constitution of the State of Georgia of 1983 and the Due Process Clause of the Fourteenth Amendment to the Constitution of the United States.

Any application of the Code of the City of Alpharetta, or the Unified Development Code of the City of Alpharetta, to the Subject Property that prohibits the Owner from developing the Subject Property as proposed is unconstitutional, illegal, null and void because such an application constitutes a taking of the Owner's property in violation of the Just Compensation Clause of the Fifth Amendment to the Constitution of the United States, Article I, Section I, Paragraph I, and Article I, Section III, Paragraph I, of the Constitution of the State of Georgia of 1983 and a violation of the Equal Protection and Due Process Clauses of the Fourteenth Amendment to the Constitution of the United States because such an application denies the Owner an economically viable use of its land while not substantially advancing legitimate state interests.

A denial of this Application would also constitute an arbitrary and capricious act by the City of Alpharetta without any rational basis therefore, thereby constituting an abuse of discretion in violation of Article I, Section I, Paragraph I of the Constitution of the State of Georgia of 1983, Article I, Section III, Paragraph I of the Constitution of the State of Georgia of 1983 and the Due Process Clause of the Fourteenth Amendment to the Constitution of the United States.

A refusal by the City of Alpharetta to grant the Application would be unconstitutional and discriminate in an arbitrary, capricious and unreasonable manner between the Owner and Owners of similarly situated property in violation of Article I,

Section I, Paragraph II of the Constitution of the State of Georgia of 1983 and the Equal Protection Clause of the Fourteenth Amendment to the Constitution of the United States. Any approval of the Application that subjects the Subject Property to conditions that are different from the conditions requested by the Owner, to the extent such different conditions would have the effect of further restricting the Owner's utilization of the Subject Property, would also constitute an arbitrary, capricious and discriminatory act in zoning the Subject Property to an unconstitutional category and would likewise violate each of the provisions of the State and Federal Constitutions set forth hereinabove.

In addition, this constitutes formal written notice to City of Alpharetta, pursuant to O.C.G.A. § 36-33-5, that the Owner plans to seek to recover all damages that it sustains or suffers as a result of the denial of this Application and/or the unconstitutional zoning of the Subject Property by the City of Alpharetta. Such damages may include, but are not necessarily limited to, damages related to the diminution in the value of the Subject Property, attorneys' fees and expenses of litigation.

Accordingly, the Owner respectfully requests that the City of Alpharetta grant the Application as requested.

ROLADER & ROLADER, P.C.

By: _____



Donald A. Rolader
Attorney for Owner

1865 Lockeway Drive
Suite 601
Alpharetta, GA 30004
770-442-0330



A&R Engineering Inc.

2160 Kingston Court, Suite O
Marietta, GA 30067
Tel: (770) 690-9255 Fax: (770) 690-9210
www.areng.com



Memorandum

To: Haines Gipson & Associates Inc.
Date: December 21, 2016
Subject: Trip Generation Memorandum for Northwinds Summit Mixed-Use Development

The purpose of this memorandum is to determine the trip generation that will result from a proposed mixed-use development located on Haynes Bridge Road between Northwinds Parkway and US 19 (GA 400) in Alpharetta, Georgia. The development will consist of 1,230,000 square feet of office space, 32 condominium units, 130 apartment units, a 140-room hotel, and 30,000 square feet of retail/restaurant space. The development proposes one full-access driveway on Northwinds Parkway as well as one full-access point on Haynes Bridge Road aligned with the US 19 (GA 400) Southbound Ramp. The location of the development is shown below in Figure 1.



Figure 1: Site Location

Trip generation estimates for this project were based on the rates and equations published in the 9th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation for the development, shown in Table 1, was based on the following ITE Land Use: 220 – Apartment, 230 – Residential Condominium/Townhouse, 310 – Hotel, 710 – General Office Building, and 820 – Shopping Center.

Land Use	Size	AM Peak Hour			PM Peak Hour			24-Hour
		Enter	Exit	Total	Enter	Exit	Total	Two-way
ITE 220 – Apartment	130 Units	13	54	67	58	31	89	911
ITE 230 – Residential Condominium	32 Units	4	17	21	16	8	24	239
ITE 310 – Hotel	140 Rooms	44	30	74	43	41	84	880
ITE 710 – General Office Building	1,230,000 sf	1,254	171	1,425	248	1,208	1,456	8,842
ITE 820 – Shopping Center	30,000 sf	46	29	75	128	139	267	3,105
Total Site Trips (without reductions)		1,361	301	1,662	493	1,427	1,920	13,977
Internal Capture for Apartment		-2	-2	-4	-9	-5	-14	-153
Internal Capture for Condominium		0	0	0	-2	-2	-4	-40
Internal Capture for Hotel		-2	-2	-4	-8	-5	-13	-148
Internal Capture for Office		-1	-2	-3	-4	-5	-9	-139
Internal Capture for Shopping Center		-5	-4	-9	-15	-21	-36	-420
Total Internal (Mixed-Use) Trip Reductions		-10	-10	-20	-38	-38	-76	-900
Pass-by for Shopping Center (0%) 34%		0	0	0	-38	-40	-78	-780
Total New External Trips (with reductions)		1,351	291	1,642	417	1,349	1,766	12,297

*Daily pass-by reduction estimated to be least of the applied PM peak hour pass-by rate or ten times the PM pass-by volume

As part of this memorandum, annual average daily traffic volumes were collected from Georgia Department of Transportation. This traffic counters near the proposed development were used to determine the annual average daily traffic in the surrounding area. The counts revealed an ADT in 2015 of 24,100 vehicles per day in 2015 on Haynes Bridge Road north of Westside Parkway. The locations of the surrounding traffic counters near the proposed development are shown in Figure 2 below.

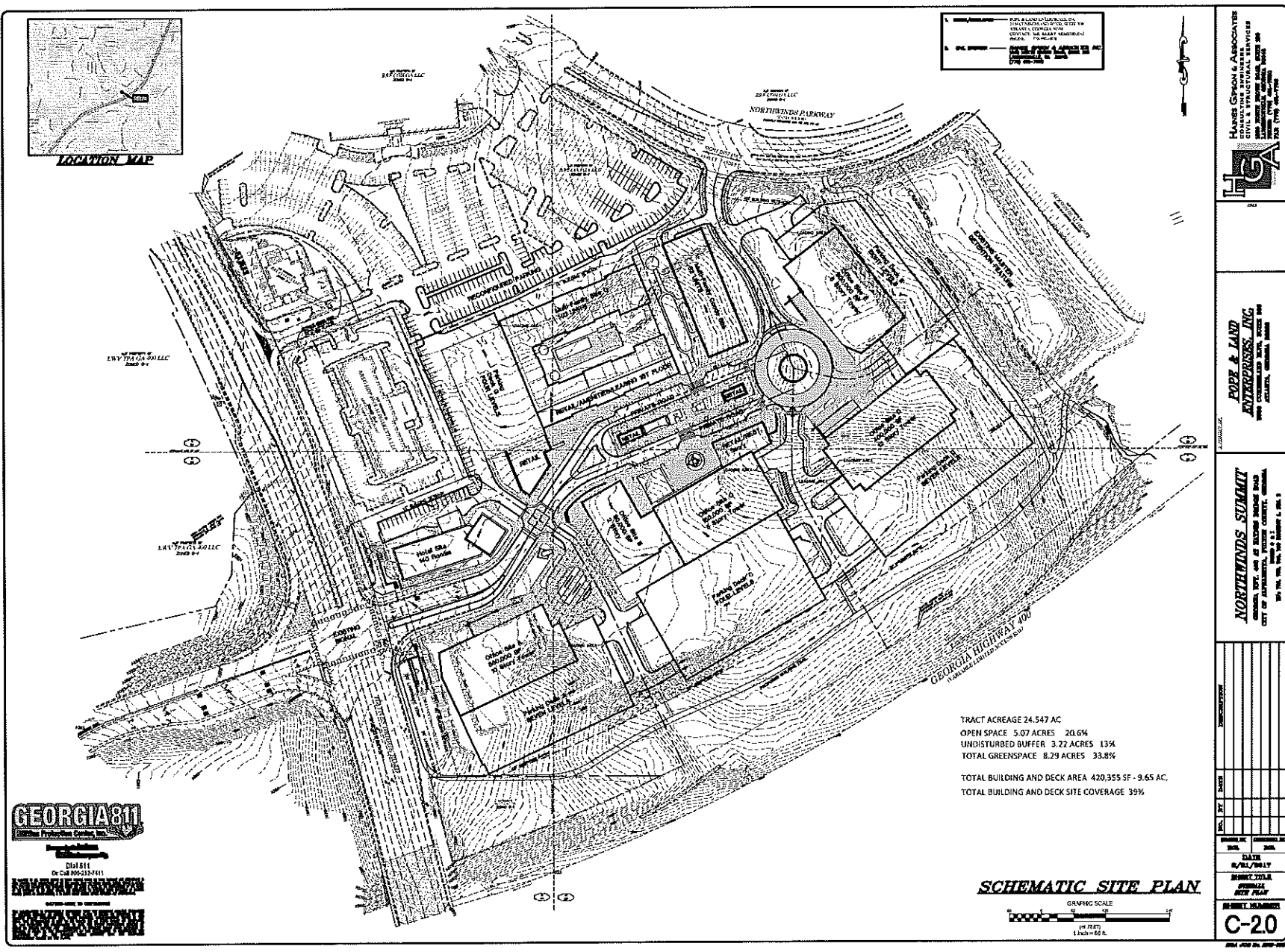


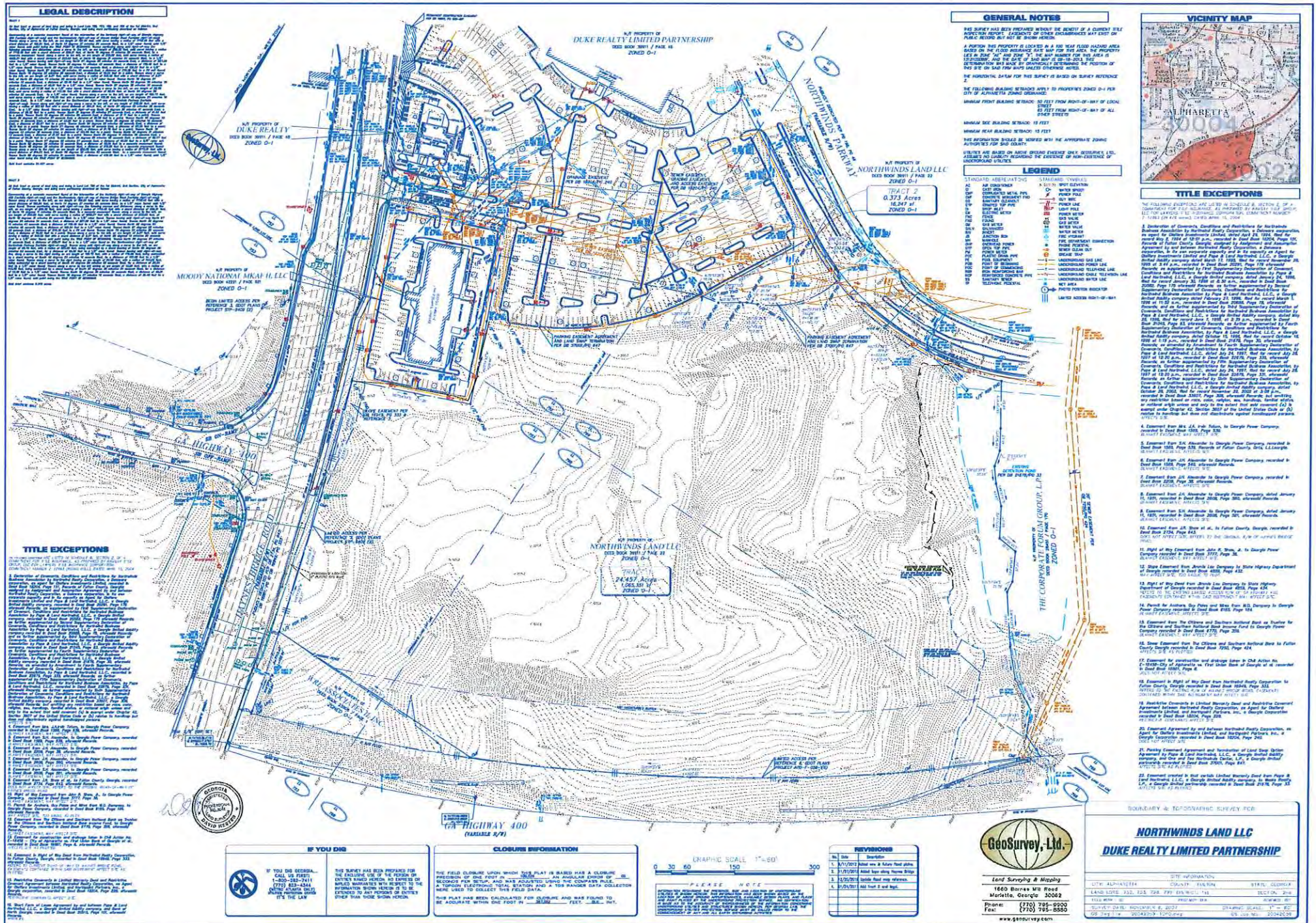
Figure 2: Traffic Counter Locations

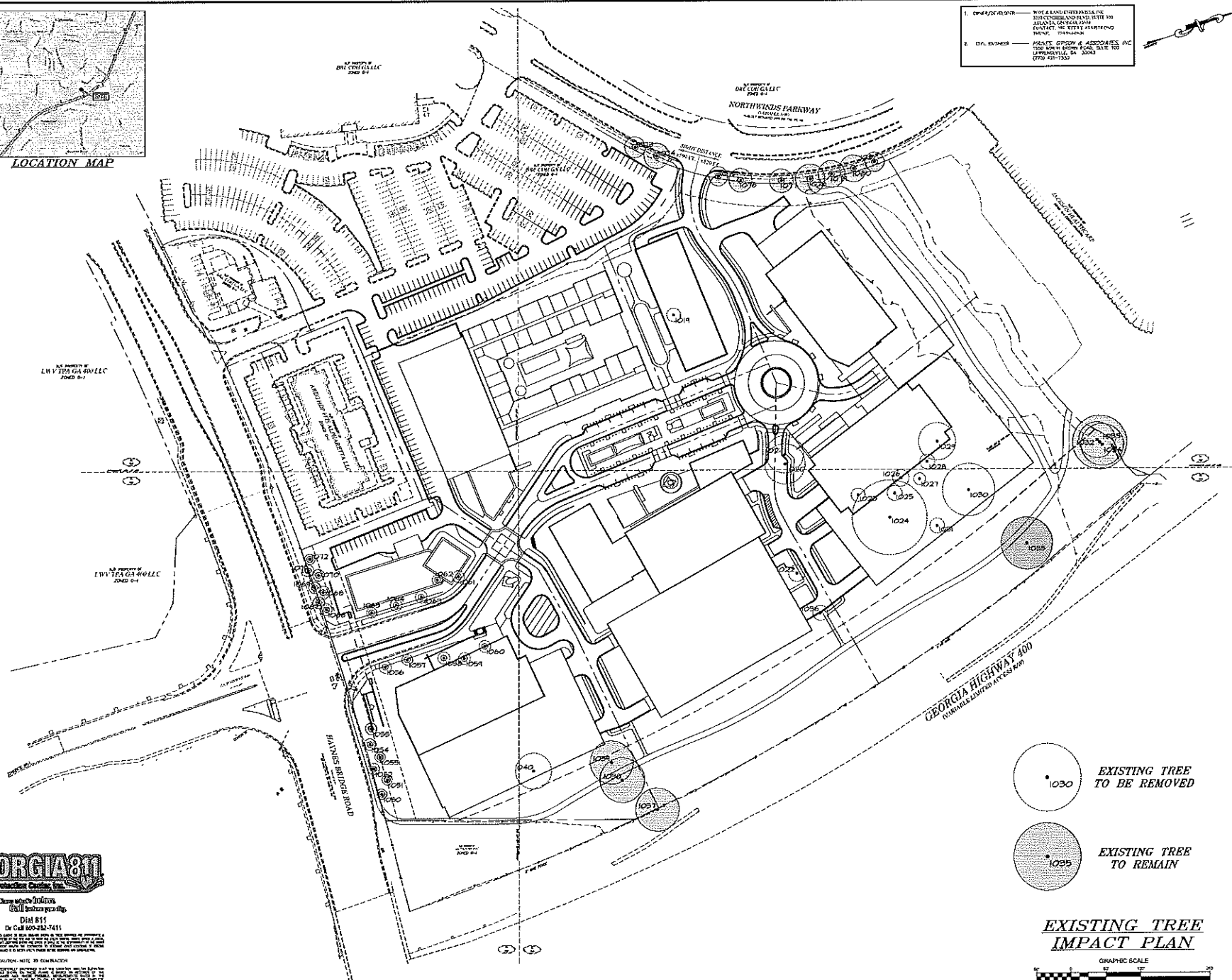
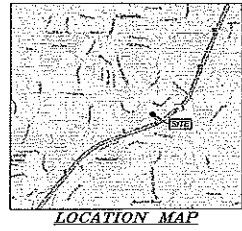


KEY LEGEND

- OFFICE - 350,000 SF A
- FLEX OFFICE - 30,000 SF B
- OFFICE - 150,000 SF C
- OFFICE - 400,000 SF D
- OFFICE - 300,000 E
- STACKED FLAT
CONDOMINIUMS - 32 UNITS F
- MULTIFAMILY - 140 UNITS G
- HOTEL - 140 ROOMS H
- RETAIL / RESTAURANT /
LEASING / AMENITY - 30,000 SF I







1. CONFIDENTIAL — WOLF & LAND ENTERPRISES, INC.
3135 COLUMBIA AVE, SUITE 100
ATLANTA, GEORGIA 30309
CONTACT: MR. KERRY ALLENSTROM
PHONE: 770-366-0606
2. CONFIDENTIAL — HANES PAPER & ASSOCIATES, INC.
1200 NORTH KENNEDY ROAD, SUITE 100
LAFAYETTEVILLE, GA 30043
(770) 431-7350

HAINES GIPSON & ASSOCIATES
CONSULTING ENGINEERS
CIVIL & STRUCTURAL SERVICES
1050 NORTH BROWN ROAD, SUITE 100
LAWRENCEVILLE, GEORGIA 30043
PHONE: (770) 461-7000
FAX: (770) 461-7750



POPE & LAND
ENTERPRISES, INC.
3330 CUMBERLAND BLVD., SUITE 300
ATLANTA, GEORGIA 30339

NORTHWINDS SUMMIT
GEORGIA HWY. 400 AT MATHEWS BRIDGE ROAD
CITY OF ALPHEARETTA, FULTON COUNTY, GEORGIA
ZONE: 0 & 1

[illegible]

DATE	2/21/2017
SHEET TITLE	EXISTING TREE IMPACT PLAN

C-1.0

HQA JOB No. 2010-333

Tag Number	DBH	Species	Common Name	Class	Condition	Tree Type	Notes
1019	9	Cornus florida	Flowering dogwood	Understory	Poor	Specimen	Dieback in canopy
1020	27	Liriodendron tulipifera	Tulip poplar	Overstory	Good	Specimen	
1021	25	Liriodendron tulipifera	Tulip poplar	Overstory	Excellent	Specimen	
1022	11	Juniperus virginiana	Eastern red cedar	Understory	Fair	Specimen	Low split with included bark
1023	9	Oxydendrum arboreum	Sourwood	Understory	Poor	Specimen	Multi stem (9/6); damage to largest stem; signs of decay and no callus formation along margins
1024	50	Liriodendron tulipifera	Tulip poplar	Overstory	Poor	Specimen	Multi stem with third trunk dead causing internal decay in base (visual and sounding mallet); included bark to 3'
1025	10	Oxydendrum arboreum	Sourwood	Understory	Good	Specimen	
1026	11	Oxydendrum arboreum	Sourwood	Understory	Poor	Specimen	Cavity in trunk
1027	8	Oxydendrum arboreum	Sourwood	Understory	Good	Specimen	
1028	10	Oxydendrum arboreum	Sourwood	Understory	Good	Specimen	
1029	25	Liriodendron tulipifera	Tulip poplar	Overstory	Excellent	Specimen	
1030	35	Quercus rubra	Northern red oak	Overstory	Fair	Specimen	Low split with included bark to 3'
1031	10	Oxydendrum arboreum	Sourwood	Understory	Good	Specimen	
1032	24	Liriodendron tulipifera	Tulip poplar	Overstory	Poor	Specimen	Cavity in base
1033	36	Liriodendron tulipifera	Tulip poplar	Overstory	Poor	Specimen	Signs of disease in base
1034	28	Quercus nigra	Water oak	Overstory	Good	Specimen	
1035	35	Liriodendron tulipifera	Tulip poplar	Overstory	Fair	Specimen	Low split with included bark to 3'
1036	10	Cornus florida	Flowering dogwood	Understory	Good	Specimen	Multi stem (6/4)
1037	29	Quercus stellata	Post oak	Overstory	Poor	Specimen	Decay in base with large fungal fruiting body
1038	30	Quercus falcata	Southern red oak	Overstory	Fair	Specimen	Low split with included bark to 3'; canopy atypical of 30" specimen
1039	29	Liriodendron tulipifera	Tulip poplar	Overstory	Excellent	Specimen	
1040	24	Quercus falcata	Southern red oak	Overstory	Poor	Specimen	Dieback in canopy; signs on internal cavity in lower trunk (sounding mallet)



706.202.6516
www.brookwoodtree.com

PO BOX 7774
ATLANTA, GA 30357

Northwinds Summit Site - Photos to Accompany Tree Assessment - 11.15.16



Tree 1040 - Overall view of canopy with branch dieback
(red arrows)



Tree 1038 - Low split with included bark to 3' (red arrow)



Tree 1037 - Decay in base with large fungal fruiting body (red arrows)



Tree 1035 - Low split with included bark to 3' (red arrow)



Tree 1033 - Tulip poplar with signs of disease in base



Tree 1032 - Cavity in base (red arrow)



Tree 1030 - Low split with included bark to 3' (red arrow)



Tree 1026 - Cavity in trunk appears to extend from base to branch base scar at 4' (red arrows)



Tree 1024 - Multi stem tree with dead third trunk (red arrow).



Tree 1024 - Multi stem tree with dead third trunk (red arrow).



Tree 1023 - Trunk damage with signs of decay and no callus formation along margins



Tree 1022 - Low split with included bark (red arrow)



Tree 1019 - Branch dieback in canopy



CITY COUNCIL MEETING STAFF REPORT

SUBMITTING DEPARTMENT: COMMUNITY DEVELOPMENT

SUBMITTED BY: KATHI COOK

DRAFTED BY: MICHAEL WOODMAN

I. AGENDA ITEM TITLE: PH-17-12 UNIFIED DEVELOPMENT CODE TEXT AMENDMENTS – HOTELS, LAND DEVELOPMENT ACTIVITIES & MISCELLANEOUS EDITS

PLANNING COMMISSION: JUNE 1, 2017

CITY COUNCIL: JUNE 19, 2017

This item was heard at the April 12, 2017 Planning Commission meeting. After discussion, the Planning Commission pulled out the text amendments related to Hotels and the North Main Street Front Setback Reduction and voted to table those items to allow staff to further refine the definitions and notify affected properties on North Main Street.

II. RECOMMENDATION:

Approve text amendments to the Unified Development Code for Hotel definitions, North Main Street Front Setback Reduction & Miscellaneous Edits

III. REPORT IN BRIEF:

Consideration of text amendments to Unified Development Code (UDC) Section 1.4 Definitions, to add and modify definitions for hotels, UDC Section 2.2 Permitted Use Districts and Regulations to assign hotel uses within the various zoning districts and in Table 2.2 List of Permissible and Conditional Uses, UDC Section 2.2 Permitted Use Districts and Regulations to reduce the front setback in the O-P, O-I and C-1 zoning districts for properties along North Main Street, and miscellaneous text amendments to correct discrepancies between zoning districts and Table 2.2 List of Permissible and Conditional Uses as it relates to 'Tattoo Parlor' and 'Wireless Tower'.

Hotels:

Staff proposes to add a definition for 'Boutique Hotel' and modify the definition of 'Hotel'. The proposed text amendments are in response to an over-abundance of Limited- and Select-Service hotels in the City. 'Boutique Hotel' is proposed to be added as a conditional use in the CUP, O-I, C-2, PSC, LI, MU, DT-C and DT-MU zoning districts. Staff also proposes corrections to the zoning districts and to the List of Permissible and Conditional Uses with respect to 'Extended Stay Hotel' to reflect the use as a conditional use in the CUP, O-I, C-2 and LI zoning districts. The proposed text amendments have been reviewed and approved by the City Attorney.

North Main Street – Front Setback Reduction:

Staff proposes amendments to the front building setback in the O-P, O-I and C-1 zoning districts to reduce the front setback for properties along North Main Street from 65' to 20'. GDOT's Main Street project will impact several properties along North Main Street. Most of the subject properties are constrained due to their shallow depth and the 50' undisturbed buffer at the rear of these properties. The proposed 20' front setback is commensurate with the front setbacks in the Downtown zoning districts, which range from 0' to 10'. A 10' landscape strip is required along North Main Street and the Downtown Code requires parking behind structures.

Staff notified all affected property owners of the proposed front setback reduction. Some property owners contacted the City to ask questions about the proposed front setback reduction. The City has not received any objections to the proposed change.

Miscellaneous Text Amendments:

Staff proposes amendments to the zoning districts and to the List of Permissible and Conditional Uses in order to correct discrepancies. More specifically, a correction to 'Tattoo Parlor and Body Piercing' to reflect the use as permitted within the LI district. A correction to 'Wireless Tower' to reflect the use as a conditional use in the AG, CUP, O-I, C-2, PSC, LI and SU zoning districts.

IV. ATTACHMENTS:

- UDC Strike Through and Underline Edits



2 PARK PLAZA
ALPHARETTA, GA 30009
PHONE: 678.297.6000
WWW.ALPHARETTA.GA.US

May 1, 2017

Dear Property Owner:

The City of Alpharetta is considering amendments to the front building setback in the O-P (Office-Professional), O-I (Office-Institutional) and C-1 (Neighborhood Commercial) zoning districts for properties along North Main Street to reduce the front setback requirement from 65' to 20'. GDOT's Main Street project will impact many properties along North Main Street. These properties are already constrained due their shallow depth and the requirement for a 50' undisturbed buffer at the rear of properties. The proposed front setback reduction is consistent with the front setbacks allowed in the Downtown zoning districts.

The public hearings for consideration of PH-17-12 UDC Text Amendments are on the dates listed below.

Planning Commission Thursday, **June 1, 2017** at 6:30 PM and;

City Council Monday, **June 19, 2017** at 6:30 PM

Both meetings will be heard in the City Council chambers at City Hall. Please contact me with any questions or concerns you may have.

Respectfully,

Michael A. Woodman, AICP
Senior Planner
(678) 297-6072
mwoodman@alpharetta.ga.us

SECTION 1.4 - DEFINITIONS

1.4.2 Defined terms.

Words and phrases defined herein shall be interpreted as defined without regard to other meanings in common or ordinary use, unless the context of the word or phrase indicates otherwise. Words and phrases not defined in this Ordinance shall be construed to have the meaning given by common and ordinary use as defined by Webster's New International Dictionary, Latest Edition. Figures associated with defined terms in this Section are provided for illustration only and do not limit or change the meaning of the term as defined in writing.

Boutique Hotel. A high quality hotel which contains less than 120 rooms located in a unique setting, such as the City's Downtown, mixed-use developments and/or an entertainment district. The building shall reflect a unique exterior architecture and interior design compatible with the area in which the hotel is located. The boutique hotel shall provide guests with high quality services, such as, but not limited to, concierge, on-site restaurant, room service, meeting space, business center, banquet facilities, spas, doormen, valet parking, boutiques and/or other amenities. Guest rooms within the building shall contain no equipment for food preparation other than a mini-fridge and/or microwave. There shall be no self-serve laundry facilities (for guests use) within the building. Access to each guest room shall be through an inside lobby supervised at all hours.

Hotel (or Motel). A building in which lodging along with customary lodging facilities and services, such as meeting rooms, restaurant, maid service and fitness center, are provided for transient guests for an average stay of less than 7 days and offered to the public for compensation. Hotel services shall include the provision of food and beverage services suitable for both guests and groups, on-site restaurant, lounges, group meeting spaces with banquet facilities and selective amenities, such as but not limited to spas, banquet rooms, doormen, valet parking, concierge, and high-end restaurant and boutiques. Guest rooms within the building shall contain no ~~provisions~~ equipment for food preparation other than a mini-fridge and/or microwave. There ~~are~~ shall be no self-serve laundry facilities (for guests use) within the building. Access to each guest room ~~is~~ shall be through an inside lobby ~~which is~~ supervised at all hours.

(Ord. No. 689, § 1, 6-2-2014 ; Ord. No. 702, § 1(Exh. A), 3-2-2015 ; Ord. No. 704, § 1, 6-1-2015 ; Ord. No. 715 , § 1, 9-28-2015; Ord. No. 718 , § 1, 12-14-2015)

Sec. 3.4. - Uses Allowed by District.

3.4.1. Allowed Use Table.

- A. In order to regulate a variety of similar uses, use categories have been established for principal uses. Use standards for both principal and accessory uses are specified in Section 2.3 and Section 2.7 of the Unified Development Code. Uses not listed may be interpreted by the Director of Community Development. When the Director of Community Development cannot determine placement, an application shall be made to the Board of Appeals for interpretation.
- B. Principal and accessory uses allowed by district are shown in the table below.

3.4.2. Use Table Key.

- A. Permitted Use (X). Indicates a use is permitted in the respective district. The use is also subject to all other applicable requirements of the Unified Development Code.
- B. Conditional Use (O). Indicates a use may be permitted in the respective district only where approved by the City Council in accordance with Section 4.2 of the Unified Development Code. Conditional uses are subject to all other applicable requirements of the Unified Development Code, including any applicable use standards, except where the use standards are expressly modified by the City Council as part of the conditional use permit approval.
- C. Use Not Permitted. An empty cell indicates that a use is not permitted in the respective district.

Key: X = Permitted Use O = Conditional Use Empty Cell = Use Not Permitted				
Use Category	Downtown Zoning Districts			
Specific Use	DT-C	DT-MU	DT-LW	DT-R
Open Uses				
Community Garden	X	X	X	X
Equestrian Center				
Farmlands (including Livestock, poultry)				
Greenhouse, Nursery				
Residential Uses				
Household living (see district regulations for additional density and Conditional Use Permit requirements):				

Dwelling, 'For-Sale,' Attached	X	X	X	X
Dwelling, 'For-Sale,' Detached	X	X	X	X
Dwelling, 'For-Rent'	O	O		
Group living:				
Congregate Housing, Assisted Living Facility	O	O		
Home-Elderly, Children, Nursing	X	X		
Public/Institutional Uses				
Associations, (Clubs & Lodges)	X	X	O	O
Cemetery				
Church, Synagogue, Other Place of Worship	O	O	O	O
Country Club				
Fire Station	X	X		
Golf Course, Driving Range				
Museums & Libraries	X	X	O	
Park and Playground	X	X	X	X
Power Station				
Prison				
Public Building	X	X	O	
Sewage, Disposal Plant				
School, Academic	O	X	O	
School, Commercial (Beauty, Business)	X	X	O	

Utility Substation	O	O	O	O
Telecommunications				
Antenna Tower				
Broadcasting Studio (Radio & TV)	O	O	O	
Switching Station (Telecom)				
Commercial Uses				
Adult Entertainment Establishment				
Amphitheater	O	O	O	
Animal Hospital, Small Animal (Veterinarian)	O	O		
Animal Hospital, Large Animal		O		
Art Galleries	X	X	O	
Athletic Facilities/Fitness Studio	X	X	O	
Auditorium	O	O	O	
Auto Sales and Leasing (Trucks, Vans, Cars & Accessories)		O		
Automotive Parts	X	X		
Automotive Service		X		
Bakery (under 8,000 square feet in floor area)	X	X	O	
Bakery (8,000 square feet or more in floor area)		X		
Bank, Savings & Loan, Mortgage Company	X	X	O	
Barber Shop	X	X	O	
Beauty Shop	X	X	O	

Bed & Breakfast	X	X	O	O
Book Store or Stationery	X	X	O	
Boutique Hotel	O	O		
Brewery	O	O		
Car Wash				
Carpet and Rug Sales	O	O		
Check Cashing		O		
Clinic, Public/Private	X	X	O	
Contractor's Office (with no outside storage)	O	X	O	
Contractor's Office (with outside storage)		O		
Convenience Center (with gas pumps)		X	O	
Dance Studio	X	X	O	
Day Care Center	O	X	O	
Discount Store				
Distillery	O	O		
Drug Store, Pharmacy	X	X	O	
Dry Cleaning, Pick-Up Station	X	X		
Florist, Retail (with no greenhouse)	X	X	O	
Florist, Retail (with greenhouse)		O		
Funeral Home (with no cemetery or mausoleum)	O	O	O	
Golf, Miniature		O		

Grocery Store (under 2,000 square feet in floor area, located at a street corner, and limited to one per block)	X	X	O	
Grocery Store (2,000 square feet or more in floor area)	X	X		
Hardware & Garden Supply Store (under 8,000 square feet in floor area)	X	X		
Hardware & Garden Supply Store (8,000 square feet or more in floor area)		X		
Home Improvement Store		X		
Hospital		O		
Hotel	O	O		
Indoor Shooting Range				
Kennel				
Laundry, Self-Serve, Pick-Up		X		
Liquor Store	O	O		
Massage Therapy		O		
Nail Salon	X	X	O	
Office	X	X	X	
Outdoor Recreational Facilities (Commercial) (Playfields, etc.)	O	O	O	
Parking Lot, Commercial (under 30 spaces)	O	O	O	
Parking Lot, Commercial (30 spaces or more)	O	O		
Pawn Shop				
Pet Day Care (with no overnight boarding)	X	X	O	
Pet Grooming	X	X		

Print Shop	X	X	O	
Recreation Facilities, Indoor (Health Clubs, Bowling Alley, Skating Rink, Billiards, Children's event facilities, etc.)	O	O	O	
Rental Services Establishment with no outside storage	O	X		
Restaurant (see Accessory Uses for additional drive-through requirements)	X	X	O	
Retail Establishment (with no mixed-sales)	X	X	O	
Retail Establishment (with mixed-sales)	O	O		
Service Station, Automotive		X		
Shop or Studio, Craftsman/Artist	X	X	O	
Small Appliance Repair Shop	O	O		
Spa Services	O	O	O	
Tattoo Parlor & Body Piercing				
Theater, Cinema	O	O	O	
Industrial Uses				
Asphalt Plant				
Bottle Gas Storage & Distribution				
Builder's Equipment/Material				
Carpenter Shop, Woodworking (under 8,000 square feet in floor area)	O	O		
Carpenter Shop, Woodworking (8,000 square feet or more in floor area)				
Concrete Plant				
Dry Cleaning, Plant				

Glass Fabrication (under 8,000 square feet in floor area)				
Glass Fabrication (8,000 square feet or more in floor area)	O	O		
Junk Yard				
Laboratory, Research Commercial				
Laundry, Industrial				
Locker, Frozen Food or Cold Storage				
Machine Shop				
Manufacturing, Heavy, General				
Manufacturing, Light, Limited (under 8,000 square feet in floor area)	O	O	O	
Manufacturing, Light, Limited (8,000 square feet or more in floor area)				
Mini-warehouse Storage, Conditioned or Unconditioned Space				
Pest Control Business (with or without onsite chemical storage)		O		
Recycling Center				
Rental Services Establishment with outside storage (other than auto related)				
Salvage Yards				
Sawmill				
Septic Tank, Sales, Construction				
Storage, Inside				
Storage, Outside				
Taxidermist				
Tire Retreading				

Transfer Station				
Welding Shop				
Wholesale Storage and Distribution				
Transportation Uses				
Airport, Public/Private				
Heliport, Public/Private				
Limousine Service & Taxi (with or without outside vehicle storage)		O		
Accessory Uses				
Clubhouse, swimming pool, or community recreation facilities serving a development	X	X	X	X
Drive-Through Window		O	O	
Dwelling, 'For-Sale', Accessory	X	X	X	X
Family Day Care Home	X	X	X	X
Group Home				
Home Occupation	X	X	X	X
Live-Work	X	X	X	
Parking Garage	X	X	O	
Privacy and decorative fences and walls	X	X	X	X
Retail service uses up to 25% of the floor area of an office building for services incidental to the associated office use.	X	X	O	
Retaining walls and other site improvement structures approved as part of the development permit.	X	X	X	X

Signs, subject to all of the requirements regulating signage of the district.	X	X	X	X
Special Care Home	X	X	X	X
Swimming pool, tennis court, detached garage, play house, green house, storage shed, patio, gazebo and other private recreation facilities	X	X	X	X
Vehicle access, parking and loading areas	X	X	X	X

3.4.3. Specific Use Standards.

The following principal and accessory uses must conform with the indicated use standards.

- A. **Dwelling, 'For-Sale' Accessory.** Where a Dwelling, 'For-Sale' Accessory is allowed, it is subject to the following:
1. The dwelling shall be accessory to a permitted commercial use and shall be located above or to the rear of such use to which it is accessory.
 2. The dwelling shall be attached by a common wall with the commercial or office structure to which it is accessory.
 3. The dwelling shall be occupied by a single family, a member of whom is the owner or tenant of the commercial structure to which it is accessory.
 4. The square footage of the dwelling shall not exceed 40% of the combined square footage of the commercial structure and the dwelling.
 5. The dwelling and the commercial structure to which it is accessory shall be in compliance with all applicable provisions of the life safety code, the building code, and other codes of the City.
- B. **Live-Work.** Where Live-Work is allowed, it is subject to the following:
1. Live-work is only permitted on the first floor of a dwelling unit.
 2. A minimum of one person must occupy the dwelling containing the live-work use as their primary place of residence.
 3. The live-work use may employ no more than two persons not living on the premises at any one time.
 4. No business storage or warehousing of material, supplies or equipment is permitted outside of the dwelling containing the live-work use.
 5. The nonresidential use of the live-work use is limited to a permitted or conditional use in the zoning district.
 6. No equipment or process may be used in connection with the live-work use that creates noise, vibration, glare, fumes, odors, or electrical interference detectable to the normal senses, off the premises.
 7. No more than 5 customers are permitted on the premises at any one time.

SECTION 2.2 a - CONDITIONAL USE REVIEW CRITERIA

When reviewing a conditional use, consideration shall be given to factors associated with the use including, but not limited to, the following:

1. Site design.
2. Property access.
3. Hours of operation of the business.
4. Vehicular trips generated by the use.
5. Impact of the use on surrounding properties.
6. Impact of the use on the natural features of the site.

2.2.1 AG agriculture.

A. *Permitted Principal Uses.* A property in the AG district may be used for those uses listed in Table 2.1, including any of the following by right, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use:

1. Agricultural and Residential Uses.
 - a. Bed and Breakfast.
 - b. Dwelling, 'For-Sale' Detached.
 - c. Farmlands, including livestock, poultry.
2. Business Uses.
 - a. Taxidermist.
3. Semipublic Uses, Utilities.
 - a. Park or Playground.

B. *Accessory Uses.* A property in the AG district may contain any accessory structure or use customarily related to and clearly subordinate to any principal use that is permitted by right or through approval as a conditional use on the same property, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use.

Permitted accessory structures and uses include but are not limited to the following:

1. Privacy and decorative fences and walls.
2. Home Occupation in a residence.
3. Family Day Care Home in a residence.
4. Group Home.
5. Special Care Home in a detached 'For-Sale' dwelling.
6. Swimming pool, tennis court, detached garage, play house, green house, storage shed, patio, gazebo and other private recreation facilities.
7. Clubhouse, swimming pool, or community recreation facilities serving a development.
8. Barns, stables and similar structures for the housing, repair, storing, or processing of farm products of the property.
9. Vehicle access, parking and loading areas, subject to the requirements of the Parking and Loading regulations herein.
10. Signs, subject to all of the requirements regulating signage herein.

11. Retaining walls and other site improvement structures approved as part of the development permit.
- C. *Conditional Uses.* A property in the AG district may be used for any of the following only upon approval as a conditional use by the City Council:
1. Residential and Agricultural Uses.
 - a. Additional 'For-Sale' detached dwelling.
 - b. Greenhouse, Nursery.
 2. Business Uses.
 - a. Animal Hospital, Veterinarian.
 - b. Broadcasting (Radio or TV).
 - c. Builder's Equipment.
 - d. Carpenter Shop, Woodworking.
 - e. Equestrian Center.
 - f. Golf Course, Driving Range.
 - g. Kennel.
 3. Semipublic Uses, Utilities.
 - a. Airport.
 - b. Athletic Facility.
 - c. Auditorium.
 - d. Cemetery.
 - e. Church, Synagogue or any other religious institution.
 - f. Club or Lodge.
 - g. Country Club.
 - h. Heliport, Public/Private.
 - i. Utility Substation.
 - j. [Wireless Tower.](#)

D. *District Regulations.*

Minimum lot size—5 acres.

Minimum Lot Width—200 feet.

Minimum Setbacks.

Front yard—from all street frontages:

From right-of-way of local street—50 feet.

From right-of-way of all other streets—65 feet.

Side yard—25 feet.

Rear yard—50 feet.

Maximum Ground Coverage By Principal Buildings—25%.

Maximum Building Height—35 feet.

Minimum Floor Area of a Dwelling Unit—1,800 square feet.

2.2.11 CUP community unit plan.

This district is intended to allow for the development of a mix of uses within the framework of a masterplan. The district regulations are intended to allow greater design flexibility without increasing overall density.

- A. *Permitted Principal Uses.* A property in the CUP district may be used only for those uses approved as part of the conditions of approval of the CUP zoning on the property and for related accessory uses, as further limited under "Accessory Uses" and "Conditional Uses" below. The use of land within an overall CUP development is further limited by the following requirements:

Dwelling, 'For-Sale', Detached Residential: A minimum of 25% of the gross land area of the CUP shall be utilized for 'For-Sale' detached dwellings and related accessory uses, streets and other facilities.

Dwelling, 'For-Sale', Attached Residential: No more than 20% of the gross land area of the CUP may be used for 'For-Sale' attached dwellings and related accessory uses, streets and other facilities.

Dwelling, 'For-Rent', Residential: Rental units and related accessory uses, streets and other facilities shall not exceed 20% of the gross land area of the CUP.

Commercial: Uses permitted in the C-1 category shall not exceed (in aggregate) 10% of the gross land area of the CUP.

Open Space: A minimum of 15% of the gross land area must be set aside as open space.

Office and Light Industrial: The following uses shall not exceed (in aggregate) 25% of the gross land area of the CUP:

Office buildings or office parks and related accessory uses, streets and other facilities.

Wholesale, storage or industrial uses and related accessory uses, streets and other facilities.

- B. *Accessory Uses.* A property in the CUP district may contain any accessory structure or use customarily related to and clearly subordinate to any principal use that is permitted under the conditions of approval for the CUP zoning on the property.

Permitted accessory structures and uses include but are not limited to the following:

1. Privacy and decorative fences and walls.
2. Home Occupation in a residence.
3. Family Day Care Home in a residence.
4. Special Care Home in a 'For-Sale' detached dwelling.
5. Swimming pool, tennis court, play house, storage shed, patio and other private recreation facilities.
6. Clubhouse, swimming pool, or community recreation facilities serving a development.
7. Vehicle access, parking and loading areas, subject to the requirements of the Parking and Loading regulations herein.
8. Signs, subject to all of the requirements regulating signage herein.
9. Retaining walls and other site improvement structures approved as part of the development permit.

- C. *Conditional Uses.* A property in the CUP district may be used for those uses listed in Table 2.1, including any of the following uses if the uses have been included in the conditions of approval for the CUP zoning on the property; or if the uses are designated on the CUP's Concept Plan; or if the CUP's

concepts plan identifies district categories (i.e. commercial, office) wherein the use would otherwise be permitted by right or as a conditional use:

1. Agricultural and Residential Uses.

- a. Dwelling, Group (rooming house, assisted living facility, nursing home, fraternity, congregate housing).
- b. Dwelling, 'For-Sale' Attached.
- c. Dwelling, 'For-Sale' Detached.
- d. Dwelling, 'For-Rent'.
- e. Reserved.
- f. Bed and Breakfast.

2. Business Uses.

- a. Animal Hospital, small animals.
- b. Art Galleries.
- c. Automobile Sales and Leasing.
- d. Automobile Service Station.
- e. Automotive Parts.
- f. Automotive Service.
- g. Bakery.
- h. Barber Shop.
- i. Bank, Savings and Loan.
- j. Beauty Shop.
- k. Billiards.
- l. Book Store or Stationery.
- m. [Boutique Hotel.](#)
- n. Bowling Alley.
- o. Brewery.
- p. Broadcasting Studio (radio or TV).
- q. Building Materials, retail with enclosed storage.
- r. Clinic.
- s. Commercial Parking Lot.
- t. Contractor's Office without outside storage.
- u. Contractor's office with outside storage.
- v. Convenience Market with or without gas pumps.
- w. Dance Studio.
- x. Day Care Center.
- y. Distillery.
- z. Drug Store.
- aa. Dry Cleaning Pick-up Station.

- bb. Equestrian Center.
 - cc. Extended stay hotel (see Section 2.7).
 - dd. Florist, Retail without Greenhouse.
 - ee. Funeral Home w/ no cemetery or mausoleum.
 - ff. Golf Course, Driving Range.
 - gg. Golf, Miniature.
 - hh. Grocery Store.
 - ii. Hardware and Garden Supply Store.
 - jj. Hotel or Motel.
 - kk. Laboratory, Research or Commercial.
 - ll. Laundry, Self-Serve, Pick-up.
 - mm. Liquor Store.
 - nn. Manufacturing.
 - oo. Office Building or Office Park.
 - pp. Outdoor Recreation Facilities.
 - qq. Park, playground.
 - rr. Pet Day Care.
 - ss. Pet Grooming.
 - tt. Print Shop.
 - uu. Public Building.
 - vv. Radio or TV, Transmitter or Studio.
 - ww. Rental Services Establishment without outside storage.
 - xx. Restaurant.
 - yy. Restaurant, with Drive-thru window.
 - zz. Retail Sales and Services Establishments not otherwise listed for this zoning district.
 - aaa. Retail Establishment, Mixed Sales.
 - bbb. School, Commercial.
 - ccc. Shop or Studio, Craftsman/Artist.
 - ddd. Spa Services.
 - eee. Theater, Cinema.
- 3. Wholesale, Storage and Industrial Uses.
 - a. Laundry, Industrial.
 - b. Locker, Frozen Food or Cold Storage.
 - c. Manufacturing, Light.
 - d. Wholesale Establishment.
 - 4. Semipublic Uses, Utilities.
 - a. Airport, public or private.

- b. Amphitheater.
- c. Athletic Facility.
- d. Auditorium.
- e. Church, Synagogue, or any other religious institution.
- f. Club, association or lodge.
- g. Country Club.
- h. Fire Station.
- i. Heliport, public or private.
- j. Hospital.
- k. Library.
- l. Museum.
- m. School, Academic.
- n. Utility Substation, including gas, electric, telephone switching, and similar uses operated by companies regulated by the Georgia Public Service Commission.

o. Wireless Tower.

- D. *District Regulations.* Minimum Lot Size; the minimum area permitted to be zoned for a CUP is 100 acres.

Lot sizes in use areas: Each area within the CUP shall be designated for use in accordance with one of the various zoning districts in this Ordinance, and shall comply with the minimum lot size required by such designated zoning district or, if more restrictive, the conditions of approval of the CUP zoning on the property.

Maximum Density of Dwelling Units: Each area within the CUP shall be designated for use in accordance with one of the various zoning districts in this Ordinance, and shall comply with the lot size or, when applicable, density limitations of such designated zoning district or, if more restrictive, the conditions of approval of the CUP zoning on the property.

Minimum Lot Width, Minimum Setbacks, Maximum Coverage by Principal Buildings, Maximum Building Height, Minimum Floor Area of a Dwelling Unit, Screening and Buffers: Each area within the CUP shall be designated for use in accordance with one of the various zoning districts in this Ordinance, and shall comply with the requirements of such designated zoning district or, if more restrictive, the conditions of approval of the CUP zoning on the property.

Open space: Each CUP shall have a minimum of 15% of the gross acres of the CUP dedicated or set aside as open space. Amenities may be included within the 15% open space requirement. However, open space shall not include any other required open areas such as required building set backs, buffers, landscape strips or other similar requirements of this Ordinance or other applicable laws.

([Ord. No. 718](#), §§ 2, 4, 12-14-2015)

2.2.12 O-P office-professional.

This district is intended to provide for the development of business and professional offices, hospitals, medical and dental facilities and limited commercial activity.

- A. *Permitted Principal Uses.* A property in the O-P district may be used for those uses listed in Table 2.1, including any of the following by right, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use:

- 1. Residential Uses.

- a. Bed and Breakfast.
- 2. Business Uses.
 - a. Bank, Savings and Loan.
 - b. Barber Shop and Beauty Shop.
 - c. Clinic (medical/dental).
 - d. Contractor's office without outside storage.
 - e. Day care center.
 - f. Office (professional/administrative).
 - g. Print Shop.
 - h. Public Building.
 - i. Staffing/personnel office.
 - j. Stock brokerage/financial services office.
 - k. Tax preparation office.
 - l. Travel agency.
- 3. Semipublic Uses, Utilities.
 - a. Park or Playground.
- 4. The following support retail uses are allowed provided that they are located within an office building and (in total) do not constitute more than 25% of the floor area of the office building in which they are located:
 - a. Book store.
 - b. Computer/computer supply store.
 - c. Copy center.
 - d. Jewelry store (not to exceed 1,200 sq. ft.).
 - e. Office supply store (not to exceed 1,200 sq. ft.).
 - f. Optometrist/Eye wear.
 - g. Package shipping/mail box store.
 - h. Phone store.
 - i. Print Shop.
 - j. Stationery/card store.
- B. *Accessory Uses.* A property in the O-P district may contain any accessory structure or use customarily related to and clearly subordinate to any principal use that is permitted by right or through approval as a conditional use on the same property, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use.

Permitted accessory structures and uses include but are not limited to the following:

- 1. Dwelling, 'For-Sale', Accessory: A 'For-Sale' accessory dwelling shall be permitted under the following conditions:
 The dwelling shall be located above or to the rear of the commercial or office structure to which it is an accessory.

The dwelling shall be attached by a common wall with the commercial or office structure to which it is accessory.

The dwelling shall be occupied by a single family, a member of whom is the owner or tenant of the commercial or office structure to which it is accessory.

The square footage of the dwelling shall not exceed 40% of the combined square footage of the commercial or office structure and the dwelling.

The dwelling and the commercial or office structure to which it is an accessory shall be in compliance with and decorative fences and walls all applicable provisions of the life safety code, the building code, and other standard codes of the City.

2. Privacy and decorative fences and walls.
3. Swimming pool, tennis court, patio and other private recreation facilities.
4. Clubhouse, swimming pool, or community recreation facilities serving a development.
5. Vehicle access, parking and loading areas, subject to the requirements of the Parking and Loading regulations herein.
6. Signs, subject to all of the requirements regulating signage herein.
7. Retaining walls and other site improvement structures approved as part of the development permit.

C. *Conditional Uses.* A property in the O-P district may be used for any of the following only upon approval as a conditional use by the City Council:

1. Business Uses.
 - a. Art Gallery.
 - b. Bakery.
 - c. Dry Cleaning Pick up station with drive-thru.
 - d. Fitness studio.
 - e. Florist.
 - f. Restaurant without drive-thru.
 - g. Shop or studio, Craftsman/Artist.
 - h. School Commercial.
 - i. Spa Services.
2. Semipublic Uses, Utilities.
 - a. Auditorium.
 - b. Church, Synagogue.
 - c. Club, association or lodge.
 - d. School, Academic.
 - e. Utility Substation, including gas, electric, telephone switching, and similar uses operated by companies regulated by the Georgia Public Service Commission.

D. *District Regulations.*

Minimum Lot Area—30,000 square feet.

Minimum Lot Width—none.

Minimum Setbacks.

Front yard—from all street frontages:

From right-of-way of local street—50 feet.

From right-of-way of all other streets—65 feet.

From North Main Street – 20 feet.

Side yard—15 feet.

Rear yard—15 feet.

Maximum Coverage By Principal Buildings—40%.

Maximum Building Height—40 feet.

E. *Screening and buffers (See Sec. 2.3.5).*

2.2.13 O-I office-institutional.

This district is intended for the development of planned office areas which allow for design flexibility through a master plan. Commercial activities are permitted as subordinate uses to the office development.

A. *Conditional Principal Uses.* A property in the O-I district may be used for the uses listed below and shown in Table 2.1 in accordance with an approved masterplan, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use. Lots of less than five (5) acres in size may be developed for bank or office use without public hearing subject to Design Review Board Approval.

1. Residential Uses.

- a. Dwelling, Group (limited to nursing home, children's home congregate housing or assisted living facility).

2. Business Uses.

- a. Bank, Savings and Loan.
- b. Broadcasting Studio (radio or TV).
- c. Clinic.
- d. Congregate Housing.
- e. Day Care Center.
- f. Drug Store.
- g. Golf Course, Driving Range.
- h. Office Building or Office Park.
- i. Recreational Facilities (Indoor or Outdoor).
- j. Theater, Cinema.

3. Semipublic Uses, Utilities.

- a. Church, Synagogue, or other religious institutions.
- b. Club, association or lodge.
- c. Heliport.

- d. Library.
- e. Museum.
- f. Public Building.
- g. School, Academic.
- h. Recreation Facilities (Indoor or Outdoor).

- B. *Accessory Uses.* A property in the O-I district may contain any accessory structure or use customarily related to and clearly subordinate to any principal use that is permitted by right or through approval as a conditional use on the same property, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use.

Permitted accessory structures and uses include but are not limited to the following:

1. Dwelling, 'For-Sale', Accessory: A 'For-Sale' accessory dwelling shall be permitted under the following conditions:

The dwelling shall be located above or to the rear of the commercial or office structure to which it is an accessory.

The dwelling shall be attached by a common wall with the commercial or office structure to which it is accessory.

The dwelling shall be occupied by a single family, a member of whom is the owner or tenant of the commercial or office structure to which it is accessory.

The square footage of the dwelling shall not exceed 40% of the combined square footage of the commercial or office structure and the dwelling.

The dwelling and the commercial or office structure to which it is accessory shall be in compliance with all applicable provisions of the life safety code, the building code, and other standard codes of the City.

2. Privacy and decorative fences and walls.
3. Swimming pool, tennis court, patio and other private recreation facilities.
4. Clubhouse, swimming pool, or community recreation facilities serving a development.
5. Vehicle access, parking and loading areas, subject to the requirements of the Parking and Loading regulations herein.
6. Signs, subject to all of the requirements regulating signage herein.
7. Retaining walls and other site improvement structures approved as part of the development permit.
8. Retail service uses up to 25% of the floor area of an office building for services incidental to the associated office use.

- C. *Conditional Subordinate Uses.* A property in the O-I district may be used for any of the following listed uses upon approval as a conditional use by the City Council provided that the uses in aggregate do not constitute more than 25% of the total project and are not segregated so as to create a retail strip center.

1. Residential Uses.
 - a. Reserved.
2. Business Uses.
 - a. Art Galleries.

- b. Automobile Service Station.
 - c. Bakery.
 - d. Barber Shop.
 - e. Beauty Shop.
 - f. Book Store.
 - g. [Boutique Hotel.](#)
 - h. Bowling Alley.
 - i. Brewery.
 - j. Car Wash.
 - k. Contractor's Office without outside storage.
 - l. Commercial Parking Lot.
 - m. Convenience Market with or without gas pumps.
 - n. Dance Studio.
 - o. Distillery
 - p. Dry Cleaning Pick-up Station.
 - q. Extended Stay Hotel (see Sec. 2.7).
 - r. Florist, Retail without Greenhouse.
 - s. Funeral Home w/out cemetery or mausoleum.
 - t. Hotel/motel.
 - u. Golf, Miniature, or Golf Driving Range.
 - v. Laboratory, Research or Commercial.
 - w. Liquor Store.
 - x. Print Shop.
 - y. Radio or TV, Transmitter or Studio.
 - z. Restaurant.
 - aa. Restaurant, Drive-In or Fast-Food.
 - bb. Retail Sales and Services Establishments subject to the limitation of [subsection] 2.2.13 B8.
 - cc. School, Commercial.
 - dd. Spa Services.
3. Wholesale, Storage and Industrial Uses.
- a. Manufacturing, Light.
4. Semipublic Uses, Utilities.
- a. Airport.
 - b. Amphitheater.
 - c. Athletic Facility.
 - d. Auditorium.
 - e. Country Club.

- f. Hospital.
- g. Fire Station.
- h. Park or Playground.
- i. Utility Substation, including gas, electric, telephone switching, and similar uses operated by companies regulated by the Georgia Public Service Commission.

j. [Wireless Tower.](#)

D. *District Regulations.*

Minimum Lot Area—the development shall occupy a total of not less than 25 acres. No minimum lot size is required for each building within the development.

Minimum Lot Width—none.

Minimum Setbacks.

Front yard—from all street frontages:

From right-of-way of local street—50 feet.

From right-of-way of all other streets—65 feet.

[From North Main Street – 20 feet.](#)

Side yard—15 feet.

Rear yard—15 feet.

Maximum Coverage By Principal Buildings—40%.

Maximum Building Height—40 feet.

E. *Screening and buffers (See Sec. 2.3.5.).*

- F. *Open space.* All areas zoned O-I shall have a minimum of 10% of the gross acres dedicated or set aside as open space for developments up to 100 acres, and shall have a minimum of 15% of the gross acres dedicated or set aside as open space for developments containing 100 acres or more. Amenities may be included and are encouraged within the open space requirement. However, open space shall not include any other required open areas such as required building setbacks, buffers, landscape strips or other similar requirements of this ordinance.

([Ord. No. 718](#), §§ 3, 6, 12-14-2015)

2.2.14 C-1 neighborhood commercial.

- A. *Permitted Principal Uses.* A property in the C-1 district may be used for those uses listed in Table 2.1, including any of the following by right, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use:

- 1. Residential Uses.
 - a. Dwelling, 'For-Sale'—in an existing or historic structure only.
 - b. Dwelling, Group (congregate housing, nursing home, etc.).
 - c. Bed and Breakfast.
- 2. Business Uses.

- a. Art Gallery.
 - b. Bakery.
 - c. Barber Shop.
 - d. Bank, Savings and Loan.
 - e. Beauty Shop.
 - f. Book Store.
 - g. Carpet and Rug Sales.
 - h. Clinic.
 - i. Contractor's Office without outside storage.
 - j. Day Care Center.
 - k. Drug Store.
 - l. Dry Cleaning Pick-up Station.
 - m. Florist, Retail Without Greenhouse.
 - n. Gourmet Food Store.
 - o. Hardware and Garden Supply Store.
 - p. Jewelry Store.
 - q. Laundry, Self-Serve, Pick-up.
 - r. Office Building or Park.
 - s. Pet Day Care.
 - t. Pet Grooming.
 - u. Print Shop.
 - v. Reserved.
 - w. Restaurant, without Drive-thru or Drive-In facilities.
 - x. Retail Sales and Services (Establishments not otherwise listed for this zoning district as a permitted or conditional use).
 - y. School, Commercial.
 - z. Shop or Studio, Craftsman/Artist.
 - aa. Theater, Cinema.
3. Semipublic Uses, Utilities.
- a. Club, association or lodge.
 - b. Library.
 - c. Museum.
 - d. Park or Playground.
 - e. Public Building.
- B. *Accessory Uses.* A property in the C-1 district may contain any accessory structure or use customarily related to and clearly subordinate to any principal use that is permitted by right or through approval as a conditional use on the same property, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use.

Permitted accessory structures and uses include but are not limited to the following:

1. Dwelling, 'For-Sale', Accessory: A 'For-Sale' accessory dwelling shall be permitted under the following conditions:

The dwelling shall be located above or to the rear of the commercial or office structure to which it is accessory.

The dwelling shall be attached by a common wall with the commercial or office structure to which it is accessory.

The dwelling shall be occupied by a single family, a member of whom is the owner or tenant of the commercial or office structure to which it is accessory.

The square footage of the dwelling shall not exceed forty percent (40%) of the combined square footage of the commercial or office structure and the dwelling.

The dwelling and the commercial or office structure to which it is accessory shall be in compliance with all applicable provisions of the life safety code, the building code, and other standard codes of the City.

2. Privacy and decorative fences and walls.
3. Swimming pool, tennis court, patio and other private recreation facilities.
4. Clubhouse, swimming pool, or community recreation facilities serving a development.
5. Vehicle access, parking and loading areas, subject to the requirements of the Parking and Loading regulations, herein.
6. Signs, subject to all of the requirements regulating signage herein.
7. Retaining walls and other site improvement structures approved as part of the development permit.

- C. *Conditional Uses.* A property in the C-1 district may be used for any of the following only upon approval as a conditional use by the City Council:

1. Residential Uses.
 - a. Dwelling, 'For-Rent'.
2. Business Uses.
 - a. Animal Hospital, small animals.
 - b. Assisted Living, Congregate housing
 - c. Automotive Parts.
 - d. Bowling Alley.
 - e. Brewery.
 - f. Check Cashing.
 - g. Church, Synagogue.
 - h. Commercial Parking Lot.
 - i. Contractor's Office with outside storage.
 - j. Distillery.
 - ~~k. Extended Stay Hotel (see Sec. 2.7).~~
 - l. Funeral home with no cemetery or mausoleum.

- m. Grocery Store.
 - n. Golf, Miniature.
 - o. Hotel/Motel.
 - p. Liquor Store.
 - q. Pest Control Business.
 - r. School, Academic.
 - s. Rental Services Establishment without outside storage.
 - t. Restaurant, Drive-In or Fast-Food.
 - u. Retail Establishment, Mixed Sales.
 - v. Smoke Shop and Tobacco Store.
 - w. Spa Services.
3. Semipublic Uses, Utilities.
- a. Athletic Facility.
 - b. Auditorium.
 - c. Hospital.
 - d. Parking Lot, Commercial.
 - e. Utility Substation, including gas, electric, telephone switching, and similar uses operated by companies regulated by the Georgia Public Service Commission.

D. District Regulations.

Minimum Lot Area—30,000 square feet.

Minimum Lot Width—none.

Minimum Setbacks.

Front yard—from all street frontages:

From right-of-way of local street—50 feet.

From right-of-way of all other streets—65 feet.

[From North Main Street – 20 feet.](#)

Side yard—15 feet.

Rear yard—15 feet.

Maximum Coverage By Principal Buildings—45%.

Maximum Building Height—35 feet.

E. Screening and buffers (See Sec. 2.3.5).

([Ord. No. 704](#), § 2, 6-1-2015; [Ord. No. 718](#), §§ 6—8, 12-14-2015)

2.2.15 C-2 general commercial.

A. *Permitted Principal Uses.* A property in the C-2 district may be used for those uses listed in Table 2.1, including any of the following by right, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use:

1. Residential Uses.
 - a. Dwelling, 'For-Sale'—in an existing or historic structure only.
 - b. Bed and Breakfast.
2. Business Uses.
 - a. Art Gallery.
 - b. Automobile Service Station.
 - c. Automotive Parts.
 - d. Automotive Service.
 - e. Bakery.
 - f. Barber Shop.
 - g. Bank, Savings and Loan.
 - h. Beauty Shop.
 - i. Book Store.
 - j. Bowling Alley.
 - k. Broadcasting Studio (radio or TV).
 - l. Building Materials, retail with enclosed storage.
 - m. Carpet and Rug Sales.
 - n. Clinic.
 - o. Clubs, fraternity, association or lodge.
 - p. Commercial Parking Lot.
 - q. Congregate Housing.
 - r. Contractor's Office with and without outside storage.
 - s. Convenience Market with or without gas pumps.
 - t. Dance Studio.
 - u. Day Care Center.
 - v. Drug Store.
 - w. Dry Cleaning Pick-up Station.
 - x. Florist, Retail Without Greenhouse.
 - y. Grocery Store.
 - z. Hardware Store.
 - aa. Home Improvement Store.
 - bb. Laundry, Self-Serve, Pick-up.
 - cc. Liquor Store.

- dd. Office Building or Park.
- ee. Pet Day Care.
- ff. Pet Grooming.
- gg. Print Shop.
- hh. Public Building.
- ii. Recreation Facilities (Indoor).
- jj. Rental Services Establishment without outside storage.
- kk. Restaurant.
- ll. Restaurant, Drive-In or Fast-Food.
- mm. Retail Sales and Services Establishments not otherwise listed for this zoning district as a permitted or conditional use.
- nn. Retail Establishment, Mixed Sales.
- oo. School, Commercial.
- pp. Shop or Studio, Craftsman/Artist.
- qq. Theater, Cinema.

3. Semipublic Uses, Utilities.

- a. Athletic Facilities.
- b. Club, association or lodge.
- c. Hospital.
- d. Library.
- e. Museum.
- f. Park or Playground.
- g. Parking Lot, Commercial.
- h. School, Academic.

- B. *Accessory Uses.* A property in the C-2 district may contain any accessory structure or use customarily related to and clearly subordinate to any principal use that is permitted by right or through approval as a conditional use on the same property, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use.

Permitted accessory structures and uses include but are not limited to the following: (See also Supplementary Regulations in this Article.)

1. Dwelling, 'For-Sale' Accessory: A 'For-Sale' accessory dwelling shall be permitted under the following conditions:

The dwelling shall be located above or to the rear of the commercial or office structure to which it is accessory.

The dwelling shall be attached by a common wall with the commercial or office structure to which it is accessory.

The dwelling shall be occupied by a single family, a member of whom is the owner or tenant of the commercial or office structure to which it is accessory.

The square footage of the dwelling shall not exceed 40% of the combined square footage of the commercial or office structure and the dwelling.

The dwelling and the commercial or office structure to which it is accessory shall be in compliance with all applicable provisions of the life safety code, the building code, and other standard codes of the City.

2. Privacy and decorative fences and walls.
 3. Swimming pool, tennis court, patio and other private recreation facilities.
 4. Clubhouse, swimming pool, or community recreation facilities serving a development.
 5. Vehicle access, parking and loading areas, subject to the requirements of the Parking and Loading regulations herein.
 6. Signs, subject to all of the requirements regulating signage herein.
 7. Retaining walls and other site improvement structures approved as part of the development permit.
- C. *Conditional Uses.* A property in the C-2 district may be used for any of the following only upon approval as a conditional use by the City Council:
1. Residential Uses.
 - a. Dwelling, 'For-Rent'.
 - b. Dwelling, 'For Sale' attached in a Vertically Mixed Use Building Over Retail or Restaurant.
 2. Business Uses.
 - a. Animal Hospital, small animals.
 - b. Assisted Living, Congregate housing.
 - c. Automobile Sales and Leasing.
 - d. [Boutique Hotel](#).
 - e. Brewery.
 - f. Car Wash.
 - g. Check Cashing.
 - h. Church, Synagogue.
 - i. Discount Store.
 - j. Distillery.
 - k. Extended Stay Hotel (see Sec. 2.7).
 - l. Florist, Retail with Greenhouse.
 - m. Funeral Homes.
 - n. Golf, Miniature.
 - o. Greenhouse with nursery.
 - p. Hotel or Motel.
 - q. Limousine Service and Taxi.
 - r. Massage Therapy (see Sec. 2.7).
 - s. Spa Services.
 - t. Radio or TV, Transmitter or Studio.
 - u. Recreation Facilities (Outdoor).

- v. Small Appliance Repair Shop.
- w. Smoke Shop and Tobacco Store.
- 3. Wholesale, Storage and Industrial Uses.
 - a. Wholesale Establishment.
- 4. Semipublic Uses, Utilities.
 - a. Auditorium.
 - b. Utility Substation, including gas, electric, telephone switching, and similar uses operated by companies regulated by the Georgia Public Service Commission.
 - c. Recreational Facilities (Outdoor).
 - d. [Wireless Tower](#).

D. *District Regulations.*

Minimum Lot Area—none.

Minimum Lot Width—none.

Minimum Setbacks.

Front yard—Conditional (based on prevailing development patterns).

Side yard—Conditional (based on prevailing development patterns).

Rear yard—10 feet.

Maximum Coverage By Principal Buildings—70% (for development within Historic Business District—90%).

Maximum Building Height—40 feet.

E. *Screening and buffers (See Sec. 2.3.5).*

([Ord. No. 703](#), § 1, 6-1-2015; [Ord. No. 704](#), § 2, 6-1-2015; [Ord. No. 718](#), §§ 5—7, 9, 12-14-2015)

2.2.16 PSC planned shopping center.

All uses in the PSC zoning district shall be located within, or as part of a shopping center or specialty shopping center.

A. *Conditional Principal Uses.* A property in the PSC district may be used for those uses listed in Table 2.1, only upon approval as a conditional use by the city council:

- 1. Business Uses.
 - a. Art Galleries.
 - b. Automobile Service Station.
 - c. Automotive Parts.
 - d. Bakery.
 - e. Barber Shop.
 - f. Bank, Savings and Loan.
 - g. Beauty Shop.
 - h. Book Store.

- i. Car Wash.
- j. Carpet and Rug Sales.
- k. Clinic.
- l. Convenience Market with or without gas pumps.
- m. Dance Studio.
- n. Day Care Center.
- o. Florist, Retail Without Greenhouse.
- p. Grocery Store.
- q. Hardware Store.
- r. Home Improvement Store.
- s. Laundry, Self-Serve, Pick-up.
- t. Liquor Store.
- u. Office Building or Park.
- v. Pest Control Business.
- w. Pet Grooming.
- x. Public Building.
- y. Recreational Facilities (Indoor).
- z. Rental Services Establishment without outside storage.
- aa. Restaurant.
- bb. Restaurant, Drive-In or Fast-Food.
- cc. Retail Sales and Services Establishments not otherwise listed for this zoning district as a permitted or conditional use.
- dd. Retail Establishment, Mixed Sales.
- ee. Theater.

- B. *Accessory Uses.* A property in the PSC district may contain any accessory structure or use customarily related to and clearly subordinate to any principal use that is permitted by right or through approval as a conditional use on the same property, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use.

Permitted accessory structures and uses include but are not limited to the following:

- 1. Privacy and decorative fences and walls.
- 2. Vehicle access, parking and loading areas, subject to the requirements of the Parking and Loading regulations herein.
- 3. Signs, subject to all of the requirements regulating signage herein.
- 4. Retaining walls and other site improvement structures approved as part of the development permit.

- C. *Conditional Subordinate Uses.* A property in the PSC district may be used for any of the following only upon approval as a conditional use by the City Council and provided that these uses in aggregate do not constitute more than 50% of the site area:

- 1. Residential Uses.
 - a. Reserved.

2. Business Uses.
 - a. Animal Hospital, small animals.
 - b. Automotive Parts.
 - c. Automotive Service.
 - d. [Boutique Hotel.](#)
 - e. Bowling Alley.
 - f. Brewery.
 - g. Broadcasting Studio (radio or TV).
 - h. Building Materials, retail with enclosed storage.
 - i. Commercial Parking Lot.
 - j. Convenience Center with gas pumps.
 - k. Distillery.
 - l. Dry Cleaning Plant.
 - m. Dry Cleaning Plant with pick-up station.
 - n. ~~Extended Stay Hotel (see Section 2.7).~~
 - o. Florist, Retail with Greenhouse.
 - p. Funeral Home with no cemetery or mausoleum.
 - q. Golf, Miniature.
 - r. Hotel or Motel.
 - s. Pet Day Care.
 - t. Pet Grooming.
 - u. Print Shop.
 - v. Radio or TV, Transmitter or Studio.
 - w. School, Commercial.
 - x. Shop or Studio, Craftsman/Artist.
3. Semipublic Uses, Utilities.
 - a. Athletic Facility.
 - b. Auditorium.
 - c. Church, Synagogue.
 - d. Club, fraternity, association or lodge.
 - e. Heliport, public or private.
 - f. Museum.
 - g. Park or Playground.
 - h. Recreational Facilities (Outdoor).
 - i. School, Academic.
 - j. Spa Services.
 - k. Reserved.

- l. Utility Substation, including gas, electric, telephone switching, and similar uses operated by companies regulated by the Georgia Public Service Commission.
- m. Wholesale Establishment.
- n. [Wireless Tower](#).

D. District Regulations.

Minimum Lot Area—the shopping center development shall occupy a total of at least 10 acres. No minimum lot size is required for each building or related development site within the overall development.

Minimum Lot Width—none.

Minimum Setbacks.

Front yard—from all street frontages:

From right-of-way of local street—50 feet.

From right-of-way of all other streets—65 feet.

Side yard—15 feet.

Rear yard—15 feet.

Maximum Coverage By Principal Buildings—40%.

Maximum Building Height—40 feet.

E. Screening and buffers (See Sec. 2.3.5).

([Ord. No. 715](#), § 2, 9-28-2015; [Ord. No. 718](#), §§ 3, 4, 12-14-2015)

2.2.17 L-I industrial.

A. *Permitted Principal Uses.* A property in the L-I district may be used for those uses listed in Table 2.1, including any of the following by right, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use:

1. Agricultural and Residential Uses.
 - a. Greenhouse, Nursery.
2. Business Uses.
 - a. Animal Hospital, small and large animals.
 - b. Art Gallery.
 - c. Automobile Service Station.
 - d. Automotive Parts.
 - e. Automotive Sales and Leasing.
 - f. Automotive Service.
 - g. Bakery.
 - h. Bank, Savings and Loan.
 - i. Book Store.
 - j. Bowling Alley.

- k. Brewery.
- l. Broadcasting Studio (radio or TV).
- m. Building Materials with Outdoor Storage.
- n. Building Materials, Retail with enclosed storage.
- o. Car Wash.
- p. Carpenter Shop, Woodworking.
- q. Carpet and Rug Sales.
- r. Check Cashing.
- s. Church, Synagogue.
- t. Commercial Parking Lot.
- u. Congregate Housing.
- v. Contractor's Office with and without outside storage.
- w. Convenience Market with or without gas pumps.
- x. Dance Studio.
- y. Day Care Center.
- z. Discount Store.
- aa. Distillery.
- bb. Drug Store.
- cc. Dry Cleaning Pick-up Station.
- dd. Fireworks Sales.
- ee. Funeral Home.
- ff. Greenhouse, Nursery.
- gg. Grocery Store.
- hh. Hardware and Garden Center.
- ii. Home, Elderly, Children, Nursing.
- jj. Heliport.
- kk. Home Improvement Store.
- ll. Kennel.
- mm. Laboratory, Research or Commercial.
- nn. Laundry, Self-Serve, Pick-up.
- oo. Limousine Service and Taxi.
- pp. Liquor Store.
- qq. Massage Therapy (see Sec. 2.7).
- rr. Office Building or Office Park.
- ss. Pawn Shop.
- tt. Pest Control.
- uu. Pet Day Care.

- uu. Pet Grooming.
- ww. Print Shop.
- xx. Radio or TV, Transmitter or Studio.
- yy. Recreation Facilities (Indoor).
- zz. Rental Services Establishment with outside storage.
- aaa. Rental Services Establishment without outside storage.
- bbb. Restaurant.
- ccc. Restaurant, Drive-In or Fast-Food.
- ddd. Retail Sales and Services Establishments not otherwise listed for this zoning district as a permitted or conditional use.
- eee. Retail Establishment, Mixed Sales.
- fff. Shop or Studio, Craftsman/Artist.
- ggg. Small Appliance Repair Shop.
- hhh. Smoke Shop and Tobacco Store.
- iii. Spa Services.
- jjj. Storage, Inside.
- kkk. Tattoo Parlor, Body Piercing.
- lll. Taxidermist.
- mmm. Tire Retreading.
- 3. Wholesale, Storage and Industrial Uses.
 - a. Bottled Gas, storage and distribution.
 - b. Builder's Equipment.
 - c. Concrete Plant.
 - d. Dry Cleaning Plant.
 - e. Locker, Frozen Food or Cold Storage.
 - f. Machine Shop.
 - g. Manufacturing, Light.
 - h. Mini-Warehouse.
 - i. Septic Tank Sales, Construction.
 - j. School, Commercial.
 - k. Storage, Outside.
 - l. Warehouse.
 - m. Welding Shop.
 - n. Wholesale Trade Establishment.
- 4. Semipublic Uses, Utilities.
 - a. Athletic Facility—Outdoor.
 - b. Amphitheater.

- c. Auditorium.
- d. Park or Playground.
- e. Hospital.
- f. School, Academic.
- g. Switching Station, Telecom.

- B. *Accessory Uses.* A property in the L-I district may contain any accessory structure or use customarily related to and clearly subordinate to any principal use that is permitted by right or through approval as a conditional use on the same property, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use.

Permitted accessory structures and uses include but are not limited to the following:

- 1. Privacy and decorative fences and walls.
- 2. Vehicle access, parking and loading areas, subject to the requirements of the Parking and Loading regulations herein.
- 3. Signs, subject to all of the requirements regulating signage herein.
- 4. Retaining walls and other site improvement structures approved as part of the development permit.

- C. *Conditional Uses.* When reviewing a conditional use, consideration shall be given to factors associated with the use including, but not limited to, the following:

- 1. Site design.
- 2. Property access.
- 3. Hours of operation of the business.
- 4. Vehicular trips generated by the use.
- 5. Impact of the use on surrounding properties.
- 6. Impact of the use on the natural features of the site.

A property in the L-I district may be used for any of the following only upon approval as a conditional use by the City Council:

1.0 *Business Uses.*

- a. Adult Entertainment Establishment (see Sec. 2.7).
- b. Airport, Public/Private.
- c. [Boutique Hotel.](#)
- d. [Extended Stay Hotel \(see Section 2.7\).](#)
- e. Golf Driving Range.
- f. Glass Fabrication.
- g. ~~Tattoo Parlor, Body Piercing.~~
- h. Taxidermist.
- i. Tire Retreading.
- j. Theater, Cinema.

2.0 *Wholesale, Storage and Industrial Uses.*

- a. Asphalt Plant.

- b. Dry Cleaning Plant.
- c. Concrete Plant.
- d. Indoor Shooting Range (see Sec. 2.7).
- e. Junk or Salvage Yard.
- f. Laundry Industrial.
- g. Manufacturing, Heavy.
- h. Power Station.
- i. Recycling Center.
- j. Salvage Yard.
- k. Sawmill.
- l. Sewage Disposal Plant.
- m. Transfer Station.

3.0 *Semipublic Uses, Utilities.*

- a. Airport, public or private.
- b. Reserved.
- c. Church, Synagogue, or other religious institutions.
- d. Museum and Library.
- e. Power Station.
- f. Utility Substation, including gas, electric, telephone switching, and similar uses operated by companies regulated by the Georgia Public Service Commission.

g. Wireless Tower.

4.0 *Transfer Station.* Any facility associated with waste or a facility used to transfer solid waste from one transportation vehicle to another for transportation to a disposal facility or processing operation.

4.1 *General Standards.*

- a. No access to transfer station facility shall be allowed from streets that primarily access residential developments;
- b. Access streets shall be paved and shall be able to withstand maximum load limits established by the State of Georgia as approved by the Engineering Director;
- c. No portion of a new transfer station shall be located within a three-mile radius of the property lines of an existing transfer station;
- d. A minimum 200 foot undisturbed buffer and ten-foot improvement setback shall be required along all property lines except public rights-of-way;
- e. A minimum 50 foot buffer and ten-foot improvement setback shall be required along all public rights-of-way;
- f. A minimum six foot high solid fence or wall shall be located on property lines or interior to the required buffers and improvement setback;
- g. Operation of the facility shall be limited to the hours between 7:00 a.m. and 7:00 p.m., Monday through Friday; 9:00 a.m. to 7:00 p.m., Saturday; 12:00 p.m. to 5:00 p.m., Sunday (for routine maintenance and other non-operational facility activities).

- h. Only municipal solid waste is accepted at the facility. No treated or untreated regulated medical waste, treated and destroyed medical waste or asbestos waste debris shall be accepted;
- i. All solid waste is removed from the transfer station within 24 hours of receipt;
- j. A transfer station with permanent operating mechanical equipment must have an attendant on duty whenever the facility is open;
- k. The facility shall be designed and constructed in a manner to ensure that odor will not be emitted from the site;
- l. The transfer facility must be cleaned at least once every 24 hours;
- m. The entrance and exit shall be cleaned at a frequency which prevents the tracking or off-site migration of waste materials;
- n. The operator shall take adequate measures to minimize the creation, emission, or accumulation of excessive dust and particulates;
- o. The operator shall take adequate steps to control or prevent the propagation, harborage and attraction of pests;
- p. All floors must be free from standing water. All drainage from cleaning areas must be discharged to sanitary sewers, authorized cleaning areas must be discharged to sanitary sewers, authorized sanitary waste treatment facilities, or a corrosion-resistant holding tank;
- q. The facility shall provide fire suppression equipment as directed by the City of Alpharetta Fire Department;
- r. All solid waste passing through the transfer station must be ultimately treated or disposed of at an authorized facility;
- s. The transfer station must have adequate storage space for incoming solid waste;
- t. Operational records must be maintained at facilities with permanent operating mechanical equipment. These records must include a daily log of the quantity of solid waste received and transported, specifying the origin by hauler and the destination of the solid waste transported daily;
- u. The facility shall not generate more than 150 total vehicle trips per day;
- v. An annual report must be submitted to the Community Development Department which summarized the information gathered in (t), above;
- w. The facility shall be developed, operated and maintained in a safe, nuisance-free manner; and
- x. The facility and its operation must be in compliance with GA EPD requirements.

4.2 Additional Permit Application Requirements.

- a. Application requirements. An application for a solid waste transfer station permit must confirm to the requirements set forth herein. Applications for initial permits to construct and operate a solid waste transfer station must include the following:
 - (1) Regional plan or map. The regional plan or map must delineate the service area of the proposed transfer station.
 - (2) Site plan. The site plan must include:
 - (a) Site conditions and projected site utilization, including all site structures (such as buildings, fences, gates, entrances and exits, parking areas);
 - (b) Property boundaries, access roads, the locations of all surface water bodies, and 100-year floodplain boundaries;

- (c) All proposed structures and areas designated for unloading, sorting, storage, and loading, including dimensions, elevations and floor plans of these structures and areas, and the general process flow; and
- (d) Adjacent properties, including the location of public and private water supplies on these properties.

(3) Engineering report. The engineering report must include:

- (a) A description of the general operating plan for the proposed facility, including the origin, composition, and expected weight or volume of all solid waste to be accepted, the maximum time any such waste will be stored, where all waste will be disposed of, and the proposed capacity operating hours, and the expected life of the facility;
- (b) A description of all machinery and equipment, including the design capacity;
- (c) A proposed transfer plan specifying the transfer route, the number and type of transfer vehicles to be used, and how often solid waste will be transferred to the disposal site;
- (d) A description of the facility's drainage system and water supply system; and
- (e) A contingency plan that details an alternative solid handling system for periods when not operating, or for delays in transporting solid waste due to undesirable conditions, such as delivery of unauthorized waste, fires, dust, odor, vectors, unusual traffic conditions, equipment breakdown or other emergencies.

4.3 *Design Standards.* All transfer stations must meet minimum design requirements as follows:

a. Unloading and loading areas.

- (1) The unloading area must be adequate in size and design to facilitate efficient unloading from the collection vehicles and the unobstructed movement of vehicles;
- (2) The unloading and loading pavement areas must be constructed of concrete or asphalt paving material and equipped with adequate drainage structures;
- (3) Processing, tipping, sorting, storage, and compaction areas must be located within an enclosed building;
- (4) Provisions must be made for weighing or measuring all solid waste transferred to the facility;
- (5) Sufficient internal storage areas must be provided for incoming solid waste;
- (6) Exhaust removal systems must be installed in enclosed areas; and
- (7) The facility must be designed to accommodate expected traffic flow in a safe and efficient manner.

4.4 *Expansion or Modification of Existing Facilities.* No transfer station facility existing as of 12/06/04 may make modifications which require a permit, make changes that require a permit modification from the GA EPD or increase the square footage of any buildings on site without City Council approval. When reviewing modification or expansion plans, the Council may consider the extent to which the proposed modification or expansion meets the standards established in Sections 4.1 and 4.3, herein; however, any existing buildings which do not meet setback requirements shall be considered non-conforming and shall remain, but may not be expanded with regard to the setback non-conformity pursuant to UDC Sec. 2.4.2.

D. *District Regulations.*

Minimum lot size—one acre.

Minimum Lot Width—none.

Minimum Setbacks.

Front yard—from all street frontages:

From right-of-way of local street—50 feet.

From right-of-way of all other streets—65 feet.

Side yard—15 feet.

Rear yard—15 feet.

Maximum Coverage By Principal Buildings—35%.

Maximum Building Height—35 feet.

Development on property over 25 acres in size requires masterplan approval through a Public Hearing process.

E. *Screening and buffers (See Sec. 2.3.5).*

([Ord. No. 708](#), § 1, 8-10-2015; [Ord. No. 715](#), § 3, 9-28-2015; [Ord. No. 718](#), §§ 7, 10—12, 12-14-2015)

2.2.19 SU special use.

A. *Permitted Principal Uses.* A property in the SU district may be used for any of the following by right, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use:

1. Business Uses.
 - a. Golf Course, Golf Driving Range.
 - b. Golf, Miniature.
2. Semipublic Uses, Utilities.
 - a. Airport.
 - b. Club, association or lodge.
 - c. Equestrian Center.
 - d. Fire Station.
 - e. Golf Course.
 - f. Heliport, Public/Private.
 - g. Library.
 - h. Hospital.
 - i. Municipal facilities.
 - j. Museum.
 - k. Park or Playground.
 - l. Public Building.
 - m. Recreation Facilities, Outdoor.
 - n. School, Academic.

- o. Utility Substation, including gas, electric, telephone switching, and similar uses operated by companies regulated by the Georgia Public Service Commission.
- B. *Accessory Uses.* A property in the SU district may contain any accessory structure or use customarily related to and clearly subordinate to any principal use that is permitted by right or through approval as a conditional use on the same property, unless superseded by applicable conditions of approval for rezoning, variance, or conditional use.

Permitted accessory structures and uses include but are not limited to the following:

 - 1. Privacy and decorative fences and walls.
 - 2. Swimming pool, tennis court, patio and other recreation facilities.
 - 3. Clubhouse, swimming pool, or community recreation facilities serving a development.
 - 4. Vehicle access, parking and loading areas, subject to the requirements of the Parking and Loading regulations herein.
 - 5. Signs, subject to all of the requirements regulating signage herein.
 - 6. Retaining walls and other site improvement structures approved as part of the development permit.
- C. *Conditional Uses.* A property in the SU district may be used for any of the following only upon approval as a conditional use by the City Council:
 - 1. Semipublic Uses, Utilities.
 - a. Cemetery.
 - b. Church, Synagogue, or other religious institutions.
 - c. Prison.
 - d. [Wireless Tower.](#)

D. *District Regulations.*

Minimum Lot Size—none.

Minimum Lot Width—none.

Minimum Setbacks.

Front yard—from all street frontages:

From right-of-way of local street—50 feet.

From right-of-way of all other streets—65 feet.

Side yard—10 feet.

Rear yard—10 feet.

Maximum Coverage By Principal Buildings—70%.

Maximum Building Height—40 feet.

Screening and buffers—Where a property in this district abuts a residential use or zoning district, a 50 foot wide buffer strip shall be provided along the abutting property lines, in addition to the minimum setback requirements.

2.2.20 MU mixed use district.

This district is intended to allow for the development of a mix of uses within the framework of a master plan. The district regulations are intended to allow greater design flexibility in order to accommodate a pedestrian focused environment that provides opportunities for living, working, shopping, recreation and entertainment.

- A. *Applicability.* This zoning district is applicable to properties located within:
1. Areas that are primarily non-residential in character; or
 2. Along major roadways that are primarily commercial in character; or
 3. Historic Downtown Alpharetta; or
 4. As noted in the Comprehensive Land Use Plan.
- B. *Permitted Principal Uses.* A property in the MU district may be used only for those uses approved as part of the conditions of approval of the MU zoning on the property and as further limited below.
1. *Dwelling, attached or detached:* At least 25% of the MU development shall be utilized as residential dwellings. Land use calculations shall utilize gross floor area for vertical mix of uses and land area for horizontal mix of uses.

Dwelling, 'For-Rent' units shall require conditional use approval.
 3. *Commercial:* At least 25% of the MU development shall be utilized as commercial uses (as approved in the MU master plan). Land use calculations shall utilize gross floor area for vertical mix of uses and land area for horizontal mix of uses.
 4. *Public Space:* A minimum of 10% of the gross land area must be designed for public use as recreation, entertainment and/or civic space.
 5. *Office/Institutional:* At least 25% of the MU development shall be utilized for office buildings. Land use calculations shall utilize gross floor area for vertical mix of uses and land area for horizontal mix of uses.
 6. *Park Space:* Each MU development shall set a goal to provide a minimum of one acre of park land/100 population generated by residential uses. Household size shall be calculated using the most current US Census data for the City of Alpharetta. Required park space and public space shall be achieved on-site and exclusive from each other.

As determined by City staff, uses shall be calculated using one of the following methods:

Horizontal Mixed Use: Land Use Land Area (acres)/Total MU Land Area (acres) = % Land Use of MU Development

Example: 25 acres of Residential Land Use/100 acres of MU Land Area = 25% Residential Land Use of MU Development

Vertical Mixed Use: Land Use Gross Floor Area (square feet)/Total Gross Floor Area of All MU Development (square feet) = % Land Use of MU Development

Example: 25,000 SF of Commercial Land Use/100,000 SF for All Vertical Development = 25% Commercial Land Use of MU Development

Combination of Horizontal and Vertical Mixed Use:

Land Use Gross Floor Area (square feet)/Total Gross Floor Area of All MU Vertical and Horizontal Development (square feet) = % Land Use of MU Development

Example: [25,000 SF of Vertical Commercial Land Use + 25,000 SF of Horizontal Commercial Development]/200,000 SF for All Vertical and Horizontal Development = 25% Commercial Land Use of MU Development

- C. *Conditional Uses.* A property in the MU district may be used for those uses listed below and in Table 2.1, as well as, any additional uses included in the conditions of approval for the MU zoning on the property. Conditional uses not included in the master plan shall require a public hearing by the Planning Commission and approval by the City Council.

1. *Residential Uses:*

- a. Dwelling, Group (assisted living facility, progressive care facility).
- b. Dwelling, 'For-Rent'.
- c. Bed and Breakfast.

2. *Commercial Uses:*

- a. Bank, Savings & Loan.
- b. [Boutique Hotel.](#)
- c. Brewery.
- d. Contractor's Office (no on site storage).
- e. Day Care Center.
- f. Distillery.
- g. Entertainment Venue (jazz club, comedy club, dinner theater, etc.).
- h. Hotel/Motel.
- i. Liquor Store.
- j. Outdoor/Indoor Recreation Facilities.
- k. Religious Institution.
- l. School, Commercial.
- m. Spa Services.
- n. Theater, Cinema.

3. *Semipublic Uses, Utilities:*

- a. Athletic Facilities.
- b. Public Building.
- c. School, Academic.

D. *District Regulations.*

Minimum Lot Size: The minimum area permitted to be zoned for an MU development is 25 acres.

Maximum Density of Dwelling Units: The MU master plan shall establish maximum density for each area within the development. Density for all residential units combined shall not exceed eight (8) dwelling units/acre. Density shall be calculated based on the gross acreage of the entire MU master plan.

Development Standards: Regulations governing lot size, lot width, setbacks, principal building coverage, floor area of dwelling unit, and height shall be established for each area within the MU master plan and approved through the public hearing process.

Maximum Impervious Area: 80% for the entire MU development.

Public Space: Each MU development shall have a minimum of 10% of the gross land area designed for public use. Public space shall be used for recreation, entertainment or civic purposes and may include plazas, outdoor theaters, sculpture gardens, parks, playground, community gardens or any other spaces where people can gather. Business kiosks shall be located outside of public space. Sidewalks and residential amenities may not be included within the public space requirement.

Park Space: Park space may include residential recreational amenities. However, at least 50% of the required park space shall be provided in passive park area(s).

E. *Review Criteria.* The MU district is intended to promote specific objectives. Therefore, the following shall be considered when reviewing an MU master plan:

1. Retail at ground level.
2. Pedestrian connectivity to all uses.
3. Large parking areas below grade, in decks or screened. Design efforts to provide shared parking will also be considered.
4. Accommodations for public transportation.
5. Buildings that face or appear to face public roadways.
6. Appearance standards for buildings and structured parking.
7. Limitations on uninterrupted building elevations.
8. Creation of vistas and view corridors within development.
9. Focal point features at prominent locations and ends of vistas.
10. Incorporation of natural site features
11. Block lengths conducive to pedestrian traffic.
12. Detention and retention facilities designed to be aesthetically pleasing.
13. Creative methods for stormwater management to provide additional open space.
14. Attractive and usable street furniture in public spaces.
15. Emphasis on a high quality landscape plan.
16. Number of office jobs internally captured on-site.

F. *Time Linkage.* In order to ensure that the objectives of MU district are met and development occurs which incorporates a mix of uses, a development phasing strategy or time line shall be established for each MU project. When reviewing the phasing strategy or timeline, the City Council may link the issuance of permits and/or certificates of occupancy for a portion of the development with the completion of other portions of the development.

([Ord. No. 702, § 1\(Exh. A\), 3-2-2015](#))

District	Lot Area	Lot ^B Width	Front Yd. Set Back (ft.)	Side Yards (ft.)	Corner Side Yards (ft.)	Rear Yards (ft.)	Total Bldg. Coverage	Max. Ht. In (ft.)	Min. Flr. Area in Sq. Ft.	Max. Impervious Area ^A
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O-P	30,000 sq. ft.	NONE	20' North Main Street 50' local street 65' all other streets	15	50' local street 65' all other streets	15	40%	40		70%
O-I ^D	25 acres	None	20/50/65	15	50/65	15	40%	40		70%
C-1	30,000 sq. ft.	NONE	20' North Main Street 50' local street 65' all other streets	15	50' local street 65' all other streets	15	45%	35		80%

A - Includes surface or deck parking.

B - Minimum lot width at setback line per unit.

C - Side yard set back from project boundaries and building groupings.

D - Area regulations conditional and are subject to a master plan.

E - All minimum lot sizes as noted are allowable if served by sanitary sewer. If sanitary sewer is not available to the property, then Fulton County Health Department (lot size) regulation shall apply for septic tank approval.

([Ord. No. 718](#), § 13(Exh. A), 12-14-2015)

TABLE 2.2 LIST OF PERMISSIBLE AND CONDITIONAL USES

On the following table, an open circle "O" means that the use will be permitted in that district only if a Conditional Use Permit is granted by the City Council. An "X" means that the use is permitted in the zone district subject to the general provisions of the Unified Development Code. For uses not included in this list or when the Director of Community Development is unable to determine placement, application shall be made to the Board of Appeals for interpretation.

USES	AG	RE	R	R-22	R-15	R-12	R-10	R-4A	R-4D	R-8A/D	R-10M	CUP*	OI*	OP	C-1	C-2	PSC	LI	OS-R	SU	MU
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Boutique Hotel												O	O			O	O	O			O
Extended Stay Hotel (see Section 2.7)												O	O			⊖	O	⊖	O		
Tattoo Parlor and Body Piercing																		⊖	X		
Wireless Tower (subject to approval of conditional use permit in accordance with Section 2.8.7)	O											O	O			O	O	O			O

([Ord. No. 671, § 1, 2-4-2013](#) ; [Ord. No. 675, § 1, 6-3-2013](#) ; [Ord. No. 692, § 1\(Exh. 1\), 7-21-2014](#) ; [Ord. No. 703](#) , § 1, 6-1-2015; [Ord. No. 704](#) , § 2, 6-1-2015; [Ord. No. 708](#) , § 1, 8-10-2015; [Ord. No. 715](#) , § 4, 9-28-2015; [Ord. No. 718](#) , § 14(Exh. B), 12-14-2015)

SECTION 2.2 a. CONDITIONAL USE REVIEW CRITERIA	
When reviewing a conditional use, consideration shall be given to factors associated with the use including, but not limited to, the following:	
1. Site design	4. Vehicular trips generated by the use
2. Property access	5. Impact of the use on surrounding properties
3. Hours of operation of the business	6. Impact of the use on the natural features of the site

