LAI ENGINEERING

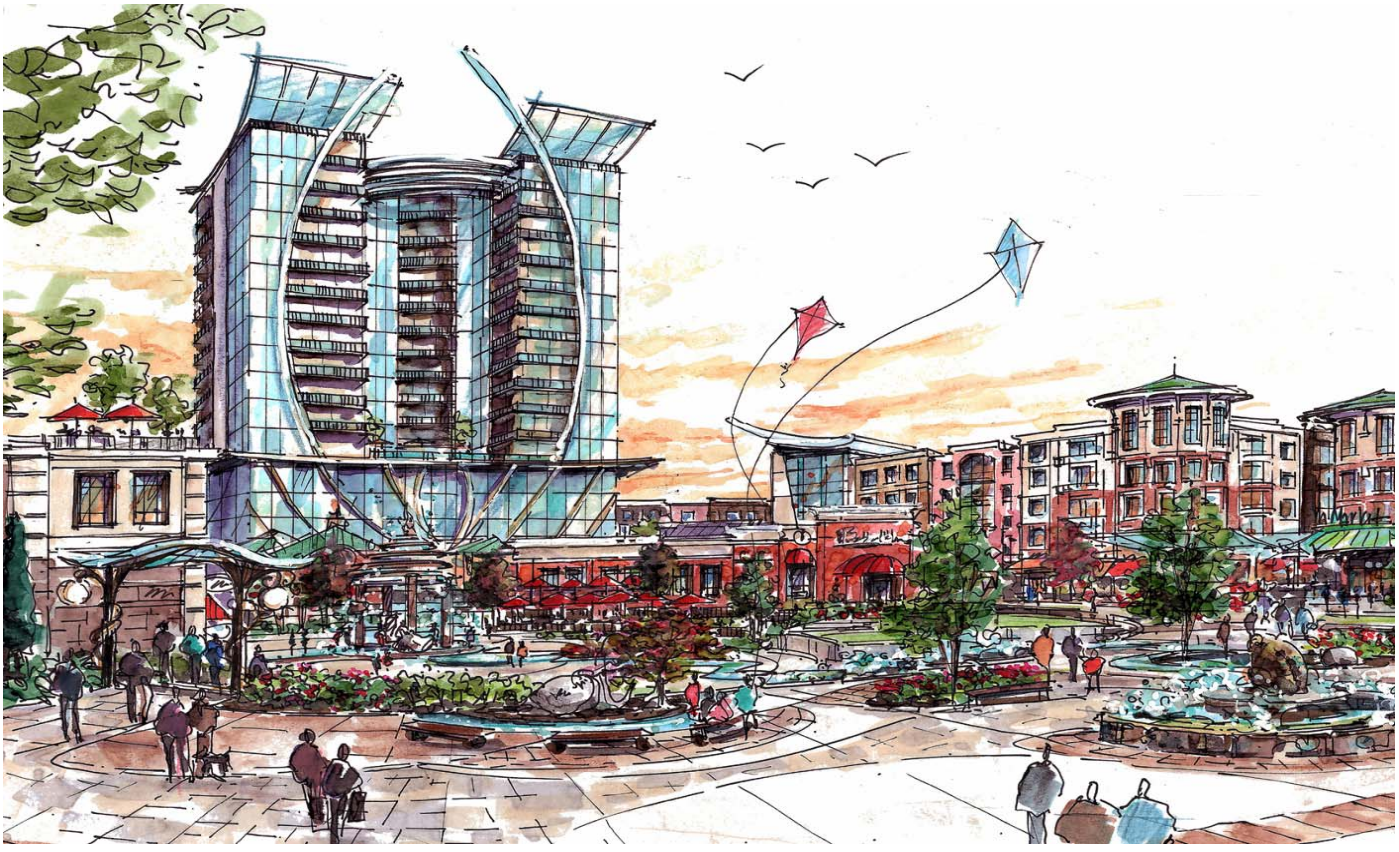
Building Relationships Through Performance

Developments of Regional Impact DRI # 1682

Pleasant Hill Village, Gwinnett County, GA

Prepared For: Greene Investments, Inc.

March 14, 2008



Civil, Survey & Transportation

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LAI ENGINEERING

Pleasant Hill Village
Development of Regional Impacts
(DRI) # 1682

Anticipated Traffic Impact Study Results

Prepared By:

Prepared For:

Greene Investments

March 14, 2008

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PROJECT SUMMARY

Name and Number of DRI	Pleasant Hill Village, DRI # 1682
Jurisdiction	Gwinnett County
Local Development Approval Sought	Mixed-Use Redevelopment (MUR)
Location	Bounded on the south by Pleasant Hill Road, on the west by Sunset Street, on the east by Woodberry Drive, and on the north by Pineview Street and Woodruff Drive
Uses and Intensities of Use	467,200 square feet retail/restaurant space
	790 mid-rise and high rise condominiums, 32 townhomes,
	105,600 square feet (150-room) hotel
	240,900 square feet office space
Project Phasing and Build-Out	Three Phases with 2012 Build-Out
Site Trip Generation (Average Daily Traffic / AM / PM / SAT Peak Hour Traffic)	(25,767 / 986 / 2,290 / 28,374)

Executive Summary

This report presents a systematic approach, by LAI Engineering (LAI), to analyze the anticipated traffic impacts for, Pleasant Hill Village a proposed 25.75 acre mixed use commercial and residential development. Pleasant Hill Village is proposed to be located within unincorporated Gwinnett County, Georgia. See Figure 1 for an Aerial Site View of the development. The applicant (Greene Investments) is applying for approval under Georgia Regional Transportation Authorities (GRTA's) Non-Expedited review process. Because the project will exceed 400,000 square feet of mixed-use development, Pleasant Hill Village requires a Development of Regional Impact (DRI) study and is subject to GRTA and Atlanta Regional Commission (ARC) review. The subject site is located in Gwinnett County bounded on the south by Pleasant Hill Road, on the west by Sunset Street, on the east by Woodberry Drive, and on the north by Pineview Street and Woodruff Drive. This site is currently occupied by functionally obsolete single family homes.

Pleasant Hill Village will revitalize the area, providing retail, office, and residential options in a walkable environment with outdoor plazas and urban vibrancy. It will contain a wide array of shops and restaurants convenient to Village residents as well as the local community. The site is a destination where people will park, walk, convene and stay for hours to enjoy shopping, dining, and entertainment. Shorty Howell Park is adjacent to the Village and together, they create Gwinnett's first mixed-use community with a large residential component within walking distance of a large park. The proposed development will reside on a 25.75 acre site and consist of commercial and residential space with a total area of 1,952,500 square feet. The site is currently zoned R-75 "Single Family Residential" and will be rezoned to Mixed-Use Redevelopment (MUR) overlay district for this project.

Proposed Development Conditions

Pleasant Hill Village is expected to consist of 1,952,500 square feet of mixed-use commercial/residential development to be built out in three (3) phases. The development is scheduled to be completed by the year 2012.

As part of the DRI process, existing traffic conditions in 2008, for two different scenarios were analyzed using Synchro 7. Each scenario was analyzed using AM, PM and Saturday peak hour traffic data for the 2012 build-out year. The projected traffic was calculated using a 1% background traffic growth rate agreed upon by GRTA during the methodology review process.

*** NOTE:** It is important to note that existing signal timings were requested but never received. The lack of signal timings limited the analysis capabilities for certain intersections such as Pleasant Hill Road @ Gwinnett Place Drive and Pleasant Hill Road @ Venture Parkway. These intersections are uncommonly configured and relatively close to each other causing levels of service below the standard level of service. It was also noted that other DRIs within the study network were allowed to exclude these two intersections possibly for the reasons mentioned above. Therefore no improvements were recommended for these two intersections when their LOS was below D.

Existing Traffic Analysis

Based on intersection analysis under existing conditions, there were **three** (3) intersections that did not meet the standard LOS D. To provide appropriate Levels of Service, improvements to the intersections are recommended. Listed below are the recommended improvements, by intersection:

- Pleasant Hill Rd @ N BerKeley Rd
  - Gwinnett County and GDOT project GW-271-A will improve intersection level of service
- Pleasant Hill Rd @ Gwinnett Place Dr
  - See above mentioned *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Venture Pkwy
  - See above mentioned *** NOTE** concerning this intersection

No-Build Conditions

The No-Build conditions were analyzed using the factors described in the Analysis of Anticipated Traffic Impact paragraph above for the 2012 build-out year.

Build Conditions

The Build conditions were analyzed using the factors described in the Analysis of Anticipated Traffic Impact paragraph above plus the site generated traffic associated with Pleasant Hill Village development for the 2012 build-out year.

Analysis of the Anticipated Traffic Impacts

The results of the detailed intersection analysis for the 2012 No-Build conditions include background traffic growth of 1% per year. Traffic for an approved mixed-use development Atlanta Global Station (DRI# 1275) was not included in this DRI analysis because the development was put on hold by the Developer and has not had any approval by Gwinnett County. The property was subsequently sold without plans to develop Global Station. DRI's 863, 1062, 1076, 1276 & 1418 listed in GRTA's Letter of Understanding have no common intersections with the proposed development and will not affect the Pleasant Hill Village traffic analysis. DRI # 1182 listed in GRTA's Letter of Understanding has common intersections with the proposed Pleasant Hill Village Development but no improvements were recommended to those common intersections. The 2012 Build conditions include the 2012 No-Build conditions plus the site generated traffic associated with Pleasant Hill Village.

2012 No-Build

Based on intersection analysis under 2012 No-Build conditions, there were **two** (2) intersections that did not meet the standard LOS D. To provide appropriate Levels of Service, improvements to the intersections are recommended. Listed below are the recommended improvements, by intersection:

- Pleasant Hill Rd @ Gwinnett Place Dr
  - See above mentioned *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Venture Pkwy
  - See above mentioned *** NOTE** concerning this intersection

2012 Build

Based on intersection analysis under 2012 Build conditions, there were **five** (5) intersections that did not meet the standard LOS D. To provide appropriate Levels of Service, improvements to the intersections are recommended. Listed below are the recommended improvements, by intersection:

- Pleasant Hill Rd @ Steve Reynolds Blvd
  - Recommend adding additional NB left turn storage (approx 210 ft) creating dual NB left turns onto Pleasant Hill.
- Pleasant Hill Rd @ N Berkeley Rd / Hill Dr (It is important to note that this intersection is below the acceptable LOS due to the growth rate of the current volumes. The approaches that are below LOS D do not have any site generated volumes attributing to the failure.)
  - Recommend adding additional WB left turn storage (approx 235 ft) on Pleasant Hill Road. This would create dual WB left turns onto N. Berkeley Rd.
- Pleasant Hill Rd @ Gwinnett Place Dr
  - See above mentioned *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Venture Pkwy
  - See above mentioned *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Driveway 2
  - It is recommended that the main entrance (Driveway 2) to the site be redesigned to accommodate SB dual lefts turns out of the site driveway onto Pleasant Hill Road. Also adding channelized SB right turn storage (approx 50 ft) to the Driveway 2 exit.
  - Recommend adding a channelized WB right storage lane (approx 175 ft) on Pleasant Hill Road before the Driveway 2 entrance.

Segment Analysis

As part of the DRI process, a detailed segment analysis for all major corridors in the study network was completed. Pleasant Hill Road, Buford Highway, Satellite Boulevard and Steve Reynolds Boulevard were the four major segments analyzed. The analysis was completed for the build-out year (2012) for both No-Build and Build scenarios. The results of the detailed segment analysis reveal that Pleasant Hill Road, Buford Highway, Satellite Boulevard and Steve Reynolds Boulevard will all operate at acceptable levels of service during all analyzed scenarios, per the outlined technical guidelines in GRTA's Letter of Understanding.

PROJECT SUMMARY

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Local Development Approval Sought	Mixed-Use Redevelopment (MUR)
Location	Bounded on the West by Pleasant Hill Road, on the North by Sunset Street, on the East by Pineview Street and Woodruff Drive, and on the South by Woodberry Drive.
Uses and Intensities of Use	467,200 square feet retail/restaurant space
	790 mid-rise and high rise condominiums, 32 townhomes,
	105,600 square feet (150-room) hotel
	240,900 square feet office space
Project Phasing and Build-Out	Three Phases with 2012 Build-Out
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Pleasant Hill Village
Development of Regional Impacts
(DRI) # 1682

Anticipated Traffic Impact Study Results

March 14, 2008

1.0 Project Description

1.1 Introduction

This report presents a systematic approach to the analysis of the anticipated traffic impacts for Pleasant Hill Village, a proposed 25.75 acre mixed-use commercial and residential development. Pleasant Hill Village (DRI #1682), is located in unincorporated Gwinnett County, Georgia. More specifically, the proposed development is located on the north side of Pleasant Hill Road between Sunset Street and Woodberry Drive. See **Figure 1** and **Figure 2** for Aerial Site View and the Aerial Site Plan.

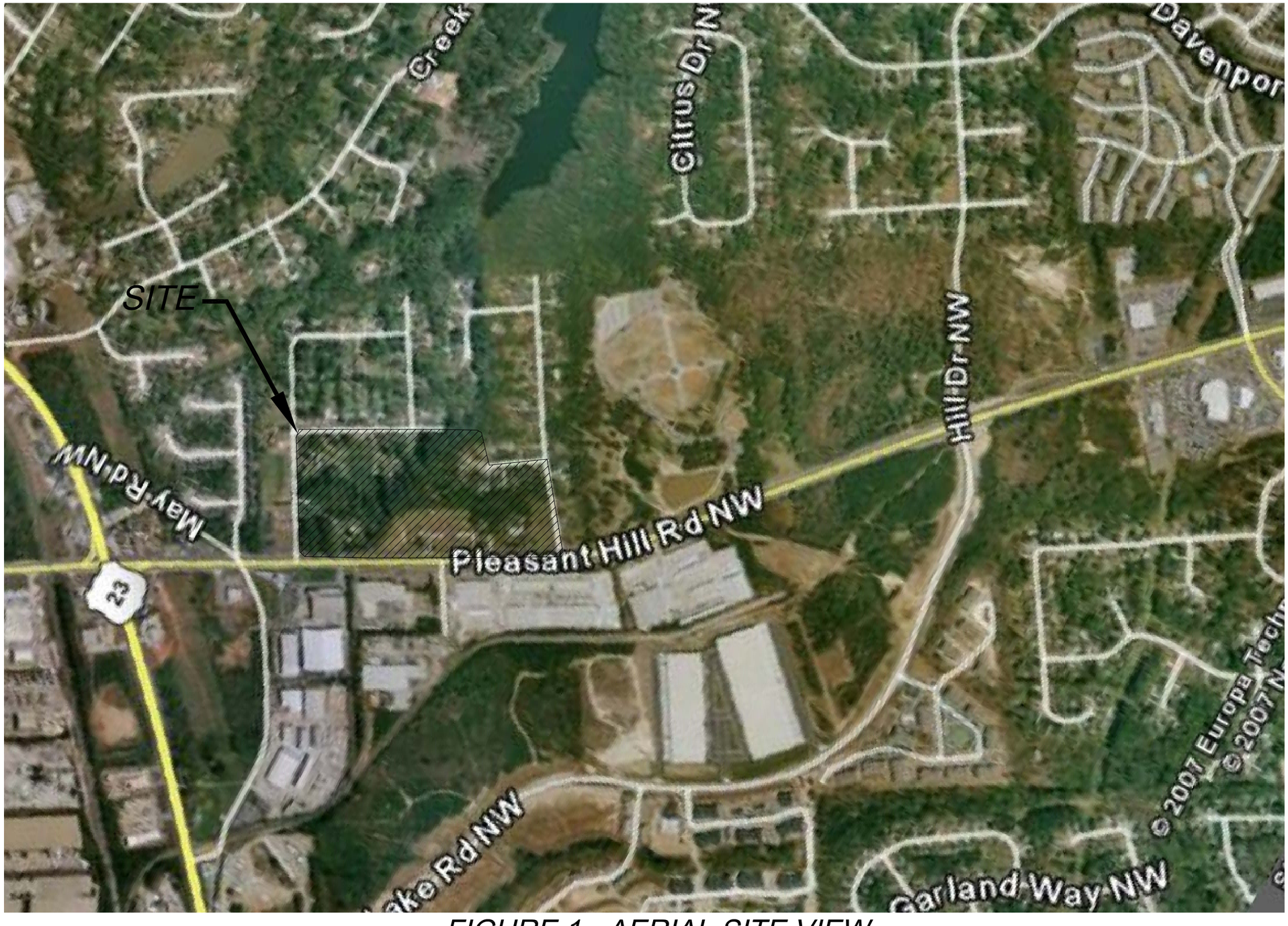
Pleasant Hill Village will revitalize the area, providing retail, office, and residential options in a walkable environment with outdoor plazas and urban vibrancy. It will contain a wide array of shops and restaurants convenient to Village residents as well as the local community. The site is a destination where people will park, walk, convene and stay for hours to enjoy shopping, dining, and entertainment. Shorty Howell Park is adjacent to the Village and together, they create Gwinnett's first mixed-use community with a large residential component within walking distance of a large park. The proposed development will reside on a 25.75 acre site and consist of commercial and residential space with a total area of 1,952,500 square feet. The site is currently zoned R-75 "Single Family Residential" and will be rezoned to Mixed-Use Redevelopment (MUR) overlay district for this project. The project is scheduled to be completed in 2012. See **Table 1** for proposed land use intensities.

Table 1
Proposed Land Uses

Retail	467,200 SF
Residential	1,138,800 SF
Hotel	105,600 SF
Office	240,900 SF
Total	**1,952,500 SF**

1.1.1 Site Plan Review

The proposed development utilizes a single pod design, where the elements contained within the project are accessible by internal connections such as vehicular access and pedestrian walkways. These internal connections will provide access for all commercial and office elements of the proposed development. See **Figure 3** for the Site Plan.



NOT TO SCALE

FIGURE 1 - AERIAL SITE VIEW

(PLEASANT HILL VILLAGE)

REVISIONS

PLEASANT HILL VILLAGE DEVELOPMENT

PREPARED FOR

Greene Investments

CITY OF DULUTH, GA

GWINNETT COUNTY

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LAI ENGINEERING

JOB NO.: 6287

DWG NAME: DR # 1682

FIGURE 1

PAGE: 2

DATE: 03-14-2008

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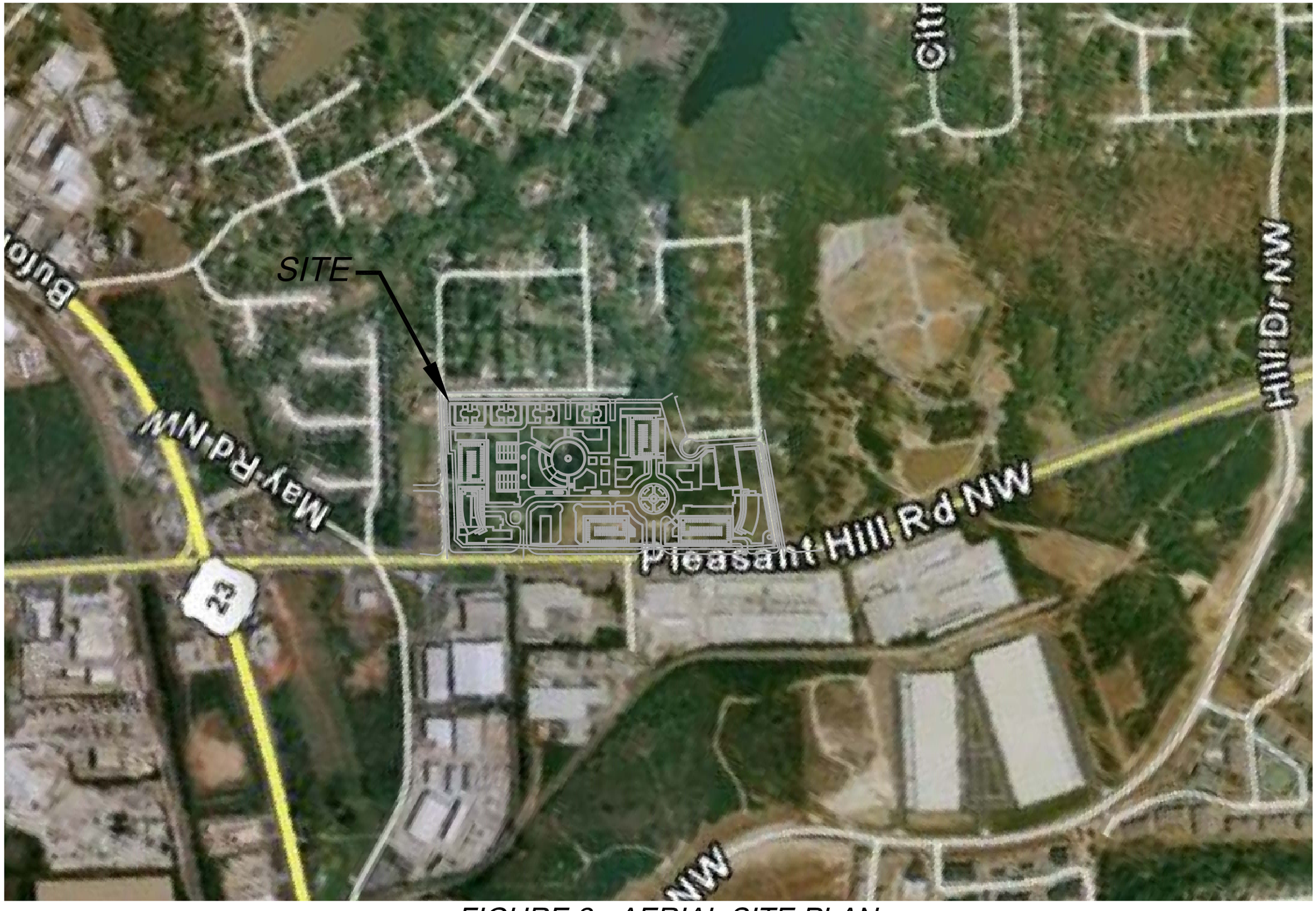

NOT TO SCALE

FIGURE 2 - AERIAL SITE PLAN

REVISIONS

PLEASANT HILL VILLAGE DEVELOPMENT
PREPARED FOR
Gireene Investments
GWINNETT COUNTY GEORGIA

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JOB NO.: 6287
DWG NAME:DRI # 1682

FIGURE 2

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3

DATE: 03-14-2008

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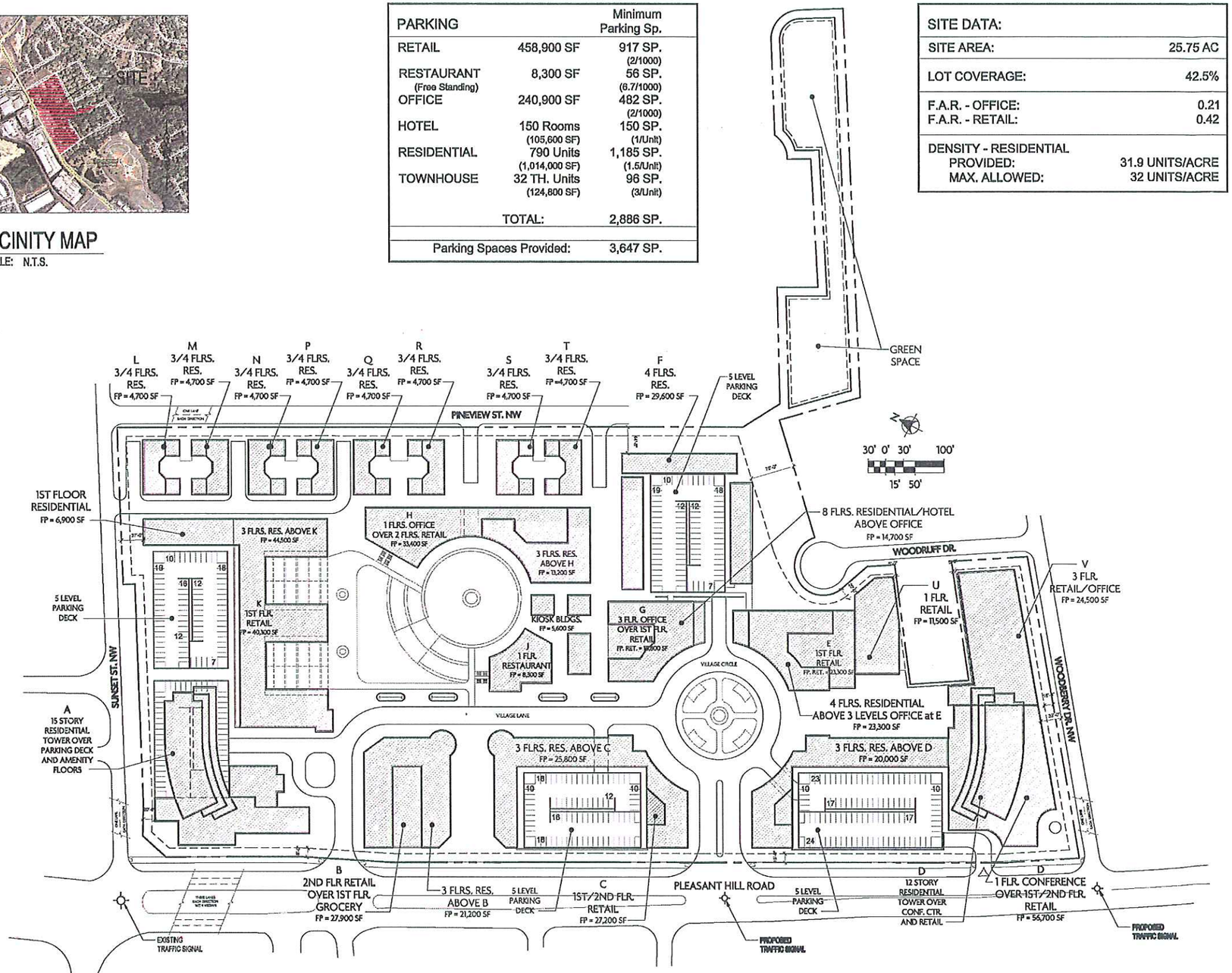
2 SP-11 **VICINITY MAP**
SCALE: N.T.S.

PARKING		Minimum Parking Sp.
RETAIL	458,900 SF	917 SP. (2/1000)
RESTAURANT (Free Standing)	8,300 SF	56 SP. (6.7/1000)
OFFICE	240,900 SF	482 SP. (2/1000)
HOTEL	150 Rooms (105,600 SF)	150 SP. (1/Unit)
RESIDENTIAL	790 Units (1,014,000 SF)	1,185 SP. (1.5/Unit)
TOWNHOUSE	32 TH. Units (124,800 SF)	96 SP. (3/Unit)
	TOTAL:	2,886 SP.
	Parking Spaces Provided:	3,647 SP.

SITE DATA:	
SITE AREA:	25.75 AC
LOT COVERAGE:	42.5%
F.A.R. - OFFICE:	0.21
F.A.R. - RETAIL:	0.42
DENSITY - RESIDENTIAL	
PROVIDED:	31.9 UNITS/ACRE
MAX. ALLOWED:	32 UNITS/ACRE



1 SP-11 **CONCEPTUAL SITE PLAN**
SCALE: 1" = 80'-0"

FIGURE 3 - SITE PLAN
(PLEASANT HILL VILLAGE)

REVISIONS

PHILLIPS PARTNERSHIP
Architects • Engineers
Phone 770.394.1616 Fax 770.394.1314
CONSULTANT
SEAL
ISSUE & REVISION RECORD

#	DATE	DESCRIPTION
1	3/14/08	DRI SUBMISSION

PROJECT
PLEASANT HILL VILLAGE
MIXED USE PROJECT
UNINCORPORATED GWINNETT COUNTY, GEORGIA
DRI #1682
CLIENT
Greene Investments, Inc.
5450 McGinnis Village Place, Suite 102
Alpharetta, GA 30005
Office: (770) 663-6512
Fax Line: (770) 663-6345
PHILLIPS JOB NUMBER 0823101
ISSUE DATE 1/2007
DRAWN BY/CHECKED BY
DRAWING TITLE
CONCEPTUAL SITE PLAN
SHEET NUMBER
SP-11.1

PLEASANT HILL VILLAGE DEVELOPMENT
PREPARED FOR
Greene Investments
GWINNETT COUNTY GEORGIA

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DWG NAME: DRI # 1682
FIGURE 3
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DATE: 03-14-2008

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1.1.2 Site Access

The proposed development will be accessible by six (6) driveways; three (3) driveways along Pleasant Hill Road and one (1) driveway along Sunset Street and two (2) driveways along Pineview Street.

1. Driveway 1 is proposed as a right-in/right-out commercial driveway into Phase III at its intersection with Pleasant Hill Road. Driveway 1 is located approximately 195 ft. northwest of the Pleasant Hill Road at Woodberry Drive intersection.

2. Driveway 2 is proposed as a fully accessible commercial driveway into Phase I at its intersection with Pleasant Hill Road. Driveway 2 is located approximately 647 ft. north-west of the Pleasant Hill Road at Woodberry Drive intersection.

3. Driveway 3 is proposed as a right-in/right-out commercial driveway into Phase I at its intersection with Pleasant Hill Road. Driveway 3 is located approximately 380 ft. southeast of the Pleasant Hill Road at Sunset Street intersection.

4. Driveway 4 is proposed as a fully accessible residential driveway into Phase III, at its intersection with Sunset Street. Driveway 4 is located approximately 600 ft. northeast of the Pleasant Hill Road at Sunset Street intersection.

5. Driveway 5 is proposed as a fully accessible residential driveway into Phase III at its intersection with Pineview Street. Driveway 5 is located approximately 530 ft. southeast of Sunset Street at Pineview Street intersection.

6. Driveway 6 is proposed as a fully accessible residential driveway into Phase III at its intersection with Pineview Street. Driveway 6 is located approximately 700 ft. southeast of Sunset Street at Pineview Street intersection.

Gwinnett County is the permitting agency for all site accesses along Pleasant Hill Road, Sunset and Pineview Street.

1.2 Bicycle and Pedestrian Facilities

Pleasant Hill Village will be a destination development. While some motorists will drive to Pleasant Hill Village, they will quickly become pedestrians in an environment that is designed to get people out of their cars. The plazas, with street level benches and other pedestrian-friendly amenities, water features, large open spaces and with amphitheatre features, will enhance the enjoyment of residents and visitors. It will also increase the amount of time they actually stay at the Village. Pedestrian activities will be abundant with patio dining and planned activities for residents and the community. Shorty Howell Park, a 67-acre county park with jogging trails, ponds, and outdoor recreation options is adjacent on the west side. Many of the Village residents will walk to the park, a tremendous opportunity to bring walkability to the area.

As a mixed-use development, it is expected that a number of residents will live and work in Pleasant Hill Village. Architectured features of the buildings will add character to the environment with external illumination and traditional plazas. Water features will have an appealing presence throughout the site as a uniquely designed amenity to the community.

1.3 Transit Facilities

Currently, there are numerous transit facilities in the area. Gwinnett County's Transit Center is based at Gwinnett Place Mall. Gwinnett County Transit has Bus routes 10, 20, 30, 40, and express route 102A as well as two Gwinnett transfer points which are within 1.6 miles of Pleasant Hill Village. Future mass transit routes may pass directly in front of project site. Gwinnett County transit Route 10 has nearby service with the closest stops from the development being approximately 0.6 mile. One bus stop is located on N. Berkeley Lake Road near Pleasant Hill Road with another near Buford Highway and North Berkeley Lake Road.

2.0 Traffic Analyses – Methodology and Assumptions

2.1 Existing Facilities

The area roadways in the vicinity of the proposed development offer drivers a wide range of travel paths with functional classifications including Urban Local Streets, Urban Minor Arterial, Urban Collector Streets and Urban Principal Arterial. There are three basic functional classifications of roadways: arterial, collector and local roads. All streets and highways are grouped into one of these classifications depending on the character of traffic (i.e., local or long distance) and the degree of property access they allow. See **Table 2** for a list of existing roadways in the study network and their existing functional classification as defined by the Georgia Department of Transportation (GDOT).

Table 2
Existing Roadway Facilities with Functional Classification

Roadway Name	GDOT Classification
Pleasant Hill Road	Urban Principal Arterial
Old Norcross Road (Pleasant Hill Road to Buford Highway)	Urban Collector Street
Satellite Boulevard	Urban Collector Street
Old Norcross Road (Pleasant Hill Road to Duluth Highway)	Urban Minor Arterial
Buford Highway (US 23)	Urban Minor Arterial
Steve Reynolds Boulevard	Urban Local Street
N Berkeley Lake Road	Urban Local Street
Hill Drive	Urban Local Street
Woodberry Drive	Urban Local Street
Banks Street	Urban Local Street
Sunset Street	Urban Local Street
May Road	Urban Local Street
Summit Ridge Parkway	Urban Local Street
Venture Drive	Urban Local Street

2.2 Growth Rate

Historical traffic volumes were analyzed utilizing volume data gathered from the Georgia Department of Transportation. Volume data from 5 previous years was assembled to help determine a background traffic growth rate on the roadways within the study network. Based on GDOT traffic data from 2001 to 2006 along the area roadways we recommend a background traffic growth rate of **1.0%** per year. A growth rate of 1.0% per year was used to calculate all future traffic. This 1% growth rate was approved by GRTA during the methodology review process and is documented in GRTA's Letter of Understanding dated March 6, 2008.

2.2.1 Traffic Data Collection

Vehicle turning movement counts were collected by Reliable Traffic Data Services, Greater Traffic, Georgia Traffic and LAI Engineering for weekday AM (7:00 am – 9:00 am) and weekday PM (4:00 pm – 6:00 pm) peak periods. Peak hour counts were also collected for a typical Saturday Peak period (12:00 pm – 2:00 pm). Counts were performed from Tuesday April 10, 2007 through Wednesday March 11, 2008. The peak hours utilized for all traffic analysis were 7:30am - 8:30am and 5:00pm – 6:00pm for all weekday periods. The Saturday peak hour period was determined to be from 12:30 pm – 1:30 pm and were collected on Saturday March 8, 2008. See **Appendix C** for Peak Hour Traffic Counts.

2.3 Detailed Intersection Analysis

Level of service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a quantitative measure that describes operational conditions and motorist perceptions within a traffic stream. The Highway Capacity Manual defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. Level of service analyses were conducted at all intersections within the study network using Synchro Professional, Version 7.0.

Levels of service for signalized intersections are reported for individual movements as well as 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.

Levels of service for un-signalized intersections, with stop control on the minor street only are reported for the minor (side) street left turn movements and for the side street approaches.

Low levels of service for side street approaches are not uncommon, as vehicles may experience delay in turning onto major roadways.

If an intersection or roadway segment (corridor) was found to be below the acceptable level of service, as established by the county and GRTA standards, it was improved in the model to an acceptable level of service before the analysis could be considered complete. See section 6.4 for Corridor Segment Study.

3.0 Study Network

3.1 Existing Facilities

As stated earlier, there are three (3) functional classifications of roadways: arterial, collector and local roads. All streets and highways are grouped into one of these classifications, depending on the character of traffic (i.e., local or long distance) and the degree of land access they allow. See **Table 2** for a list of area roadways included in the study network and the functional classification of each. Functional classifications were determined using the GDOT website. See the following photographs of the major intersections in the study network.

Photograph 1 is looking east bound from Pleasant Hill Road at Woodberry Drive

Photograph 1

Photograph 2 is looking west bound from Pleasant Hill Road at Woodberry Drive

Photograph 2

Photograph 3 is looking west bound from Woodberry Drive at Pleasant Hill Road

Photograph 3

Photograph 4 is looking west bound from Sunset Street at Pleasant Hill Road

Photograph 4

Photograph 5 is looking east bound from Pleasant Hill Road at Sunset Street

Photograph 5

Photograph 6 is looking west bound from Pleasant Hill Road at Sunset Street

Photograph 6

Photograph 7 is looking east bound from May Street at Pleasant Hill Road

Photograph 7

Photograph 8 is looking east bound from N Berkeley Lake Road at Pleasant Hill Road

Photograph 8

Photograph 9 is looking west bound from Pleasant Hill Road at N Berkeley Lake Road

Photograph 10 is looking east bound from Pleasant Hill Road at N Berkeley Lake Road

Photograph 11 is looking south bound from at Hill Road Pleasant Hill Road

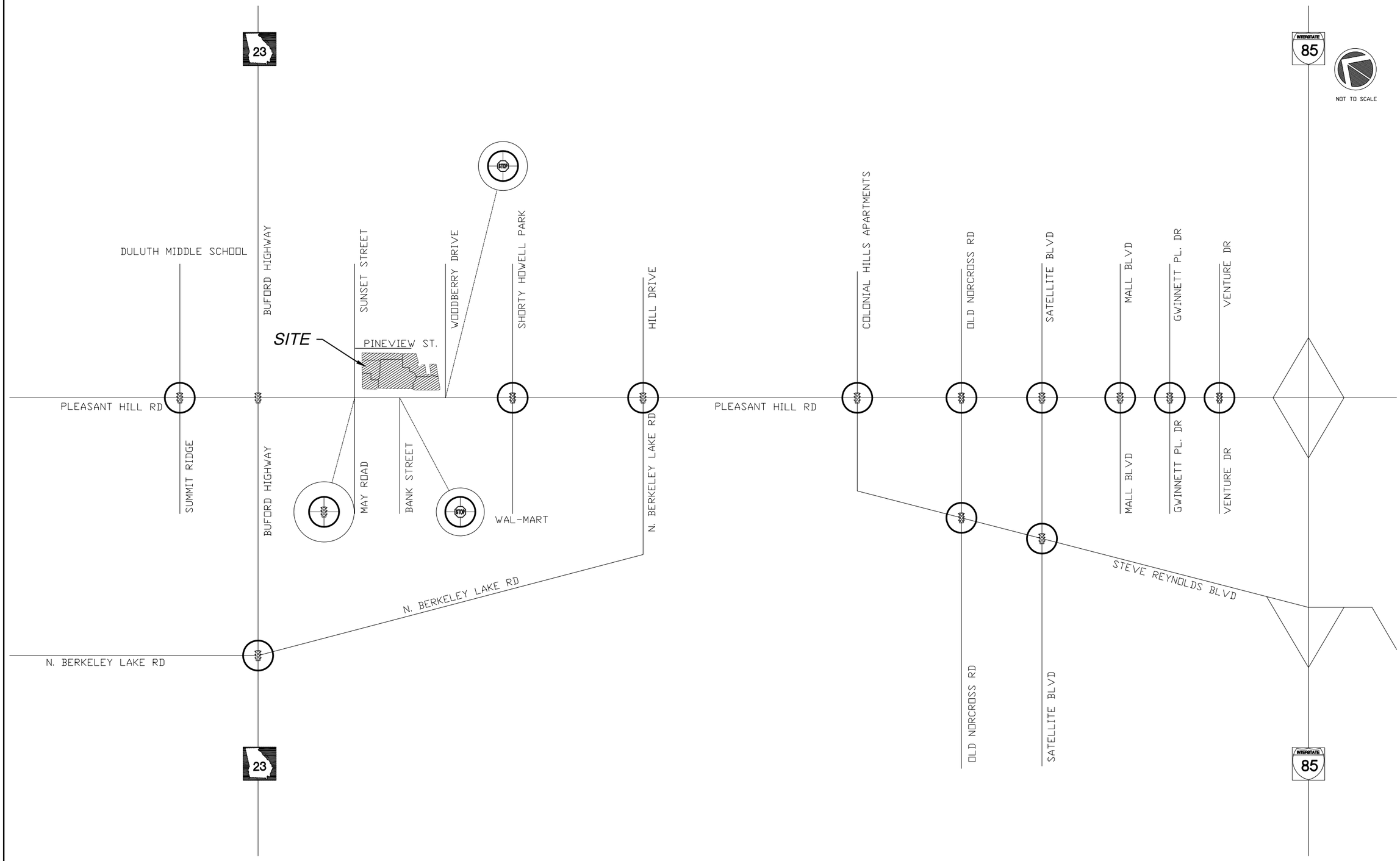
Photograph 11

3.2 Study Network Determination

The study network was determined by evaluating the amount of traffic that the proposed development will add to each roadway segment in the area. According to GRTA's requirements, a roadway segment carries a "significant" amount of traffic if the project contributes 7% or more trips to the two-way daily service volumes of the roadway at the appropriate level of service standard. Upon agreement with GRTA, a standard LOS D was used for determining the study network area. See **Figure 4** for Study Network Intersections. See **Appendix A** for GRTA's 7% study network determination table.

The traffic generated by the proposed project was then assigned to the area roadways using a trip distribution process (historical travel trends, residential densities and engineering judgment) to determine the site-generated traffic volumes on each roadway segment. The boundaries of the study network extend to the most distant intersections where at least 7% of the service volumes on the segment are attributed to the site generated traffic. The following intersections were found to have site generated volumes in keeping with the 7% rule and have been included in the traffic study:

- Buford Hwy @ N Berkeley Lake Rd
- Pleasant Hill Rd @ Banks St
- Pleasant Hill Rd @ Shorty Howell Park
- Pleasant Hill Rd @ Gwinnett Place Dr
- Pleasant Hill Rd @ Mall Blvd
- Pleasant Hill Rd @ N Berkeley Lake Rd / Hill Dr
- Pleasant Hill Rd @ Old Norcross Rd
- Pleasant Hill Rd @ Satellite Blvd
- Pleasant Hill Rd @ Steve Reynolds Blvd
- Pleasant Hill Rd @ Summit Ridge Pkwy
- Pleasant Hill Rd @ Sunset St / May Rd
- Pleasant Hill Rd @ Venture Dr
- Pleasant Hill Rd @ Woodberry Dr
- Steve Reynolds Blvd @ Old Norcross Rd
- Steve Reynolds Blvd @ Satellite Blvd



LEGEND
- INTERSECTIONS TO BE STUDIED
- EXISTING TRAFFIC SIGNAL
- EXISTING STOP SIGN

FIGURE 4 - STUDY NETWORK INTERSECTIONS

REVISIONS

PLEASANT HILL VILLAGE DEVELOPMENT
PREPARED FOR
Greene Investments
GWINNETT COUNTY GEORGIA

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FIGURE 4

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3.3 Gross Trip Distribution

Trip generation estimates were based on the rates and equations published in the 7th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (2003). The ITE *Trip Generation Manual* contains traffic volume count data collected at similar facilities nationwide. The proposed development will consist of 467,200 square feet of retail space, 1,138,800 square feet of residential space, 105,600 square feet of hotel space and 240,900 square feet of office space. See **Table 3** for Weekday gross site trips and **Table 4** for Saturday gross site trips.

Table 3 Weekday Gross Site Trip Generation									
Land Use Code/Size	**24 Hour 2-Way Volume**	**Movement Direction**	**AM Peak Trips**	**PM Peak Trips**	**PM Internal Trips**	**PM External Trips**	**PM Pass-By Trips**	**AM Net New Trips**	**PM Net New Trips**
Phase I, II & III - 2012 Build-Out									
Shopping Center 820/467,200 SF	20,062	Enter	294	841	59	782	209	294	573
		Exit	187	911	64	847	226	187	621
Residential Townhouse 230/32 Units	188	Enter	2	11	1	10	0	2	10
		Exit	12	5	0	5	0	12	5
Mid-Rise Condo 232/355 Units	1,484	Enter	21	85	6	79	0	21	79
		Exit	99	50	4	47	0	99	47
High-Rise Condo 232/435 Units	1,818	Enter	26	104	7	97	0	26	97
		Exit	122	61	4	57	0	122	57
Hotel 310/150 Rooms	1,226	Enter	51	47	0	47	0	51	47
		Exit	33	42	0	42	0	33	42
General Office Building 710/240,900 SF	989	Enter	122	22	2	20	0	122	20
		Exit	17	111	8	103	0	17	103
Total AM & PM Peak Net New Trips Generated by Phase I, II & III - 2012 Build-Out									
Total	25,767	Enter	516	1,110	74	1,035	209	516	826
		Exit	470	1,180	80	1,101	226	470	875

Table 4 Saturday Gross Site Trip Generation							
Land Use Code/Size	**24 Hour 2-Way Volume**	**Movement Direction**	**Saturday Peak Total Trips**	**Internal Trips**	**External Trips**	**Pass-By Trips**	**Net New Saturday Trips**
Phase I, II & III – 2012 Build-Out							
Shopping Center 820/467,200 SF	23,346	Enter	1,205	0	1,205	330	875
		Exit	1,117	0	1,117	306	811
Residential Townhouse 230/32 Units	181	Enter	8	0	8	0	8
		Exit	7	0	7	0	7
Mid-Rise Condo 232/355 Units	1,530	Enter	53	0	53	0	53
		Exit	71	0	71	0	71
High-Rise Condo 232/435 Units	1,875	Enter	65	0	65	0	65
		Exit	87	0	87	0	87
Hotel 310/150 Rooms	1,229	Enter	60	0	60	0	60
		Exit	48	0	48	0	48
General Office Building 710/240,900 SF	213	Enter	20	0	20	0	20
		Exit	17	0	17	0	17
Total Saturday Peak Net New Trips Generated by Phase I, II & III – 2012 Build-Out							
Total	**28,374**	**Enter**	**1,411**	**0**	**1411**	**330**	**1081**
		Exit	**1,347**	**0**	**1347**	**306**	**1041**

3.4 Level of Service Standards

Gwinnett County does not currently have a standard level of service. For the purpose of this DRI analysis and as per the previously mentioned GRTA technical guidelines, a standard LOS D was utilized for all analyses.

The LOS is assigned based on intersection average control delay and the "V/C" ratio is calculated by volume to capacity ratio and control delay. See **Table 5** and **Table 6** for LOS and V/C ratio criteria.

Table 5
Level of Service Criteria (Delay, sec)

Level of Service (LOS)	Average Vehicle for Signalized Control Delays (Seconds)	Average Vehicle for Un-Signalized Control Delays (Seconds)	Description
A	≤ 10.0	≤ 10.0	**Free Flow/Insignificant Delays:** No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.
B	10.1-20.0	10.1 – 15.0	**Stable Operation/Minimal Delays:** An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C	20.1-35.0	15.1 – 25.0	**Stable Operation/Acceptable Delays:** Major approach phases fully utilized. Most drivers feel somewhat restricted.
D	35.1-55.0	25.1 – 35.0	**Approaching Unstable/Tolerable Delays:** Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.
E	55.1-80.0	35.1 – 50.0	**Unstable Operation/Significant Delays:** Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection
F	≥ 80.1	≥ 50.1	**Forced Flow/Excessive Delays:** Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Source: Transportation Research Board, *Highway Capacity Manual* (2000)

It is important to note that it is not uncommon to have an un-signalized intersection to have an approach (usually a side street) to have an unacceptable LOS. This does not mean that the intersection as a whole is not operating at an acceptable level of service.

Table 6 Level of Service Criteria (V/C Ratio)		
Level of Service (LOS)	**Volume/ Capacity Ratio**	**Description**
A	0.00 – 0.60	**Excellent:** No vehicle waits longer than one red light and no approach phase are fully used.
B	0.61 – 0.70	**Very Good:** An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.70 – 0.80	**Good:** Occasionally drivers may have to wait through more than one red light. Backups may develop behind turning vehicles.
D	0.81 – 0.90	**Fair:** Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.91 – 1.00	**Poor:** Represents the most vehicles intersection approaches can accommodate. May be long lines of waiting vehicles throughout several signal cycles.
F	>1.00	**Failure:** Backups from nearby locations or on cross streets may restrict or prevent the movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, *Transportation Research Circular* No. 212, *Interim Materials on Highway Capacity* (1980).

4.0 Trip Generation

As stated earlier in section 3.3, trips associated with the proposed development were estimated using the *ITE Trip Generation Manual*, Seventh Edition (2003). Pass-by reductions were taken for the retail land uses based on ITE's Trip Generation Handbook, October 1998. The reductions were based on 19% pass-by reduction for retail shopping center and high turnover restaurants land uses. The pass-by reductions were limited to 10% of the adjacent street volumes per GRTA's standards. The site trips generated and the reductions taken were presented in **Table 3** and **Table 4.**

5.0 Trip Distribution

The trip distribution is the percentage of the traffic generated by the site that uses each segment of the surrounding roadway network. A trip distribution is estimated for the land use for the site. The site generated traffic distributions were based on knowledge of the roadway system in conjunction with engineering judgment and historical travel trends within the defined study network. Historical travel trend data gathered from average daily traffic (ADT) was taken from the GDOT web-site and utilized 2006 annual traffic data to develop the distributions. The distributions were discussed and agreed upon in the methodology process with GRTA. See **Figure 5** for the Network AADT numbers. See **Figure 6** and **Figure 7** for network site and site trip distribution percentages. See **Figure 8** and **Figure 9** for network site and site trip generated volumes.

FIGURE 5-NETWORK ADT

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FIGURE 5

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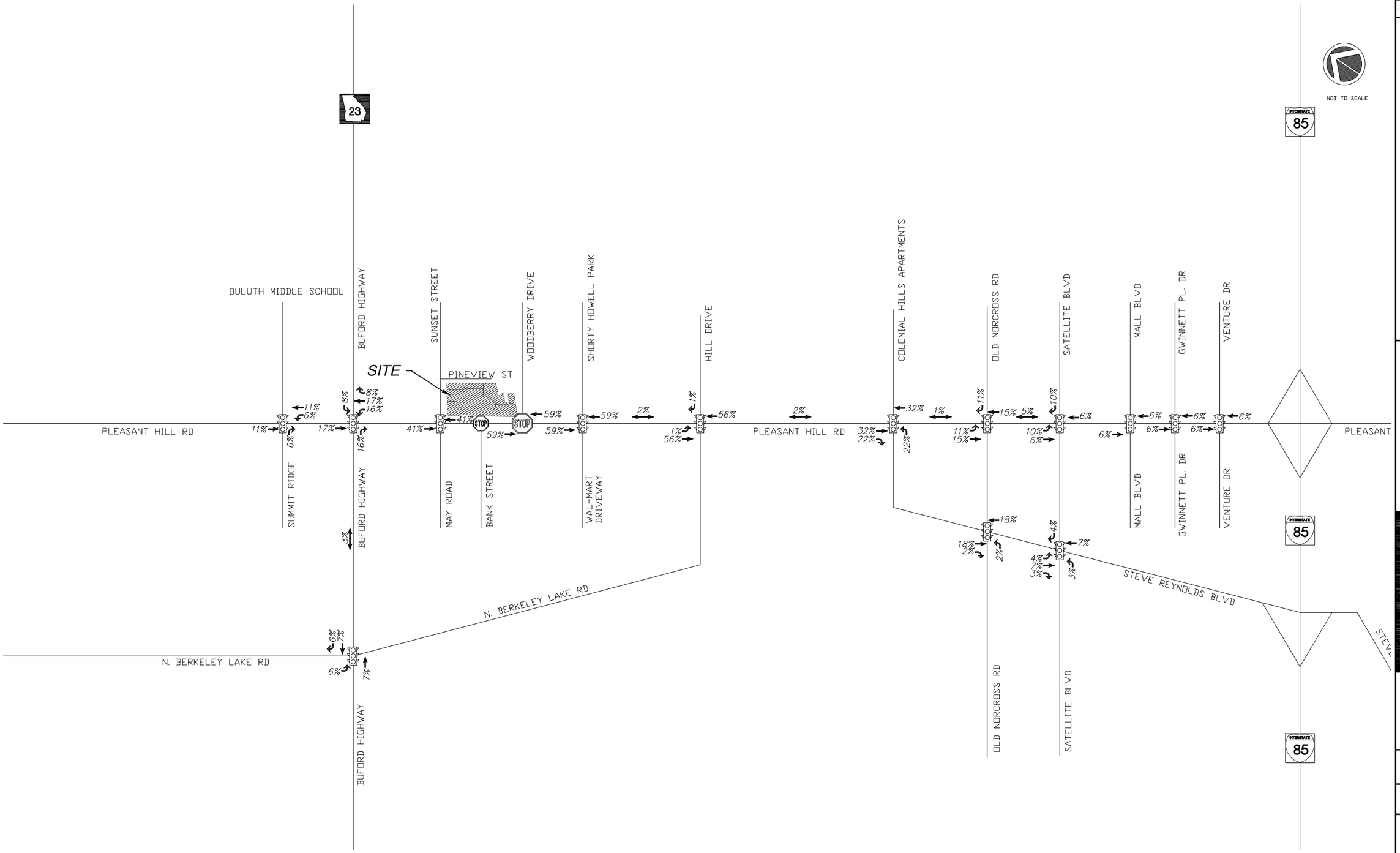

FIGURE 6-SITE TRIP DISTRIBUTION PERCENTAGES

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FIGURE 6

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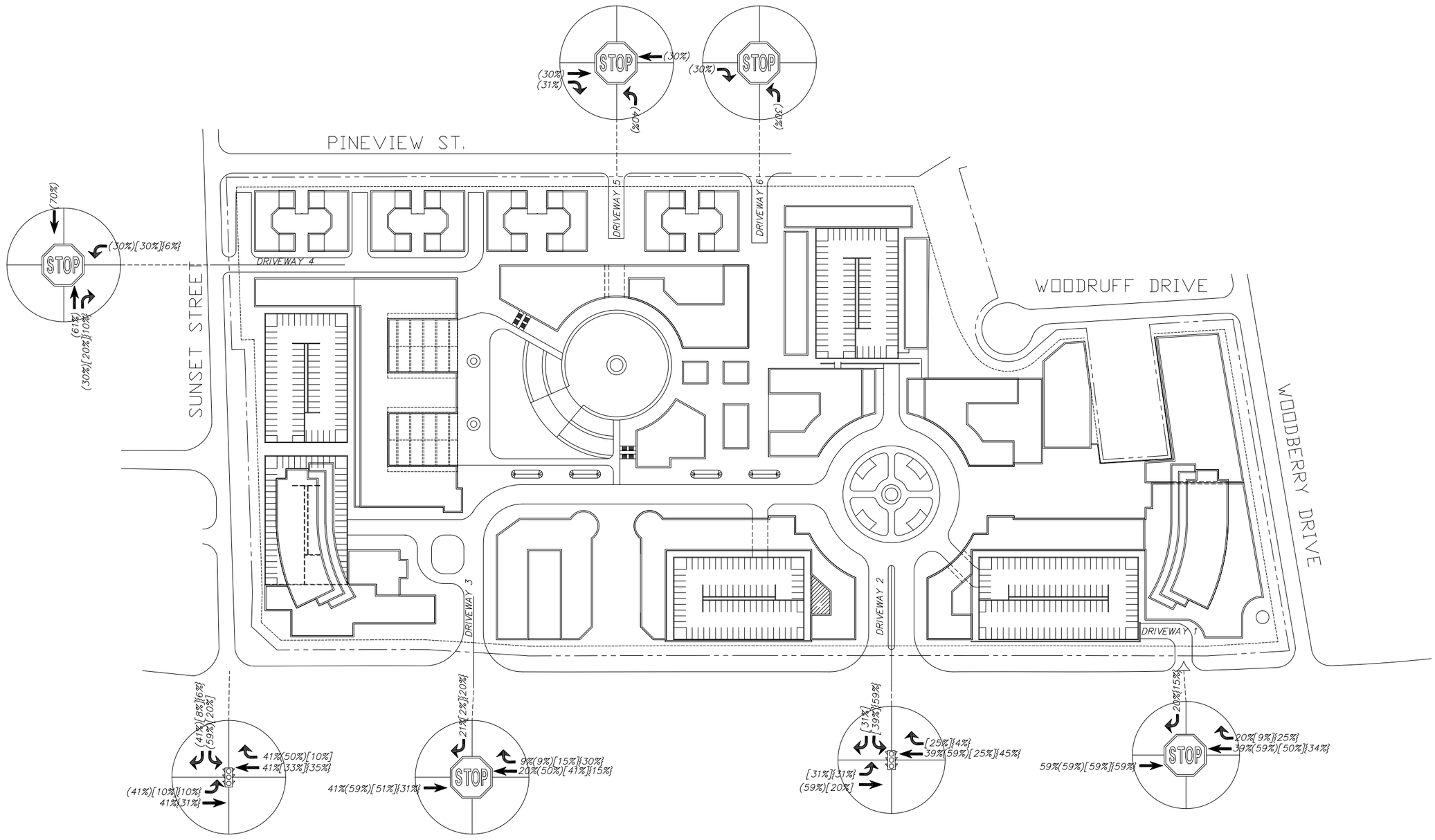

NOT TO SCALE

LEGEND	
SHOPPING CENTER, HOTEL & OFFICE	XX
RESIDENTIAL TOWNHOUSE	(XX)
MID-RISE CONDO	[XX]
HIGH-RISE CONDO	{XX}
TRAFFIC MOVEMENTS	
EXISTING TRAFFIC SIGNAL	
EXISTING STOP SIGN	

FIGURE 7-SITE TRIP DISTRIBUTION PERCENTAGES

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FIGURE 7

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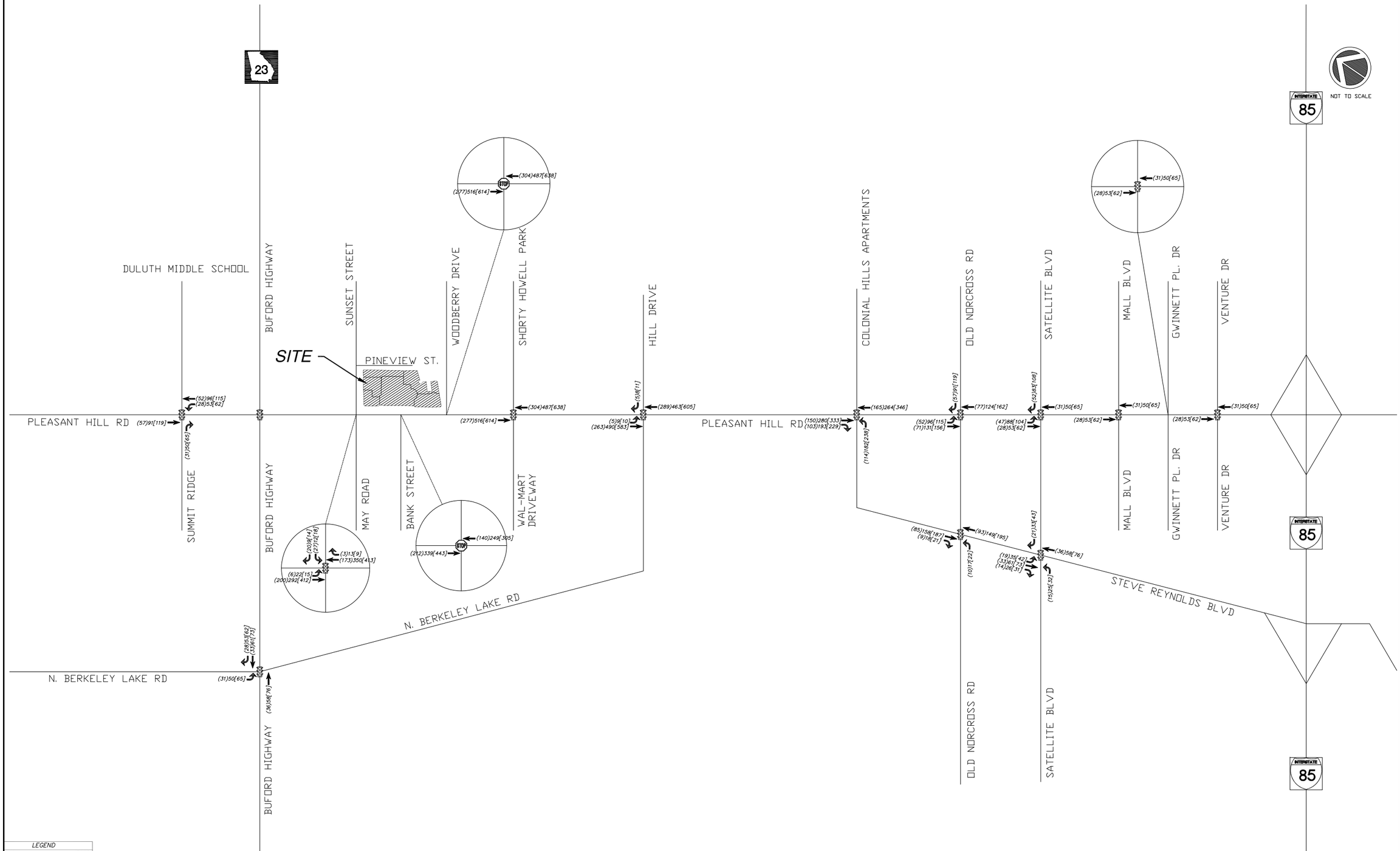

LEGEND	
AM	(XXX)
PM	XXX
SAT	[XXX]
TRAFFIC MOVEMENTS	
EXISTING TRAFFIC SIGNAL	
EXISTING STOP SIGN	

FIGURE 8-NETWORK SITE GENERATED VOLUMES

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FIGURE 8

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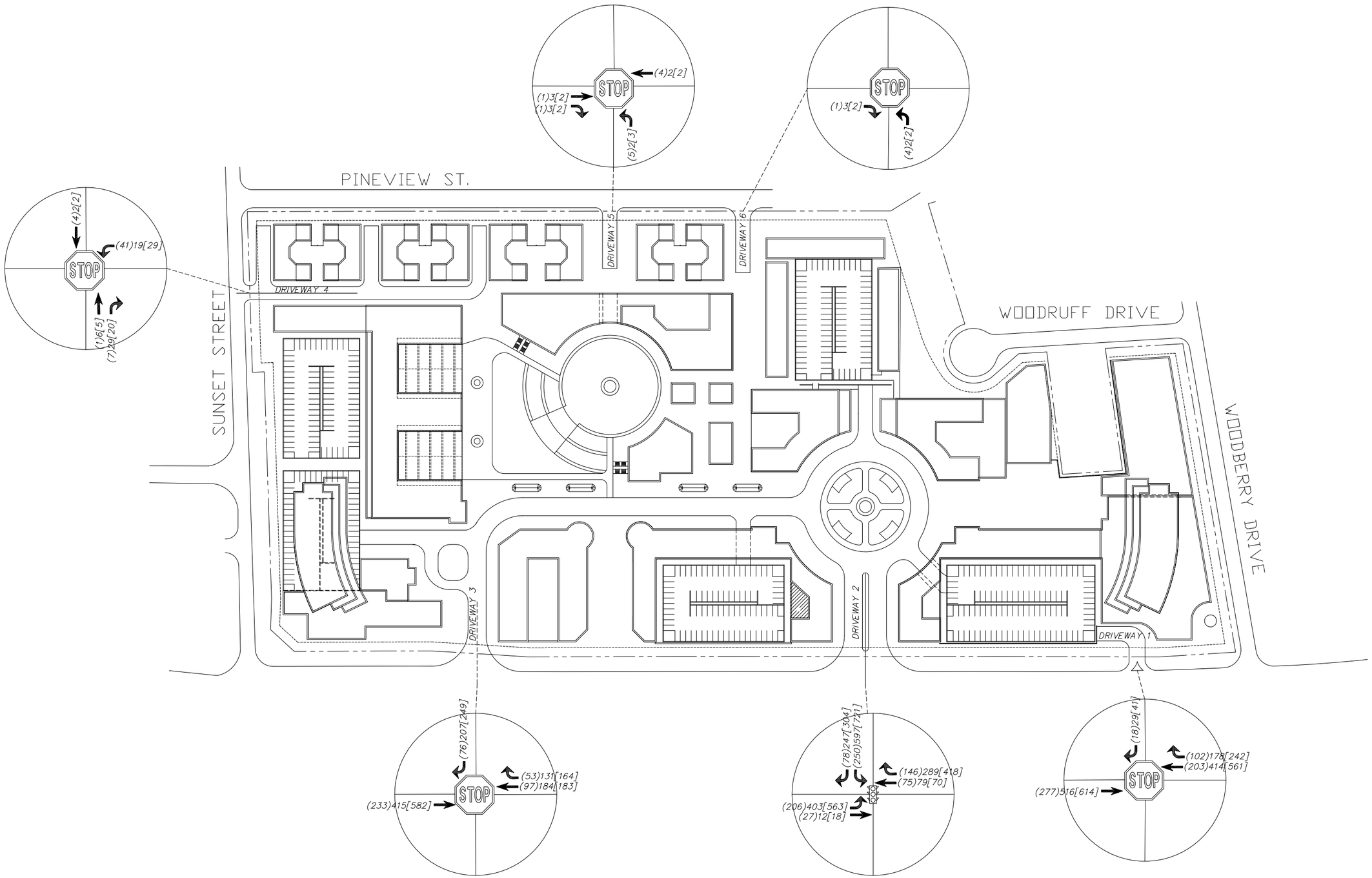

NOT TO SCALE

LEGEND

AM	(xxx)
PM	xxx
SAT	[xxx]
TRAFFIC MOVEMENTS	
EXISTING TRAFFIC SIGNAL	
EXISTING STOP SIGN	

FIGURE 9-SITE GENERATED VOLUMES

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FIGURE 9

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6.0 Traffic Analysis

6.1 Existing Traffic

Existing traffic was analyzed at recommended intersections which were identified by GRTA during the methodology process and then confirmed by GRTA's Letter of Understanding. Any intersection that was found to be below the standard LOS D had to be improved in the analysis models before any future traffic analysis could be completed. This would insure that the area intersections would operate, and will continue to operate at an acceptable level of service.

The recommended improvements for those intersections which did not meet the standard level of service (LOS) D were made and all future traffic analysis includes those recommended improvements. The existing analysis was performed using Synchro 7 and the results are shown in Table 7**.**

See **Table 7** for Existing Intersection Levels of Service.

*** NOTE:** It is important to note that existing signal timings were requested but never received. The lack of signal timings limited the analysis capabilities for certain intersections such as Pleasant Hill Road @ Gwinnett Place Drive and Pleasant Hill Road @ Venture Parkway. These intersections are uncommonly configured and relatively close to each other causing levels of service below the standard level of service. It was also noted that other DRIs within the study network were allowed to exclude these two intersections possibly for the reasons mentioned above. Therefore no improvements were recommended for these two intersections when their LOS was below D.

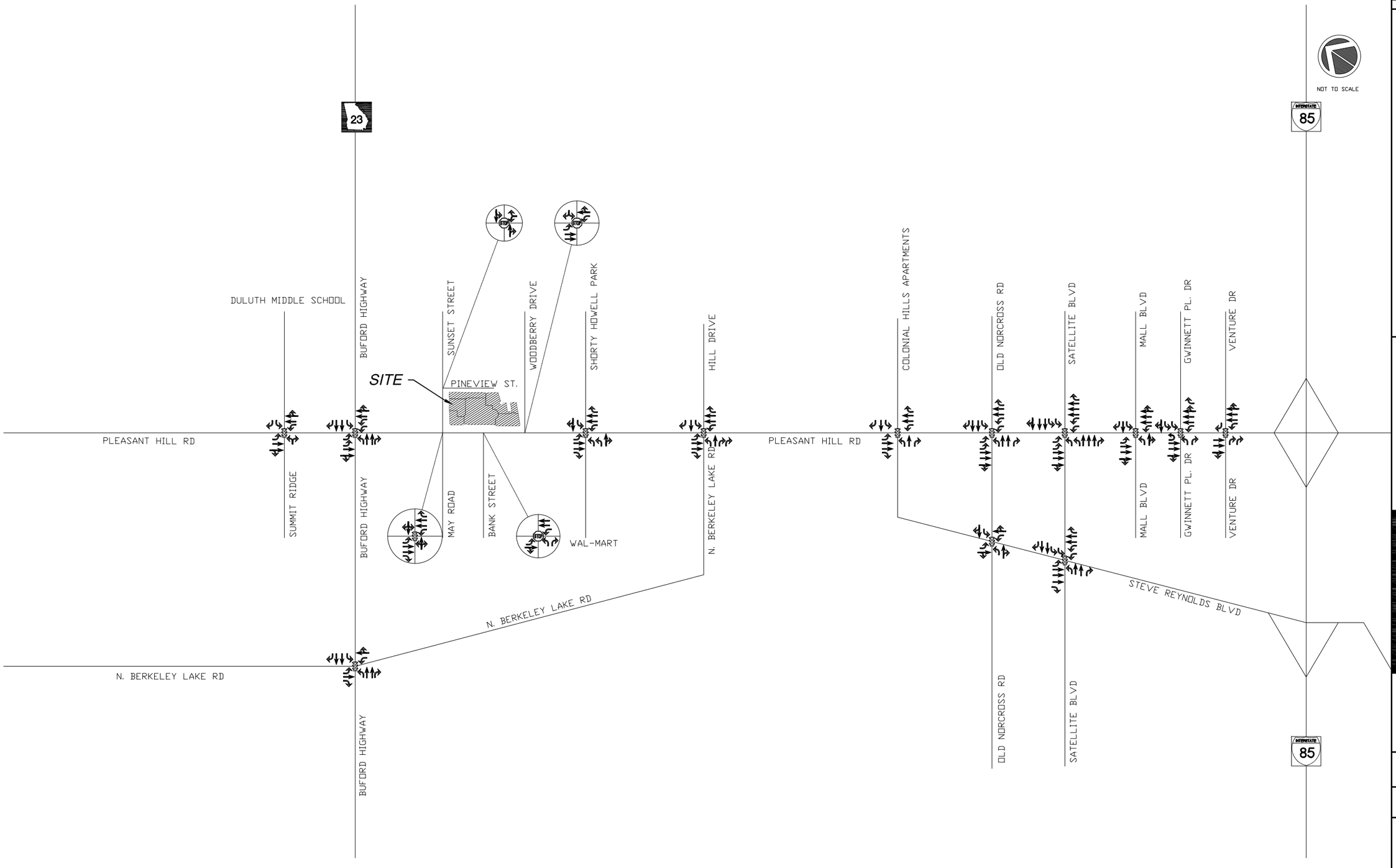
Table 7
Existing 2008 Intersection Levels of Service (Delay, sec)

Intersection	Traffic Control	Approach	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
			LOS (Delay)	v/c	LOS (Delay)	v/c	LOS (Delay)	v/c
Pleasant Hill Road @ Summit Ridge Parkway	Signalized		B (16.5)		B (12.5)		B (12.6)	
Buford Highway @ N Berkeley Lake Road	Signalized		D (40.1)	1.07	D (39.6)		C (21.6	
Pleasant Hill Road @ Sunset Street / May Road	Signalized		A (7.9)		A (9.6)		A (4.9)	
Pleasant Hill Road @ Bank Street	Un-Signalized	North	B (12.2)		B (12.3)		C (15.1)	
		East	A (0.0)		A (0.0)		A (0.0)	
		West	A (9.0)		B (10.3)		B (13.5)	
Pleasant Hill Road @ Woodberry Drive	Un-Signalized	South	C (15.8)		B (11.7)		C (16.5)	
		East	B (11.6)		A (10.0)		B (12.4)	
		West	A (0.0)		A (0.0)		A (0.0)	
Pleasant Hill Road @ Shorty Howell Park / Wal-Mart Driveway	Signalized		B (19.8)		C (23.9)		B (14.5)	
Pleasant Hill Road @ N Berkeley Lake Road / Hill Drive	Signalized		C (24.4)		C (29.8)		E (64.8)	1.18
Pleasant Hill Road @ Steve Reynolds Boulevard	Signalized		C (27.8)		C (34.2)		D (47.9)	1.04
Pleasant Hill Road @ Old Norcross Road	Signalized		D (43.1)	1.01	C (31.5)		C (26.4)	
Pleasant Hill Road @ Satellite Boulevard	Signalized		C (24.0)		C (31.8)		C (29.4)	
Pleasant Hill Road @ Mall Boulevard	Signalized		A (9.8)		A (9.5)		C (25.0)	
Pleasant Hill Road @ Gwinnett Place Drive	Signalized		* F (231.3)	1.23	* F (380.6)	3.01	* F (388.3)	2.92
Pleasant Hill Road @ Venture Drive	Signalized		B (14.4)		D (35.0)	0.93	* E (75.0)	1.05
Steve Reynolds Boulevard @ Satellite Boulevard	Signalized		C (29.2)		D (52.7)	1.14	D (45.3)	1.53
Steve Reynolds Boulevard @ Old Norcross Road	Signalized		B (19.6)		D (25.6	0.97	C (23.8)	

Color Legend

LOS A	LOS B	LOS C	LOS D	LOS E or F

See **Figure 10** for 2008 Existing Lane Geometry and **Figure 11** for 2008 Existing Turning Movement Counts.



LEGEND

- EXISTING LAND GEOMETRY
- EXISTING TRAFFIC SIGNAL
- EXISTING STOP SIGN

FIGURE 10-EXISTING LANE GEOMETRY

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FIGURE 10

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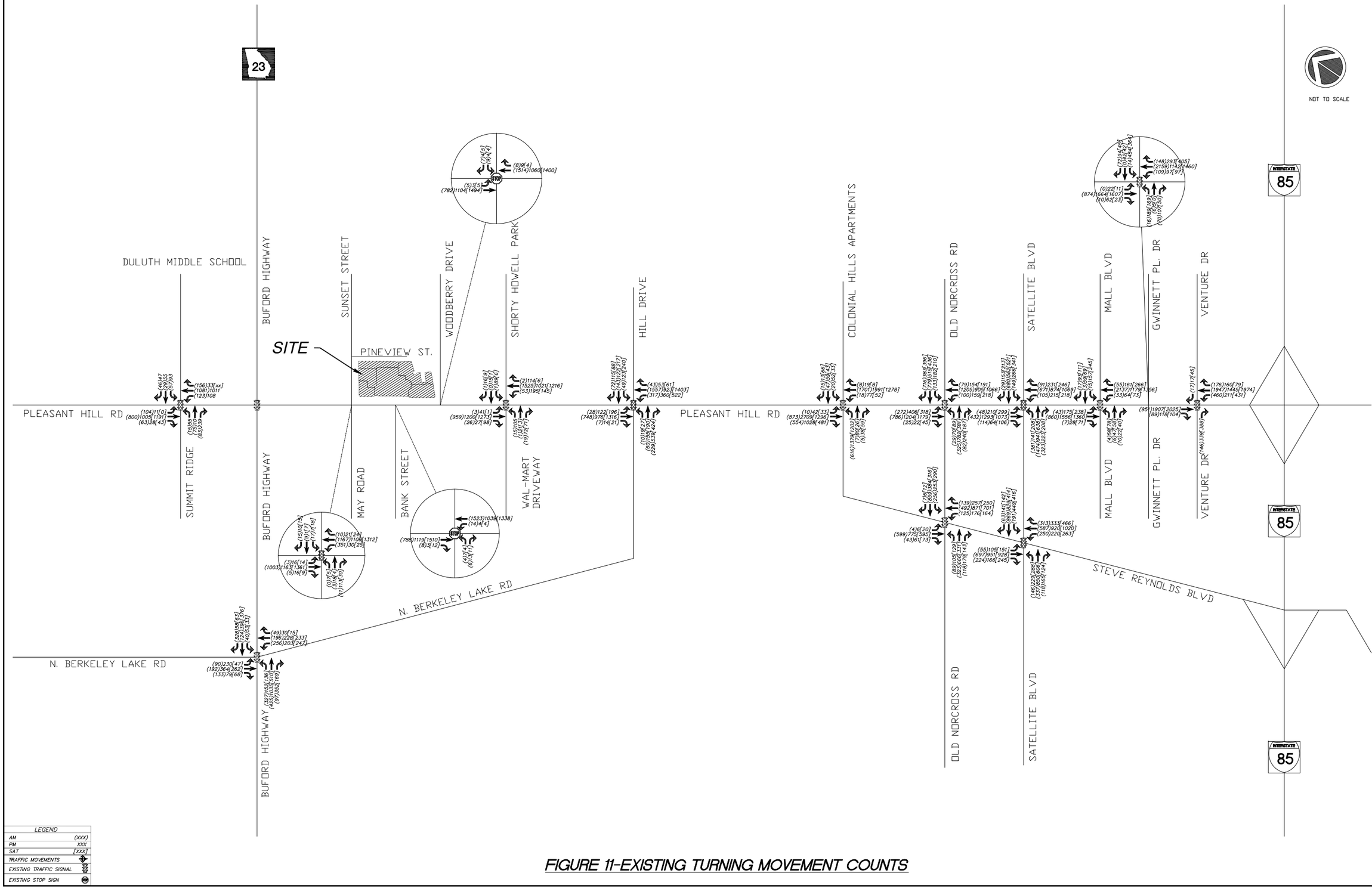

FIGURE 11-EXISTING TURNING MOVEMENT COUNTS

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FIGURE 11

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Based on intersection analysis under existing conditions, there were **three** (3) intersections that did not meet the standard LOS D. To provide appropriate Levels of Service, improvements to the intersections are recommended. Listed below are the recommended improvements, by intersection:

- Pleasant Hill Rd @ N Berkeley Rd
  - Gwinnett County and GDOT project GW-271-A will improve intersection level of service
- Pleasant Hill Rd @ Gwinnett Place Dr
  - See above *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Venture Pkwy
  - See above * **NOTE** concerning this intersection

See **Table 8** for 2008 Existing Improved Levels of Service.

Table 8
2008 Existing Improved Intersection Levels of Service (Delay, sec)

Intersection	Traffic Control	Approach	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
			LOS (Delay)	v/c	LOS (Delay)	v/c	LOS (Delay)	v/c
Pleasant Hill Rd @ N Berkeley Rd	Signalized						D (48.9)	1.04
Pleasant Hill Rd @ Gwinnett Place Dr	Signalized		See Note		See Note		See Note	
Pleasant Hill Rd @ Venture Pkwy	Signalized		See Note		See Note		See Note	

Color Legend

LOS A	LOS B	LOS C	LOS D	LOS E or F

6.2 2012 No-Build Traffic

Pleasant Hill Village is currently scheduled to be built out by the end of 2012. **2012 No-Build** is based only on the projected build-out year traffic conditions along with the recommended improvements for the existing conditions.

The projected build-out year traffic conditions consist of the following key elements:

- Potential increase in through traffic based on historical growth trends. (1%)
- Any planned and programmed transportation system improvements which would impact the configuration and capacity of the study area roadway network by 2012. (GDOT project # 132890 and ARC project # GW-271A)

This DRI transportation analysis applied a conservative one percent (1.0%) annual growth factor in through traffic for the study area network and took into consideration traffic generated by approved background developments. The background developments considered in this study were based on the following:

- Economics Development Plans of Gwinnett County, office of Deputy Mayor for Planning and Economics Development; and
- Development activity information provided by the Office of Planning, GDOT.

*** NOTE:** It is important to note that existing signal timings were requested but never received. The lack of signal timings limited the analysis capabilities for certain intersections such as Pleasant Hill Road @ Gwinnett Place Drive and Pleasant Hill Road @ Venture Parkway. These intersections are uncommonly configured and relatively close to each other causing levels of service below the standard level of service. It was also noted that other DRIs within the study network were allowed to exclude these two intersections possibly for the reasons mentioned above. Therefore no improvements were recommended for these two intersections when their LOS was below D.

See **Table 9** for 2012 No-Build Levels of Service.

Table 9
2012 No-Build Intersection Levels of Service (Delay, sec)

Intersection	Traffic Control	Approach	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
			LOS (Delay)	v/c	LOS (Delay)	v/c	LOS (Delay)	v/c
Pleasant Hill Road @ Summit Ridge Parkway	Signalized		B (13.8)		B (11.7)		B (11.7)	
Buford Highway @ N Berkeley Lake Road	Signalized		B (17.7)		C (27.5)		B (18.5)	
Pleasant Hill Road @ Sunset Street / May Road	Signalized		A (6.3)		A (8.1)		A (3.8)	
Pleasant Hill Road @ Bank Street	Un-Signalized	North	C (19.4)		C (19.7)		D (30.7)	
		East	A (0.0)		A (0.0)		A (0.0)	
		West	A (9.5)		A (10.7)		B (13.3)	
Pleasant Hill Road @ Woodberry Drive	Un-Signalized	South	D (29.5)		C (15.3)		# E (36.2)	
		East	B (11.9)		A (9.7)		B (12.0)	
		West	A (0.0)		A (0.0)		A (0.0)	
Pleasant Hill Road @ Shorty Howell Park / Wal-Mart Driveway	Signalized		B (10.1)		C (25.9)		B (11.5)	
Pleasant Hill Road @ N Berkeley Lake Road / Hill Drive	Signalized		B (17.4)		C (28.8)		D (53.9)	1.07
Pleasant Hill Road @ Steve Reynolds Boulevard	Signalized		C (23.9)		C (23.9)		D (43.3)	0.92
Pleasant Hill Road @ Old Norcross Road	Signalized		C (28.3)		C (28.2)		C (25.3)	
Pleasant Hill Road @ Satellite Boulevard	Signalized		C (27.2)		C (29.7)		C (29.9)	
Pleasant Hill Road @ Mall Boulevard	Signalized		A (5.4)		A (9.8)		C (30.2)	
Pleasant Hill Road @ Gwinnett Place Drive	Signalized		F (234.2)	1.28	F (393.5)		F (597.7)	4.93
Pleasant Hill Road @ Venture Drive	Signalized		B (15.3)		D (39.6)	0.92	F (84.4)	1.03
Steve Reynolds Boulevard @ Satellite Boulevard	Signalized		C (30.4)		D (53.4)	1.15	D (48.7)	1.60
Steve Reynolds Boulevard @ Old Norcross Road	Signalized		C (21.2)		D (40.7)	1.01	C (24.7)	

Color Legend

LOS A	LOS B	LOS C	LOS D	LOS E or F

See **Figure 12** for 2012 No-Build AM-PM-SAT Peak Conditions.

It is important to note that it is not uncommon to have an un-signalized intersection to have an approach (usually a side street) to have an unacceptable LOS. This does not mean that the intersection as a whole is not operating at an acceptable level of service.

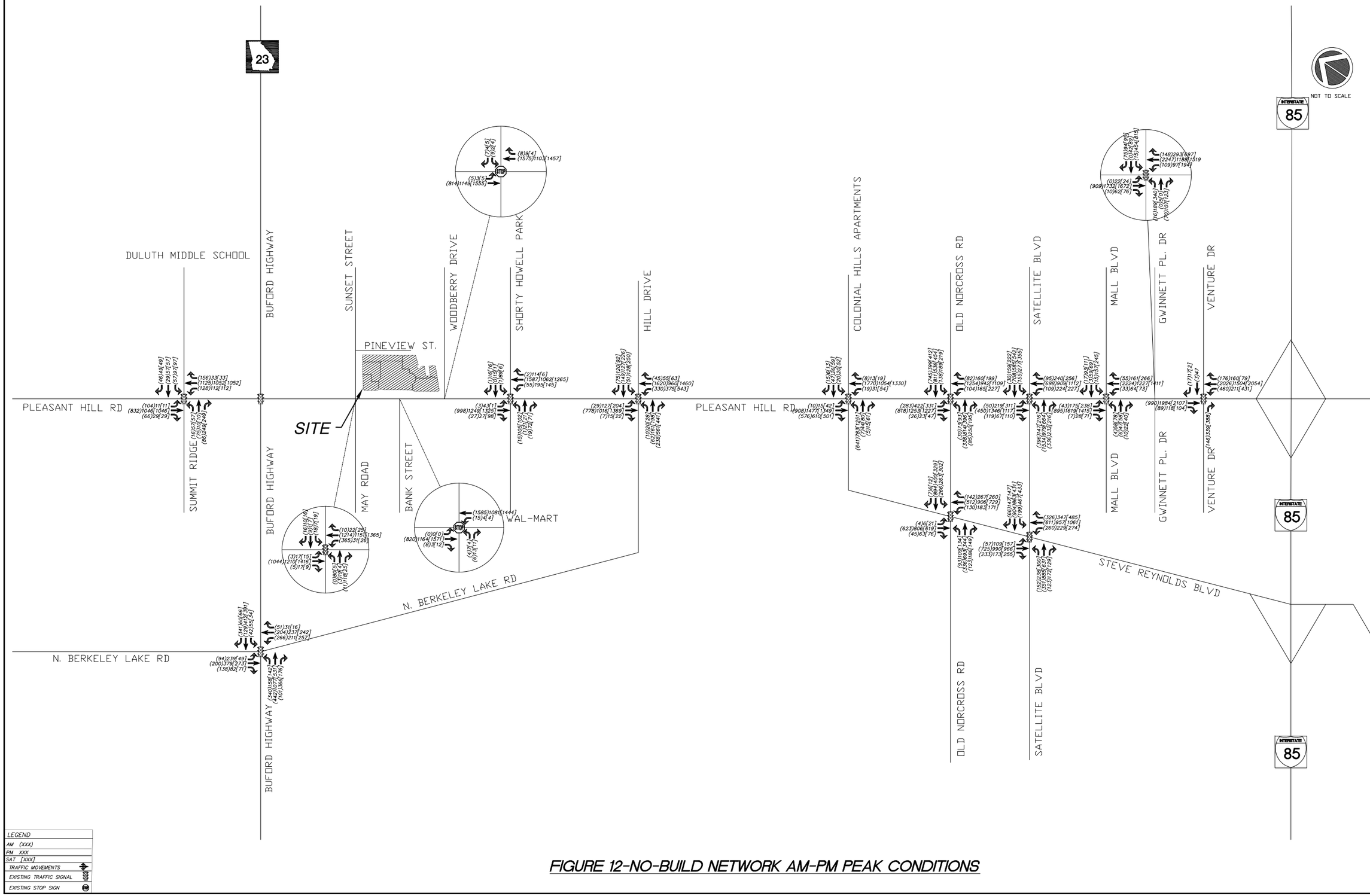

FIGURE 12-NO-BUILD NETWORK AM-PM PEAK CONDITIONS

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FIGURE 12

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Based on intersection analysis under 2012 No-Build conditions, there were **two** (2) intersections that did not meet the standard LOS D. To provide appropriate Levels of Service, improvements to the intersections are recommended. Listed below are the recommended improvements, by intersection:

- Pleasant Hill Rd @ Gwinnett Place Dr
  - See above *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Venture Pkwy
  - See above *** NOTE** concerning this intersection

See **Table 10** for 2012 No-Build Improved Levels of Service.

Table 10
2012 No-Build Improved Intersection Levels of Service (Delay, sec)

Intersection	Traffic Control	Approach	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
			LOS (Delay)	v/c	LOS (Delay)	v/c	LOS (Delay)	v/c
Pleasant Hill Rd @ Gwinnett Place Dr	Signalized		See Note		See Note		See Note	
Pleasant Hill Rd @ Venture Pkwy	Signalized		See Note		See Note		See Note	

Color Legend

LOS A	LOS B	LOS C	LOS D	LOS E or F

6.3 2012 Build Traffic

Pleasant Hill Village is currently scheduled to be built out by the end of 2012. **2012 Build** traffic model analysis is based only on the projected build-out year traffic conditions, including 2012 site traffic, along with the recommended improvements for the existing and No-Build conditions.

The projected build-out year traffic conditions consist of the following key elements:

- Potential increase in through traffic based on historical growth trends. (1%)
- Any planned and programmed transportation system improvements which would impact the configuration and capacity of the study area roadway network by 2012. (GDOT project # 132890 and ARC project # GW-271A)

This DRI transportation analysis applied a conservative one percent (1.0%) annual growth factor in through traffic for the study area network and took into consideration traffic generated by approved background developments. The background developments considered in this study were based on the following:

- Economics Development Plans of Gwinnett County, office of Deputy Mayor for Planning and Economics Development; and
- Development activity information provided by the Office of Planning, GDOT.

*** NOTE:** It is important to note that existing signal timings were requested but never received. The lack of signal timings limited the analysis capabilities for certain intersections such as Pleasant Hill Road @ Gwinnett Place Drive and Pleasant Hill Road @ Venture Parkway. These intersections are uncommonly configured and relatively close to each other causing levels of service below the standard level of service. It was also noted that other DRIs within the study network were allowed to exclude these two intersections possibly for the reasons mentioned above. Therefore no improvements were recommended for these two intersections when their LOS was below D.

See **Table 11** for 2012 Build Levels of Service.

Table 11
2012 Build Intersection Levels of Service (Delay, sec)

Intersection	Traffic Control	Approach	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
			LOS (Delay)	v/c	LOS (Delay)	v/c	LOS (Delay)	v/c
Pleasant Hill Road @ Summit Ridge Parkway	Signalized		B (12.7)		B (13.9)		B (16.0)	
Buford Highway @ N Berkeley Lake Road	Signalized		B (18.9)		C (29.2)		B (19.0)	
Pleasant Hill Road @ Sunset Street / May Road	Signalized		A (9.2)		A (7.7)		A (5.3)	
Pleasant Hill Road @ Bank Street	Un-Signalized	North	A (9.4)		A (9.5)		C (15.1)	
		East	A (0.0)		A (0.0)		A (0.0)	
		West	A (9.5)		B (11.8)		C (16.3)	
Pleasant Hill Road @ Woodberry Drive	Un-Signalized	South	D (31.8)		B (11.9)		B (13.8)	
		East	B (13.8)		B (11.3)		C (16.3)	
		West	A (0.0)		A (0.0)		A (0.0)	
Pleasant Hill Road @ Shorty Howell Park / Wal-Mart Driveway	Signalized		B (10.4)		B (18.4)		B (13.6)	
Pleasant Hill Road @ N Berkeley Lake Road / Hill Drive	Signalized		C (23.2)		C (34.7)		E (77.1)	1.20
Pleasant Hill Road @ Steve Reynolds Boulevard	Signalized		C (27.0)		D (39.4)		E (69.2)	1.17
Pleasant Hill Road @ Old Norcross Road	Signalized		D (37.5)	1.01	C (30.6)		C (34.2)	
Pleasant Hill Road @ Satellite Boulevard	Signalized		C (28.6)		C (31.3)		C (31.7)	
Pleasant Hill Road @ Mall Boulevard	Signalized		A (5.5)		B (18.0)		C (26.5)	
Pleasant Hill Road @ Gwinnett Place Drive	Signalized		F (240.5)	1.27	F (416.8)	3.25	F	
Pleasant Hill Road @ Venture Drive	Signalized		B (15.2)		D (44.5)	0.93	F (83.3)	1.01
Steve Reynolds Boulevard @ Satellite Boulevard	Signalized		C (31.7)		D (54.9)	1.48	D (49.1)	1.03
Steve Reynolds Boulevard @ Old Norcross Road	Signalized		C (23.2)		D (43.7)	1.05	C (28.7)	

Color Legend

LOS A	LOS B	LOS C	LOS D	LOS E or F

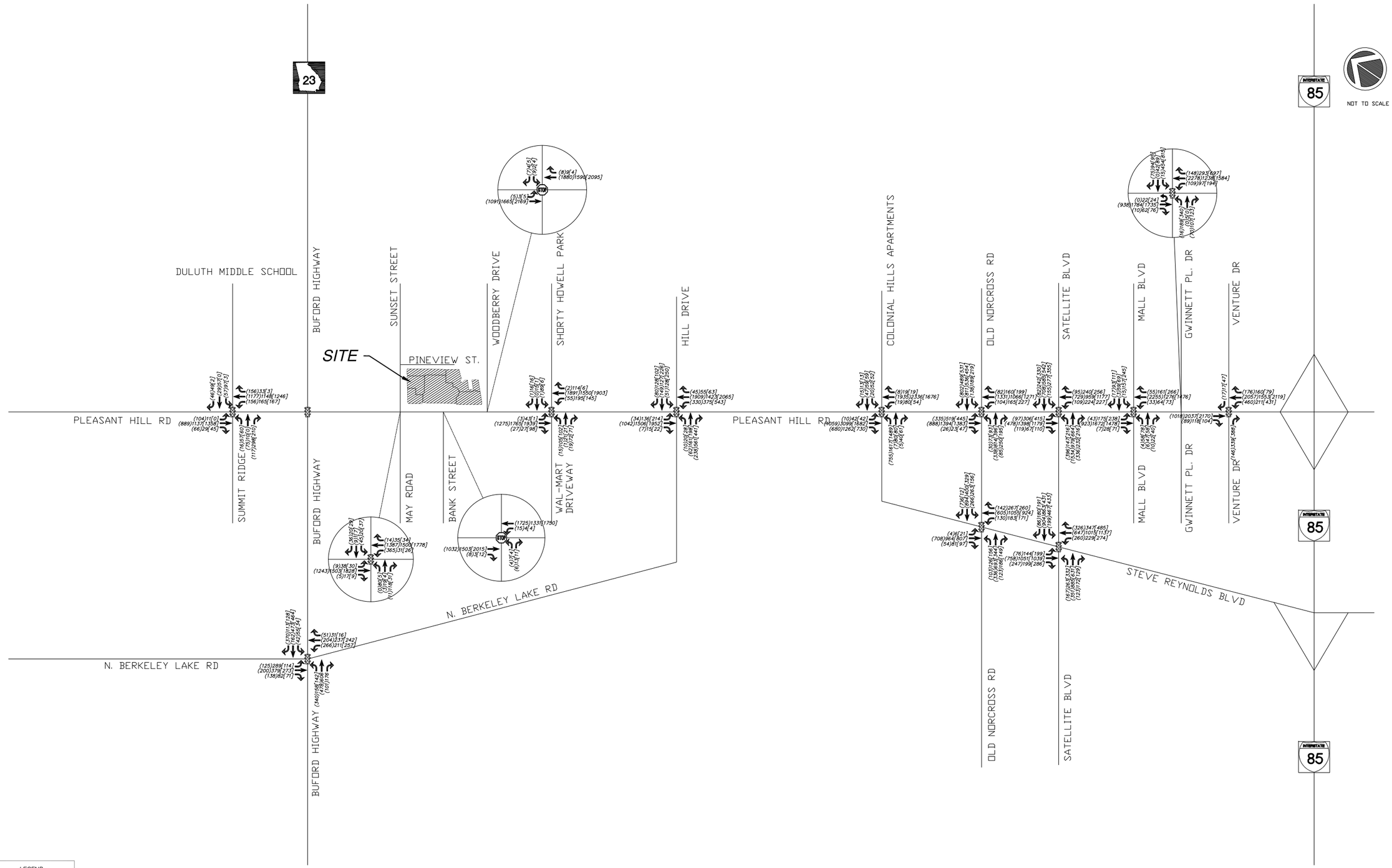
Table 11 cont.
2012 Build Intersection Levels of Service (Delay, sec)

Intersection	Traffic Control	Approach	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
			LOS (Delay)	v/c	LOS (Delay)	v/c	LOS (Delay)	v/c
Pleasant Hill Road @ Driveway 1	Un-Signalized	South	B (15.0)		B (14.4)		C (19.2)	
		East	A (0.0)		A (0.0)		A (0.0)	
		West	A (0.0)		A (0.0)		A (0.0)	
Pleasant Hill Road @ Driveway 2	Signalized		B (19.6)		E (75.4)	1.30	F (181.2)	1.94
Pleasant Hill Road @ Driveway 3	Un-Signalized	South	B (10.8)		B (10.9)		B (11.8)	
		East	A (0.0)		A (0.0)		A (0.0)	
		West	A (0.0)		A (0.0)		A (0.0)	
Pleasant Hill Road @ Driveway 4	Un-Signalized	North	A (0.0)		A (0.0)		A (0.0)	
		South	A (0.0)		A (0.0)		A (0.0)	
		West	A (8.9)		A (9.1)		A (9.2)	
Pleasant Hill Road @ Driveway 5	Un-Signalized	North	A (8.6)		A (8.6)		A (8.6)	
		East	A (0.0)		A (0.0)		A (0.0)	
		West	A (0.0)		A (0.0)		A (0.0)	
Pleasant Hill Road @ Driveway 6	Un-Signalized	North	A (8.6)		A (8.6)		A (8.6)	
		East	A (0.0)		A (0.0)		A (0.0)	
		West	A (0.0)		A (0.0)		A (0.0)	

Color Legend

LOS A	LOS B	LOS C	LOS D	LOS E or F

See **Figure 13** and **Figure 14** for 2012 Build Network and Site AM-PM-SAT Peak Conditions.



LEGEND

AM (XXX)	
PM XXX	
SAT [XXX]	
TRAFFIC MOVEMENTS	
EXISTING TRAFFIC SIGNAL	
EXISTING STOP SIGN	

FIGURE 13- BUILD NETWORK AM-PM-SAT PEAK CONDITIONS

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FIGURE 13

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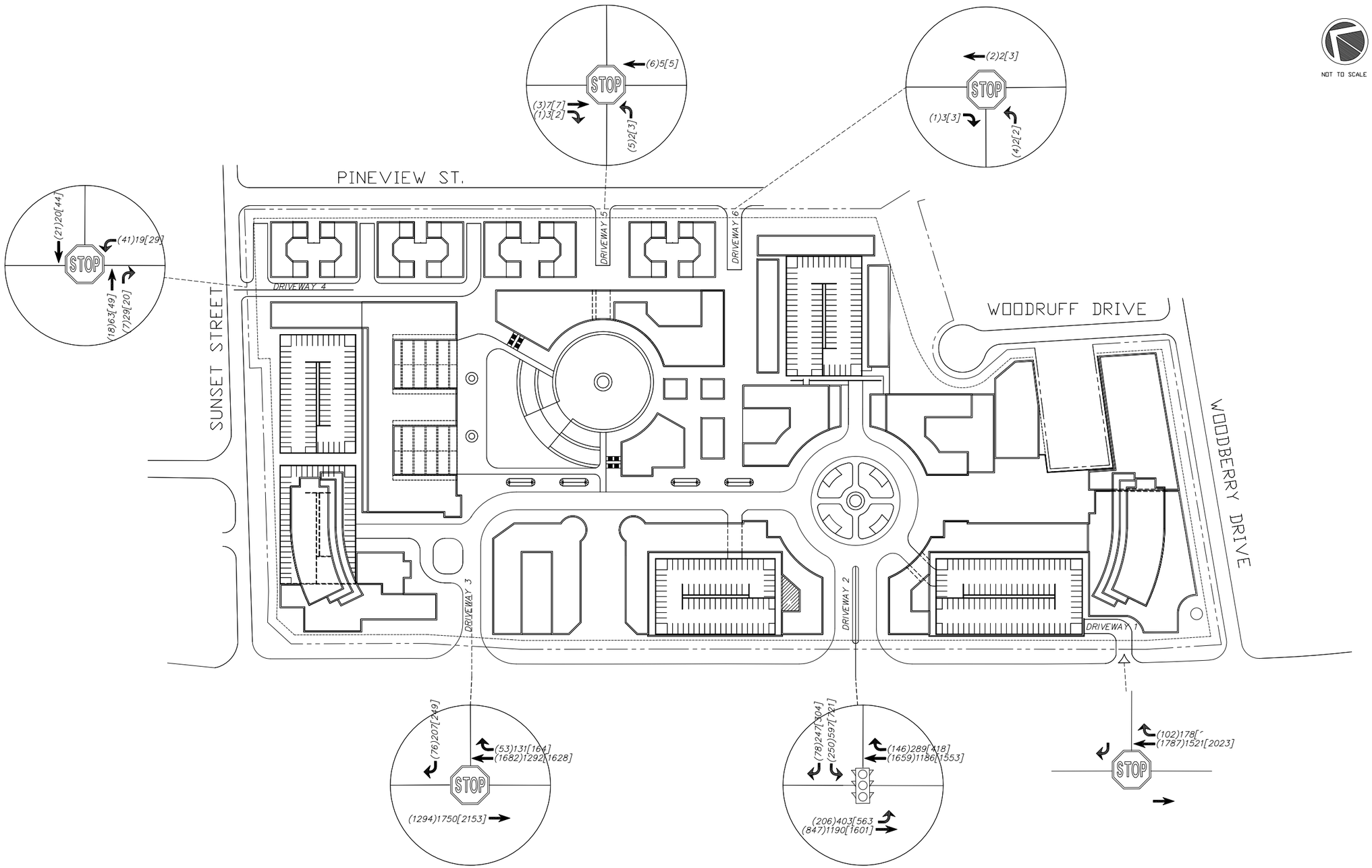

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LEGEND

AM (XXX)	
PM XXX	
SAT [XXX]	
TRAFFIC MOVEMENTS	
EXISTING TRAFFIC SIGNAL	
EXISTING STOP SIGN	

FIGURE 14- BUILD SITE AM-PM-SAT PEAK CONDITIONS

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FIGURE 14

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Based on intersection analysis under 2012 Build conditions, there were **five** (5) intersections that did not meet the standard LOS D. To provide appropriate Levels of Service, improvements to the intersections are recommended. Listed below are the recommended improvements, by intersection:

- Pleasant Hill Rd @ Steve Reynolds Blvd
  - Recommend adding additional NB left turn storage (approx 210 ft) creating dual NB left turns onto Pleasant Hill.
- Pleasant Hill Rd @ N Berkeley Rd / Hill Dr (It is important to note that this intersection is below the acceptable LOS due to the growth rate of the current volumes. The approaches that are below the LOS D do not have any site generated volumes attributing to the failure.)
  - Recommend adding additional WB left turn storage (approx 235 ft) on Pleasant Hill Road. This would create dual WB left turns onto N. Berkeley Rd.
- Pleasant Hill Rd @ Gwinnett Place Dr
  - See above *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Venture Pkwy
  - See above *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Driveway 2
  - It is recommended that the main entrance (Driveway 2) to the site be redesigned to accommodate SB dual lefts turns out of the site driveway onto Pleasant Hill Road. Also adding channelized SB right turn storage (approx 50 ft) to the Driveway 2 exit.
  - Recommend adding a channelized WB right storage lane (approx 175 ft) on Pleasant Hill Road before the Driveway 2 entrance.

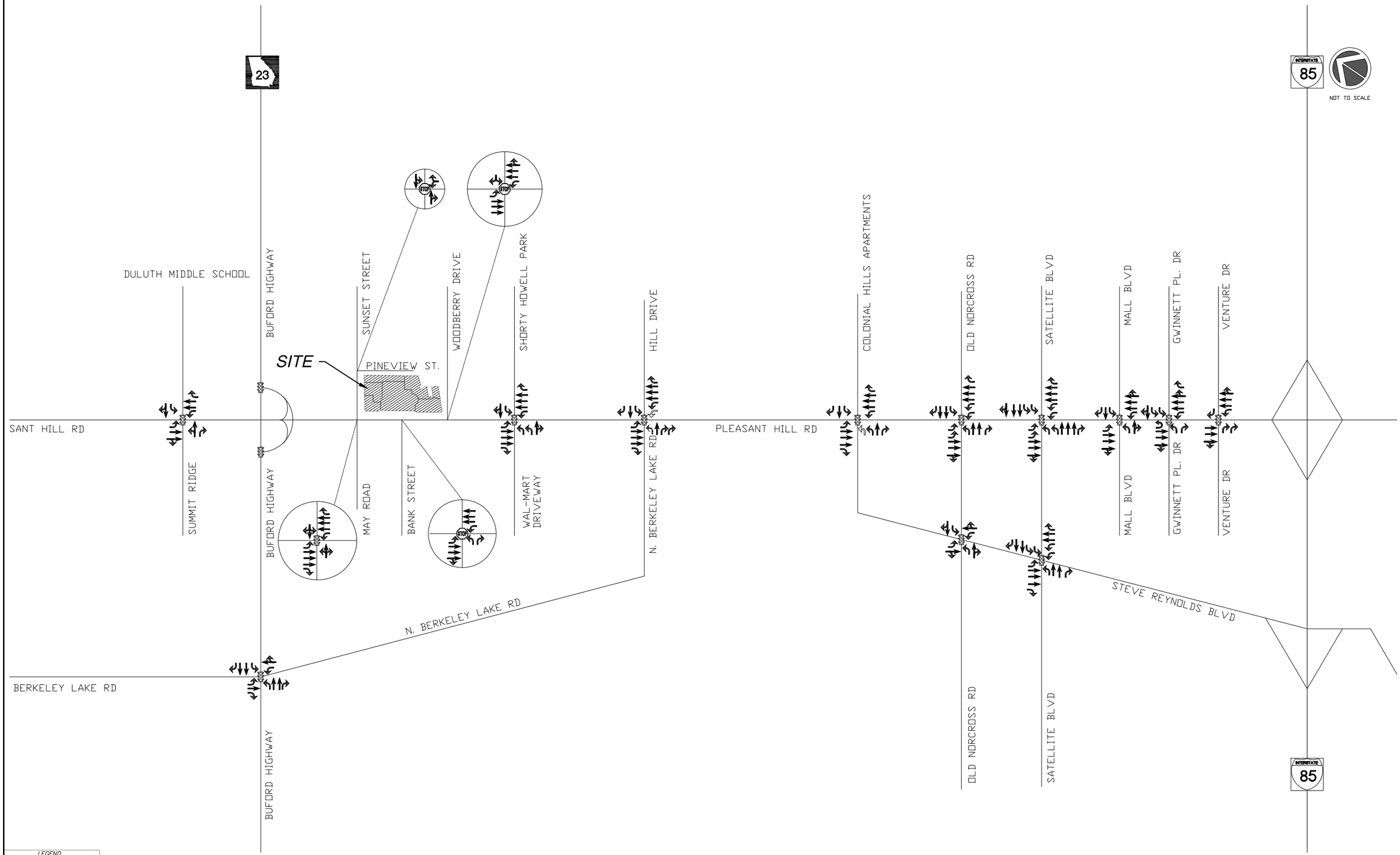
See **Table 12** for 2012 Build Improved Levels of Service.

Table 12 2012 Build Improved Intersection Levels of Service (Delay, sec)								
Intersection	Traffic Control	Approach	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
			LOS (Delay)	v/c	LOS (Delay)	v/c	LOS (Delay)	v/c
Pleasant Hill Road @ Steve Reynolds Boulevard	Signalized						D (54.9)	1.10
Pleasant Hill Road @ N Berkeley Lake Road / Hill Drive	Signalized						D (48.3)	1.05
Pleasant Hill Rd @ Gwinnett Place Dr	Signalized		See Note		See Note		See Note	
Pleasant Hill Rd @ Venture Pkwy	Signalized						See Note	
Pleasant Hill Road @ Driveway 2	Signalized				B (17.5)		C (30.3)	

Color Legend

LOS A	LOS B	LOS C	LOS D	LOS E or F

See **Figure 15** and **Figure 16** for 2012 Build Improved Network and Site AM-PM-SAT Lane Geometry



LEGEND

- 2012 Existing Lane Geometry
- EXISTING TRAFFIC SIGNAL
- EXISTING STOP SIGN
- IMPROVED LANE GEOMETRY

FIGURE 15- BUILD NETWORK IMPROVED LANE GEOMETRY

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FIGURE 15

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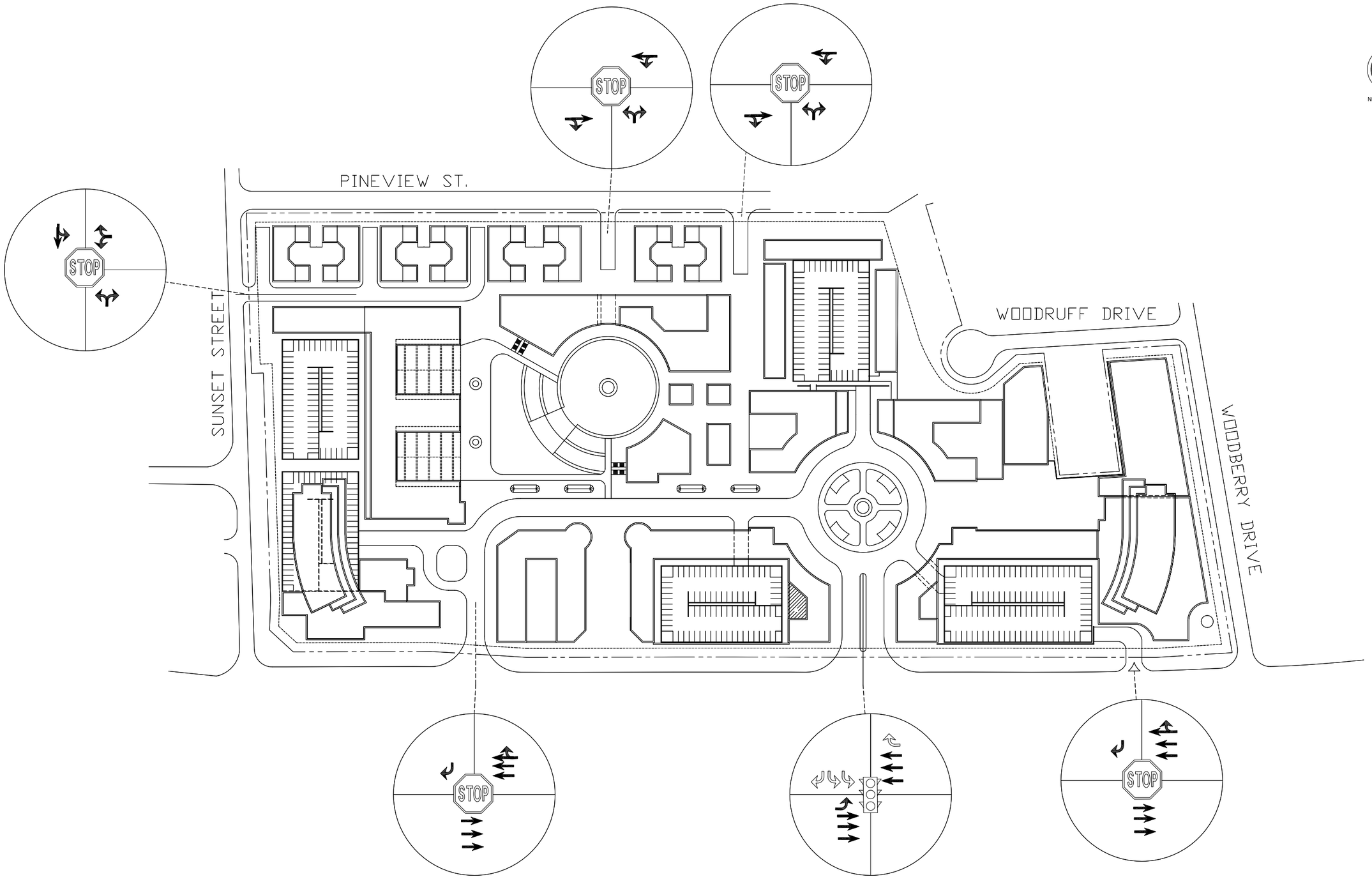

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LEGEND

IMPROVED LANE CONFIGURATION	
PROPOSED TRAFFIC SIGNAL	
2012 LANE CONFIGURATION	
EXISTING TRAFFIC SIGNAL	
EXISTING STOP SIGN	

FIGURE 16- BUILD SITE IMPROVED LANE GEOMETRY

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FIGURE 16

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6.4 Corridor Segment Study

Corridor analyses were preformed along segments of Pleasant Hill Road. Synchro 7.0 was utilized to calculate the existing, 2012 no-build and 2012 build corridor levels of service. A detailed segment analysis was completed based on those links within the study network, as defined by GRTA's Technical Analysis Guidelines. **Table 13** illustrates the results.

Table 13
Pleasant Hill Village Corridor Level of Service

	AM Peak Hour (LOS)		PM Peak Hour (LOS)		SAT Peak Hour (LOS)	
Pleasant Hill Road						
	EB	**WB**	**EB**	**WB**	**EB**	**WB**
2008 Existing	D	D	D	D	D	C
2012 No-Build	C	C	D	C	D	C
2012 Build	C	C	D	D	D	D

The results of the detailed segment analysis reveal that Pleasant Hill Road will operate at acceptable levels of service during all analyzed scenarios per the outlined technical guidelines in GRTA's Letter of Understanding.

7.0 Identification of Planned Projects

The ARC's Transportation Improvement Program, Regional Transportation Improvement Program, State Transportation Improvement Program and GDOT's Construction Work Program were researched to determine the sponsors, funding sources and projected improvements to be made to all roadways and intersections within the study network. See **Table 14** for Identification of Programmed Projects. See **Appendix B** for the detailed information for ARC and GDOT programmed projects.

Table 14 Identification of Programmed Projects		
Project Number (Sponsor)	**General Description (Completion Date)**	
GDOT No. GW-271A	PLEASANT HILL ROAD FROM US 23 (BUFORD HWY) TO OLD NORCROSS ROAD This project consists of widening 1.5 miles of Pleasant Hill Road from Old Norcross Road to Buford Highway to a 6 lane divided highway with raised median and turn lanes. The project will include pedestrian facilities, and intersection improvements at Old Norcross Road and North Berkeley Lake Road.	Programmed 2010
GDOT No. 0008148 CSTEE-0008-00(148)	PLEASANT HILL ROAD FROM BREKINRIDGE BLVD TO SATELLITE BLVD This Enhancement project will construct a Bike/ped facility on Pleasant Hill from Brekinridge Blvd to Satellite Blvd. The project is approximately 0.72 mile long.	Long Range
GDOT No. 0006823 CSSTP-0006-00(823)	PLEASANT HILL RD FROM STEVE REYNOLDS BLVD TO FULTON CO LINE - Type Work : ATMS / ITS	Long Range Program
GDOT No. 0006926 CSSTP-0006-00(926)	WEST LIDDELL RD/ CLUB DR EXT FROM SATELLITE BLVD TO SHACKELFORD RD This project will consist of widening the W. Liddell Road and providing a connection from Satellite Blvd to Shackelford Road.	Long Range Program
GDOT No. 006922 CSSTP-0006-00(922)	PLEASANT HILL RD FROM CHATTAHOOCHEE RVR/PIB TO OLD NORCROSS RD - Type of Work : Widening	Long Range Program
GDOT No. 0006825 CSSTP-0006-00(825)	SR 13/BUFORD HWY FROM N OF DEKALB CO LINE TO SUGARLOAF PKWY - Type Work : ATMS / ITS	Long Range Program
GW-326	Pleasant Hill Road ATMS From Steve Reynolds Boulevard to Fulton County Line ITS-Smart Corridor	Network Year 2010
GW-300	US 23 (Buford Highway) ATMS Dekalb County Line to Sugarloaf Parkway ITS-Smart Corridor	Network Year 2010
GW-279A	Pleasant Hill Road Grade Separation US 23 (Buford Highway) and Norfolk Southern Rail Line [Split Funded – See Also GW279B] – Active Construction	Network Year 2007
GW-279B	Pleasant Hill Road Grade Separation US 23 (Buford Highway) and Norfolk Southern Rail Line [Split Funded – See Also GW279A] – Active Construction	Network Year 2007

8.0 Ingress/Egress Analysis

The proposed development will be accessible by six (6) driveways; three (3) driveways along Pleasant Hill Road and one (1) driveway along Sunset Street and two (2) driveways along Pineview Street.

1. Driveway 1 is proposed as a right-in/right-out commercial driveway into Phase III at its intersection with Pleasant Hill Road. Driveway 1 is located approximately 195 ft. northwest of the Pleasant Hill Road at Woodberry Drive intersection.

2. Driveway 2 is proposed as a fully accessible commercial driveway into Phase I at its intersection with Pleasant Hill Road. Driveway 2 is located approximately 647 ft. north-west of Pleasant Hill Road at Woodberry Drive intersection.

3. Driveway 3 is proposed as a right-in/right-out commercial driveway into Phase I at its intersection with Pleasant Hill Road. Driveway 3 is located approximately 380 ft. southeast of Pleasant Hill Road at Sunset Street intersection.

4. Driveway 4 is proposed as a fully accessible residential driveway into Phase III, at its intersection with Sunset Street. Driveway 4 is located approximately 600 ft. northeast of Pleasant Hill Road at Sunset Street intersection.

5. Driveway 5 is proposed as a fully accessible residential driveway into Phase III at its intersection with Pineview Street. Driveway 5 is located approximately 530 ft. southeast of Sunset Street at Pineview Street intersection.

6. Driveway 6 is proposed as a fully accessible residential driveway into Phase III at its intersection with Pineview Street. Driveway 6 is located approximately 700 ft. southeast of Sunset Street at Pineview Street intersection.

The layout of the proposed development creates good internal traffic flow through the use of multiple driving paths to circulate vehicular traffic efficiently. Sidewalks and pathways provide pedestrians full walking access to the overall development.

9.0 Compliance with Comprehensive Plan Analysis

The site is currently zoned as R-75 residential and will be rezoned to Mixed-Use Redevelopment. The Gwinnett County 2020 Land Use Plan Map identifies the site as "Commercial/Retail". See **Figure 17** for the Gwinnett County Land Use Map.

10.0 Non-Expedited Criteria

10.1 Quality, Character, Convenience and Flexibility of Transportation Options

Currently, there are numerous transit facilities in the area. Gwinnett County's Transit Center is based at Gwinnett Place Mall. Gwinnett County Transit has Bus routes 10, 20, 30, 40, and express route 102A as well as two Gwinnett transfer points which are within 1.6 miles of Pleasant Hill Village. Future mass transit routes may pass directly in front of project site. Gwinnett County transit Route 10 has nearby service with the closest stops from the development being approximately 0.6 mile. One bus stop is located on N. Berkeley Lake Road near Pleasant Hill Road with another near Buford Highway and North Berkeley Lake Road.

10.2 Vehicle Miles Traveled

The proposed development will consist of a variety of unique business operators similar to other such developments found throughout the country. Mixed-use reductions were taken into consideration since this a mixed-use component (commercial retail / office / residential / hotel). **Table 15** shows a summary of the trip generation.

Table 15
Trip Generation Summary

	DAILY	AM	PM	SAT
Trip Generation:	25,767	986	2,290	2,758
Mixed use reductions (Internal Capture)	-1,546	-0	-154	-0
Pass-by trips	-2,577 *	-0	-435	-636
Alternative modes	-0	-0	-0	-0
Net Trips:	21,644	986	1,701	2,122

* Pass-by reductions were taken based on GRTA's 10% rule.

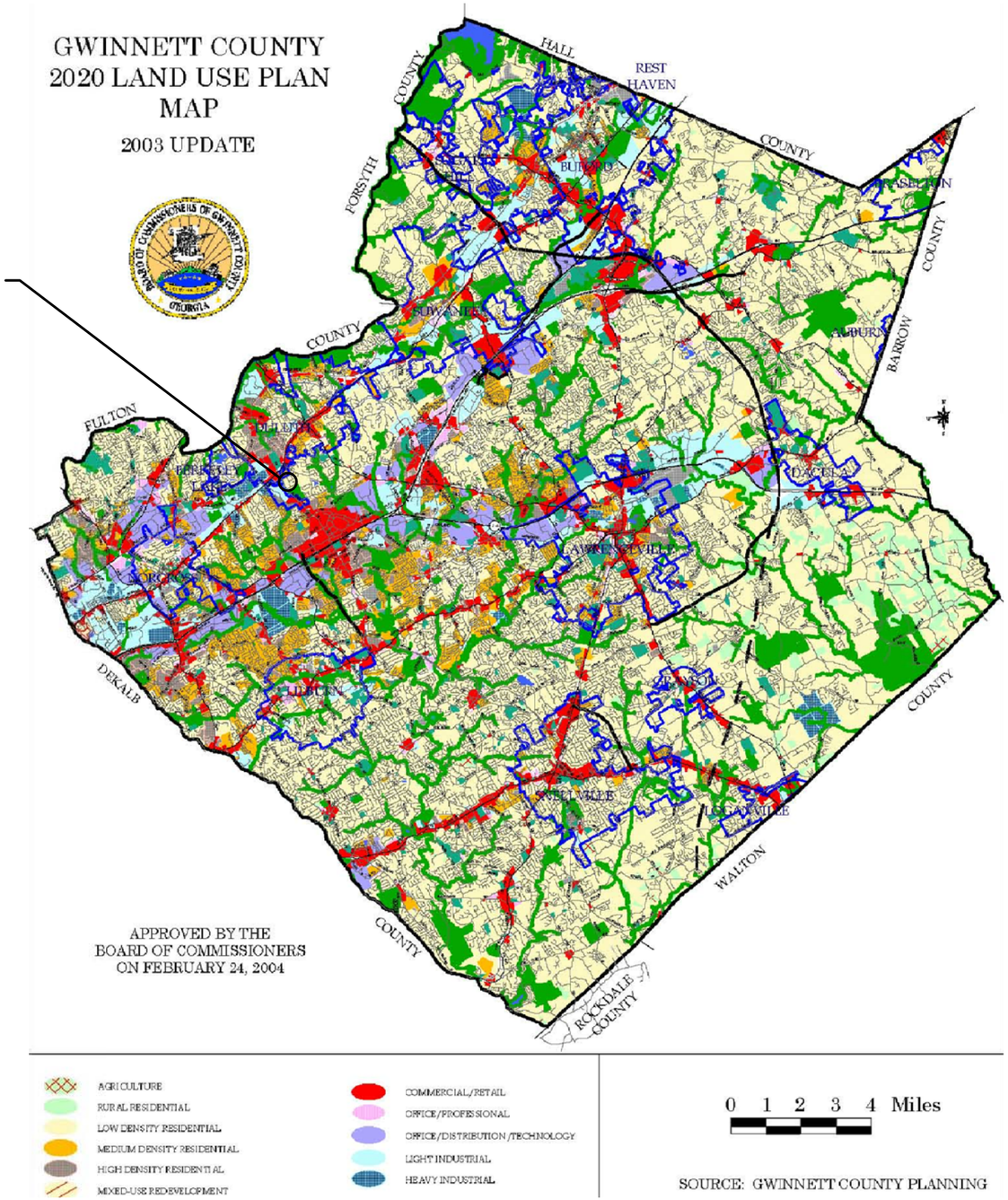

FIGURE 17- GWINNETT COUNTY LAND USE MAP

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FIGURE 17

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10.3 Relationship between location of proposed DRI and Regional Mobility

The site is adjacent to the Gwinnett Place Community Improvement District and is a redevelopment initiative.

10.4 Relationship between Proposed DRI and Existing or Planned Transit Facilities

Currently, there are numerous transit facilities in the area. Gwinnett County's Transit Center is based at Gwinnett Place Mall. Gwinnett County Transit has Bus routes 10, 20, 30, 40, and express route 102A as well as two Gwinnett transfer points which are within 1.6 miles of Pleasant Hill Village. Future mass transit routes may pass directly in front of project site. Gwinnett County transit Route 10 has nearby service with the closest stops from the development being approximately 0.6 mile. One bus stop is located on N. Berkeley Lake Road near Pleasant Hill Road with another near Buford Highway and North Berkeley Lake Road.

10.5 Transportation Management Area Designation

Currently, there are numerous transit facilities in the area. Gwinnett County's Transit Center is based at Gwinnett Place Mall. Gwinnett County Transit has Bus routes 10, 20, 30, 40, and express route 102A as well as two Gwinnett transfer points which are within 1.6 miles of Pleasant Hill Village. Future mass transit routes may pass directly in front of project site. Gwinnett County transit Route 10 has nearby service with the closest stops from the development being approximately 0.6 mile. One bus stop is located on N. Berkeley Lake Road near Pleasant Hill Road with another near Buford Highway and North Berkeley Lake Road.

10.6 Offsite Trip Reduction and Trip Reduction Techniques

Internal trip reductions were taken to account for new vehicular trips made within the site. A 7% reduction was used for PM peak hour trips and 6% for daily trips.

10.7 Balance of Land Uses – Jobs/Housing Balance

Please refer to the Area of Influence study in Section 11.0 of this report.

10.8 Relationship between Proposed DRI and Existing Development and Infrastructure

Pleasant Hill Village will be a destination development. While some motorists will drive to Pleasant Hill Village, they will quickly become pedestrians in an environment that is designed to get people out of their cars. The plazas, with street level benches and other pedestrian-friendly amenities, water features, large open spaces and with amphitheatre features, will enhance the enjoyment of residents and visitors. It will also increase the amount of time they actually stay at the Village. Pedestrian activities will be abundant with patio dining and planned activities for residents and the community. Shorty Howell Park, a 67-acre county park with jogging trails, ponds, and outdoor recreation options is adjacent on the west side. Many of the Village residents will walk to the park, a tremendous opportunity to bring walkability to the area.

As a mixed-use development, it is expected that a number of residents will live and work in Pleasant Hill Village. Architectured features of the buildings will add character to the environment with external illumination and traditional plazas. Water features will have an appealing presence throughout the site as a uniquely designed amenity to the community.

11.0 ARC's Air Quality Benchmark

The development is a mixed-use residential/retail/office development located on approximately 25.75 acres and will hold approximately 1,952,500 square feet of residential/retail/office space. The development meets the relevant density target levels Floor Area Ratio (FAR) of 18% resulting in a Vehicle Miles of Travel (VMT) credit of 6%. The development meets the Mixed-Use targets where residential is dominate, 10% Retail and 10% Office for a 9% reduction. Additionally, there is a neighborhood center in close proximity to the proposed development resulting in a VMT credit of 15%. Therefore the total reduction for the proposed development is 30%. This surpasses the ARC Goal of 15%. These reductions are shown below in **Table 16**.

Table 16
ARC VMT Reductions

Where retail / office is dominant, FAR > .8	6 %
where residential is dominate, 10% Retail and 10% Office	9 %
Has a neighborhood center or one in close proximity	15%
Total Reductions	30 %

12.0 Area of Influence

12.1 DRI Classification and Criteria

Because Pleasant Hill Village contains a mix of residential and commercial space, Marketek conducted a comparison of the potential labor force to reside in the DRI and the potential number of workers to be employed there. As **AOI Table 1** shows, the DRI will contain 813,600 square feet of commercial space and will employ an estimated 1,808 workers, based on square foot per employee standards provided in GRTA's *Area of Influence Guidebook for Non-Expedited DRI Reviews*. The DRI will have 824 residential units which equates to a residential labor force of 1,236 workers, assuming an average of 1.5 workers per residence.

TABLE 1
Labor Force and Employment Comparison
Pleasant Hill Village
At Build Out (2012)

Land Use	Space	Space / Employee (1)	Num. of Employees	Workers / Hhold (2)	Labor Force
Commercial	813,600 SF	--	1,808	--	--
Retail	399,200 SF	500 SF	789	--	--
Office	240,900 SF	300 SF	803	--	--
Restaurant	40,000 SF	450 SF	89	--	--
Grocery	27,900 SF	300 SF	93		
Hotel	108 rooms	3.2 rooms	34	--	--
Residential	824 units	--	--	1.5	1,236

(1) From GRTA Area of Influence Guidebook for Non-Expedited DRI Reviews, 2002 U.S. Economic Census and the American Hotel & Lodging Association.

(2) From GRTA Area of Influence Guidebook for Non-Expedited DRI Reviews.

Sources: AOI Guidebook, American Hotel & Lodging Association

Because the number of jobs in the proposed DRI exceeds the number of residents of the DRI who will work, the DRI is considered "predominately employment." As such, an analysis is required to determine the ability of DRI employees to afford housing within the DRI and within the AOI (defined as the area within a six road-mile radius from the DRI site).

Specifically, the DRI must meet the following criteria:

(1) Contain a mix of uses which are reasonably anticipated to contribute to a balancing of land uses such that it would be affordable for at least ten percent (10%) of the persons who are reasonably anticipated to be employed in the proposed DRI to have an opportunity to reside within the DRI; and

(2) Be located in an Area of Influence where the proposed DRI is reasonably anticipated to contribute to a balance of land uses within the Area of Influence such that twenty-five percent (25%) of the persons who are reasonably anticipated to be employed in the proposed DRI have the opportunity to live within the Area of Influence.

12.2 AOI Boundary & Demographic Profile

The AOI is defined as the area within a six road-mile radius of the proposed DRI. To determine the AOI, Marketek used ArcGIS to follow major roads six miles from the intersection closest to the proposed DRI (Pleasant Hill Road between Sunset Street and Woodberry Drive). Resulting locations were connected to create the AOI boundary. The AOI boundary was then uploaded to ESRI's Business Information Solutions website to obtain AOI demographic and housing estimates based on the 2000 Census. ESRI is a proprietary data service provider and provides demographic, housing and market data for user-defined geographies at the Census block group level.

As **Figure 18** on the following page shows, the AOI lies in Gwinnett County and includes Duluth and Berkeley Lake and parts of Norcross and Suwanee. As of the 2000 Census, there were 53,052 housing units within the AOI. Housing was 62% single family (detached or attached) and 38% multifamily.

Median AOI home values in 2000 were $147,960, slightly above the median home value of $130,800 for the Atlanta MSA. ESRI estimates that the AOI median home value increased to

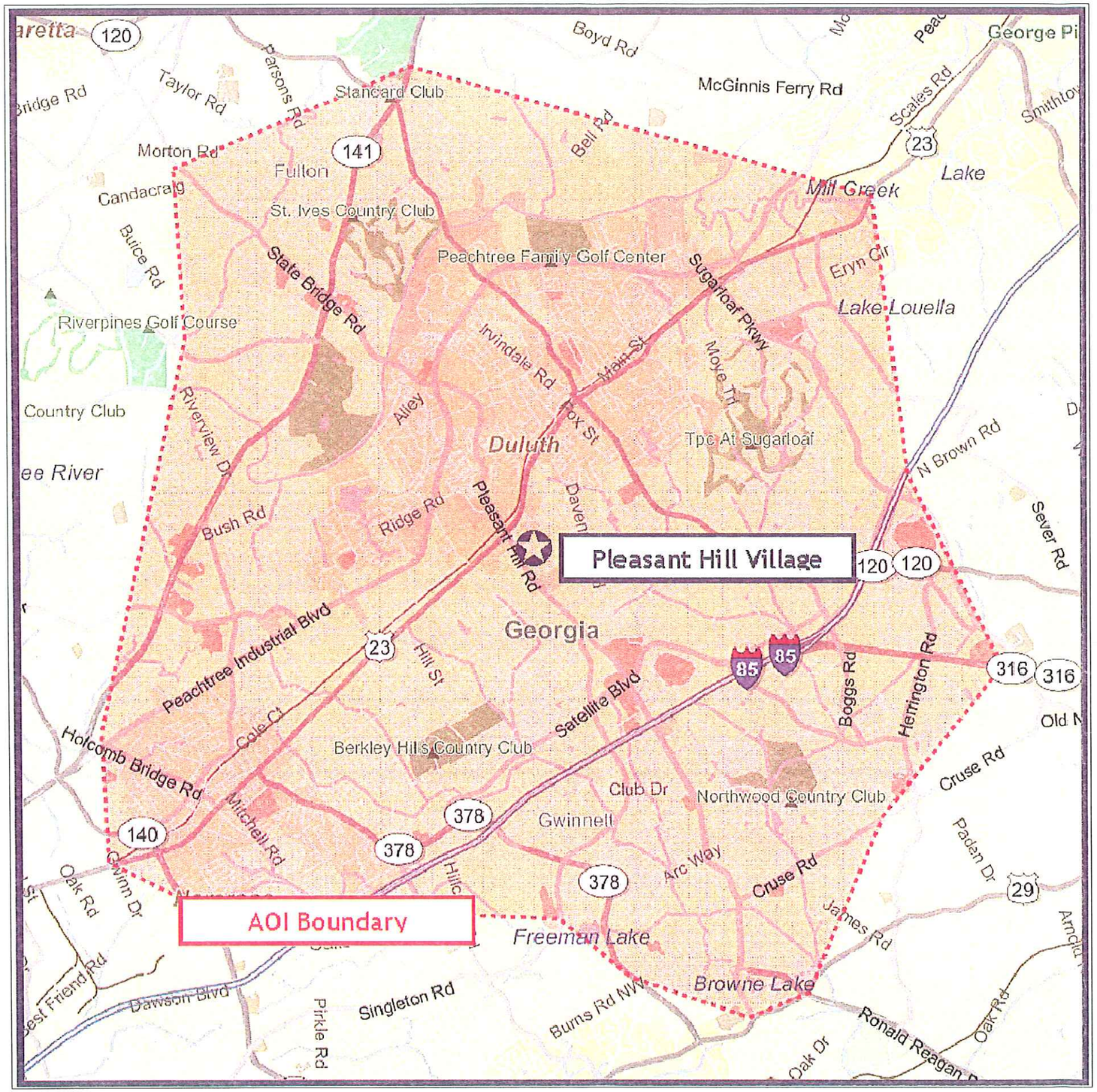

FIGURE 18 - AOI BOUNDARY MAP

(PLEASANT HILL VILLAGE)

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FIGURE 18

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$225,301 by 2007, above the metro median home value of $190,129 for the same year. Median rent payments within the AOI were $751 in 2000 versus $640 metro-wide.

AOI Table 2 provides a demographic profile of the AOI, which contained an estimated 172,916 persons in 62,130 households in 2007. There were an estimated 85,597 employed AOI residents, for an average of 1.38 employees per household.

Median household income within the AOI is estimated at $76,407, which is 14% more than the Atlanta MSA median income of $67,092. Within the AOI, 57.6% of households owned their homes in 2007, while 42.4% rented.

TABLE 2
Demographic Profile
Pleasant Hill Village AOI
2007

Population	172,916
Households	62,130
Average Household Size	2.77
Employed AOI Residents	85,597
Average Employees per Household	1.38
Median Household Income	$76,407
Owner Occupied Housing	57.6%
Renter Occupied Housing	42.4%

Source: ESRI Business Information Solutions

12.3 Assessment of DRI Housing Affordability

According to the Pleasant Hill Village site plan, the DRI will have 813,600 square feet of commercial space, including retail, restaurant and office space and a hotel. To estimate the number of employees that will work in the DRI, standards for square feet of space per employee are used. These standards are provided in Data Table A of the *AOI Guidebook for Non-Expedited Reviews* developed by Jerry Weitz and Associates. Marketek calculated average square footage per employee for hotels using the 2002 U.S. Economic Census and Urban Land Institute standards. Based on these estimates, the DRI will employ an estimated 1,808 workers (**AOI Table 3**).

Using the Bureau of Labor Statistics' Occupation by Industry Matrix, Marketek estimated the number of employees likely to be employed in the DRI by occupation. Most employees (739 workers) will be employed in offices as either professionals or administrative support workers. An estimated 670 workers will be employed in retail sales or customer service positions. **AOI Table 3** provides a breakdown of DRI employment by occupation.

TABLE 3
Employment by Occupation by Land Use
Pleasant Hill Village DRI

Land Use Type in DRI	DRI Employees	Employees by Occupation		
		Occupations	Percent	Number
Retail	789	Business owner/manager	2%	16
		Supervisor/mid-manager	13%	103
		Sales clerk	85%	670
Office	803	Manager	8%	64
		Mid-level professional	63%	506
		Administrative support	29%	233
Restaurant	89	Business owner/manager	5%	5
		Supervisor/mid-manager	8%	7
		Server or cook	87%	77
Grocery Store	93	Business owner/manager	2%	2
		Supervisor/mid-manager	8%	7
		Counter worker	15%	14
		Stock clerk	21%	20
		Cashier	54%	50
Hotel	34	Business owner/manager	2%	1
		Supervisor/mid-manager	5%	2
		Desk clerk/concierge	21%	7
		Food prep/service worker	28%	9
		Housekeeper	44%	15
Total	1,808			1,808

Sources: AOI Guidebook; Bureau of Labor Statistics Occupation by Industry Matrix

AOI Table 4 provides expected monthly salaries for DRI employees by industry and occupation based on the Bureau of Labor Statistics' 2006 Wage Estimates for Metro Atlanta. Anticipated monthly household income is calculated by multiplying expected monthly salary by the average number of workers in each household in the AOI (1.38). Assuming that each household with an employee in the DRI spends a maximum of 30% of their income on housing, affordable monthly housing payments are calculated from monthly household income. Note that these calculations assume that each DRI employee forms one household and that each employed member of those households earns a similar income.

This analysis indicates that affordable monthly housing payments for households with a DRI employee will range from $597 to $3,208. Forty-seven percent (46.9%) of households (848 households) will have affordable housing payments of less than $800 per month; 31.5% will have affordable monthly housing payments of over $2,000.

TABLE 4
Employment, Salary & Affordable Housing Payment by Occupation
Pleasant Hill Village
2006

Land Use Type in DRI	Type of Occupation	Number of Employees in DRI (1)	Monthly Employee Salary (2)	Monthly Household Salary (3)	Affordable Monthly Housing Payment (4)
Retail	Business owner/manager	16	$4,153	$5,731	$1,719
	Supervisor/mid-manager	103	$3,012	$4,157	$1,247
	Sales clerk	670	$1,893	$2,612	$784
Office	Manager	64	$7,749	$10,694	$3,208
	Mid-level professional	506	$5,189	$7,161	$2,148
	Administrative support	233	$2,590	$3,574	$1,072
Restaurant	Business owner/manager	5	$4,153	$5,731	$1,719
	Supervisor/mid-manager	7	$2,471	$3,410	$1,023
	Server, cook, food prep	77	$1,484	$2,048	$614
Grocery Store	Business owner/manager	2	$4,153	$5,731	$1,719
	Supervisor/mid-manager	7	$3,012	$4,157	$1,247
	Counter worker	14	$2,141	$2,955	$886
	Stock clerk	20	$1,913	$2,640	$792
	Cashier	50	$1,488	$2,053	$616
Hotel	Business owner/manager	1	$4,153	$5,731	$1,719
	Supervisor/mid-manager	2	$3,012	$4,157	$1,247
	Desk clerk/concierge	7	$1,578	$2,178	$653
	Food prep/service worker	9	$1,484	$2,048	$614
	Housekeeper	15	$1,443	$1,991	$597

(1) From AOI Guidebook, U.S. 2002 Economic Census and Urban Land Institute.
(2) Mean monthly employee salary in 2006 from Bureau of Labor Statistics at http://www.bls.gov/oes/current/oes_12060.htm.
(3) Monthly employee salary multiplied by average number of employees per household (Table 2).
(4) Defined as 30% of monthly household salary.

Sources: Bureau of Labor Statistics; ESRI BIS; U.S. 2002 Economic Census

To determine whether house holds formed by DRI employees will be able to purchase housing in the DRI, affordable monthly housing payments are compared to anticipated DRI housing costs. Plans indicate a total of 824 housing units in the DRI, including 792 condominiums from the low $200,000s to mid $400,000s and 32 town-homes from the low $400,000s. To estimate potential monthly housing costs, Marketek assumed that homeowners will purchase DRI housing with 30-year, 6.0% fixed-rate loans with 10% down payments. Based on these assumptions, potential monthly mortgage payments will range from $1,214 to $2,698 (**AOI Table 5**).

TABLE 5
Estimated Monthly Mortgage Payments
Pleasant Hill Village
At Build Out (2012)

Unit Type	Potential Sales Price (1)	Number of Units (2)	Potential Monthly Mortgage Payment (3)
1 Bd Condominium	$225,000	106	$1,214
	$250,000	106	$1,349
	$275,000	105	$1,484
2 Bd Condominium	$300,000	132	$1,619
	$325,000	132	$1,754
	$350,000	132	$1,889
3 Bd Condominium	$375,000	27	$2,023
	$400,000	26	$2,158
	$425,000	26	$2,293
Townhome	$450,000	11	$2,428
	$475,000	11	$2,563
	$500,000	10	$2,698
Total		824	

(1) Based on anticipated condo prices from the low $200s to mid $400s and townhome prices from the mid $400s.
(2) Based on a total of 317 one bedroom units, 396 two bedroom units, 79 three bedroom units and 32 townhomes.
(3) Assumes 30 year, 6.0% fixed rate loans with 10% down payments.

Using the distribution of housing costs in **AOI Table 5** and the affordable monthly housing payments of households with a DRI employee (**AOI Table 4**), a comparison was done to analyze the available housing by price range (shown in **AOI Table 6**). Thirteen percent (13.3%) of DRI employees are expected to be able to afford housing in the DRI, satisfying the mix of uses criterion set forth by GRTA.

TABLE 6
Comparison of DRI Employee Affordable Monthly Housing Payments and DRI Monthly Housing Costs

Monthly Dollar Range	Potential Housing Units in DRI	Households with a DRI Employee	Employees to Find Housing
$499 or less	0	0	--
$500 to $599	0	15	0
$600 to $699	0	143	0
$700 to $799	0	690	0
$800 to $899	0	14	0
$900 to $999	0	0	--
$1,000 to $1,249	106	352	106
$1,250 to $1,499	211	0	--
$1,500 to $1,999	396	24	24
$2,000 or more	111	570	111
Total	824	1,808	241

Households with a DRI Employee Expected to Find Affordable Housing in the DRI	**13.3%**

12.4 Assessment of AOI Housing Affordability

The second criterion established by GRTA requires that at least 25% of the employees anticipated to work at the DRI be able to afford housing within the AOI. To determine if Pleasant Hill Village meets this threshold, affordable monthly housing payments from **AOI Table 4** are compared to housing costs in the AOI.

AOI Table 7 provides estimates of the number of owner and renter occupied housing units by cost within the AOI. To update monthly housing costs since the 2000 Census, the increases in average home values in the AOI (44.8%) and in monthly rents throughout the Atlanta MSA (7.4%) were used to translate the range of housing costs in 2000 to the range of costs in 2006. To update the number of housing units within the AOI, ESRI estimates were used.

As **AOI Table 7** shows, an estimated 11,637 units (18.7%) in the AOI have monthly housing costs above $2,025; an estimated 3,782 housing units (6.1%) have monthly costs below $810.

TABLE 7
Selected Montly Housing Costs
AOI Occupied Housing Units

Housing Cost Range in 2000	Housing Cost Range in 2006 (1)	Owner Occupied Housing Units (2)	Renter Occupied Housing Units (3)	Total Occupied Housing Units
$399 or less	$539 or less	145	756	901
$400 to $499	$540 to $674	257	402	659
$500 to $599	$675 to $809	396	1,826	2,222
$600 to $699	$810 to $944	626	5,320	5,946
$700 to $799	$945 to $1,079	1,266	8,195	9,461
$800 to $899	$1,080 to $1,214	2,360	4,440	6,800
$900 to $999	$1,215 to $1,350	2,888	2,656	5,544
$1,000 to $1,249	$1,351 to $1,687	7,300	1,759	9,059
$1,250 to $1,499	$1,688 to $2,025	5,670	296	5,966
$1,500 to $1,999	$2,026 to $2,700	5,905	215	6,120
$2,000 or more	$2,701 or more	5,444	73	5,517
No mortgage/rent	No mortgage/rent	3,543	392	3,935
Total		35,800	26,330	62,130

(1) Based on the increase in AOI home values and increase in metro Atlanta rents from 2000 to 2006.
(2) From the 2000 U.S. Census, updated using ESRI BIS.
(3) From the 2000 U.S. Census, updated using ESRI BIS.

Sources: ESRI Business Information Solutions; 2000 Census; Databank 2006 Rental Market Survey

A comparison of the distribution of housing costs provided in the AOI (**AOI Table 7**) and the affordable monthly housing payments of households with a DRI employee (**AOI Table 4**), indicates that all DRI employees are reasonably expected to be able to afford housing in the AOI. Table 8 provides this comparison, which shows that Pleasant Hill Village satisfies GRTA's second criterion.

TABLE 8
Comparison of DRI Employee Affordable Monthly Housing Payments and AOI Monthly Housing Costs

Monthly Dollar Range (2006)	Occupied Housing Units in AOI (2007)	Households with a DRI Employee	Employees to Find Housing
$539 or less	901	0	--
$540 to $674	659	158	158
$675 to $809	2,222	690	690
$810 to $944	5,946	14	14
$945 to $1,079	9,461	240	240
$1,080 to $1,214	6,800	0	--
$1,215 to $1,350	5,544	112	112
$1,351 to $1,687	9,059	0	--
$1,688 to $2,025	5,966	24	24
$2,026 to $2,700	6,120	506	506
$2,701 or more	5,517	64	64
No mortgage/rent	3,935	0	--
Total	62,130	1,808	1,808
Households with a DRI Employee Expected to Find Affordable Housing in the AOI			**100.0%**

13.0 Conclusion

Proposed Development Conditions

Pleasant Hill Village is expected to consist of 1,952,500 square feet of mixed-use commercial/residential development to be built out in three (3) phases. The development is scheduled to be completed by the year 2012.

As part of the DRI process, existing traffic conditions in 2008, for two different scenarios were analyzed using Synchro 7. Each scenario was analyzed using AM, PM and Saturday peak hour traffic data for the 2012 build-out year. The projected traffic was calculated using a 1% background traffic growth rate agreed upon by GRTA during the methodology review process.

*** NOTE:** It is important to note that existing signal timings were requested but never received. The lack of signal timings limited the analysis capabilities for certain intersections such as Pleasant Hill Road @ Gwinnett Place Drive and Pleasant Hill Road @ Venture Parkway. These intersections are uncommonly configured and relatively close to each other causing levels of service below the standard level of service. It was also noted that other DRIs within the study network were allowed to exclude these two intersections possibly for the reasons mentioned above. Therefore no improvements were recommended for these two intersections when their LOS was below D.

Existing Traffic Analysis

Based on intersection analysis under existing conditions, there were **three** (3) intersections that did not meet the standard LOS D. To provide appropriate Levels of Service, improvements to the intersections are recommended. Listed below are the recommended improvements, by intersection:

- Pleasant Hill Rd @ N BerKeley Rd
  - Gwinnett County and GDOT project GW-271-A will improve intersection level of service
- Pleasant Hill Rd @ Gwinnett Place Dr
  - See above mentioned *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Venture Pkwy
  - See above mentioned *** NOTE** concerning this intersection

No-Build Conditions

The No-Build conditions were analyzed using the factors described in the Analysis of Anticipated Traffic Impact paragraph above for the 2012 build-out year.

Build Conditions

The Build conditions were analyzed using the factors described in the Analysis of Anticipated Traffic Impact paragraph above plus the site generated traffic associated with Pleasant Hill Village development for the 2012 build-out year.

Analysis of the Anticipated Traffic Impacts

The results of the detailed intersection analysis for the 2012 No-Build conditions include background traffic growth of 1% per year. Traffic for an approved mixed-use development Atlanta Global Station (DRI# 1275) was not included in this DRI analysis because the development was put on hold by the Developer and has not had any approval by Gwinnett County. The property was subsequently sold without plans to develop Global Station. DRI's 863, 1062, 1076, 1276 & 1418 listed in GRTA's Letter of Understanding have no common intersections with the proposed development and will not affect the Pleasant Hill Village traffic analysis. DRI # 1182 listed in GRTA's Letter of Understanding has common intersections with the proposed Pleasant Hill Village Development but no improvements were recommended to those common intersections. The 2012 Build conditions include the 2012 No-Build conditions plus the site generated traffic associated with Pleasant Hill Village.

2012 No-Build

Based on intersection analysis under 2012 No-Build conditions, there were **two** (2) intersections that did not meet the standard LOS D. To provide appropriate Levels of Service, improvements to the intersections are recommended. Listed below are the recommended improvements, by intersection:

- Pleasant Hill Rd @ Gwinnett Place Dr
  - See above mentioned *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Venture Pkwy
  - See above mentioned *** NOTE** concerning this intersection

2012 Build

Based on intersection analysis under 2012 Build conditions, there were **five** (5) intersections that did not meet the standard LOS D. To provide

appropriate Levels of Service, improvements to the intersections are recommended. Listed below are the recommended improvements, by intersection:

- Pleasant Hill Rd @ Steve Reynolds Blvd
    - Recommend adding additional NB left turn storage (approx 210 ft) creating dual NB left turns onto Pleasant Hill.
- Pleasant Hill Rd @ N Berkeley Rd / Hill Dr (It is important to note that this intersection is below the acceptable LOS due to the growth rate of the current volumes. The approaches that are below LOS D do not have any site generated volumes attributing to the failure.)
    - Recommend adding additional WB left turn storage (approx 235 ft) on Pleasant Hill Road. This would create dual WB left turns onto N. Berkeley Rd.
- Pleasant Hill Rd @ Gwinnett Place Dr
    - See above mentioned *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Venture Pkwy
    - See above mentioned *** NOTE** concerning this intersection
- Pleasant Hill Rd @ Driveway 2
    - It is recommended that the main entrance (Driveway 2) to the site be redesigned to accommodate SB dual lefts turns out of the site driveway onto Pleasant Hill Road. Also adding channelized SB right turn storage (approx 50 ft) to the Driveway 2 exit.
    - Recommend adding a channelized WB right storage lane (approx 175 ft) on Pleasant Hill Road before the Driveway 2 entrance.

Segment Analysis

As part of the DRI process, a detailed segment analysis for all major corridors in the study network was completed. Pleasant Hill Road, Buford Highway, Satellite Boulevard and Steve Reynolds Boulevard were the four major segments analyzed. The analysis was completed for the build-out year (2012) for both No-Build and Build scenarios. The results of the detailed segment analysis reveal that Pleasant Hill Road, Buford Highway, Satellite Boulevard and Steve Reynolds Boulevard will all operate at acceptable levels of service during all analyzed scenarios, per the outlined technical guidelines in GRTA's Letter of Understanding.