Transportation Analysis

Windward Mill
DRI# 1558
City of Alpharetta, Georgia

Prepared for:
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019627000

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EXECUTIVE SUMMARY

This report presents the analysis of the anticipated traffic impacts of a proposed 47.65-acre mixed-use development (Windward Mill) located in City of Alpharetta, Georgia. This report is being prepared as part of a submittal requesting a Master Plan Amendment. Because the project will exceed 400,000 square feet, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review.

The subject property is currently approved for 1,045,000 square feet of office uses and a 150 room hotel.

The proposed development is expected to consist of approximately 500 condominium dwelling units, 225 hotel rooms, 850,000 SF of office, and 85,000 SF of retail. The development is scheduled to be completed over an eight-year period, with full build-out of the development by the year 2015. For the purposes of the traffic analysis, one build-out phase will be analyzed for the year 2015.

Based on the existing 2007 conditions, two of the study intersections currently operate below the acceptable Level of Service standard (LOS D) during at least one of the peak hours.

The results of the detailed intersection analysis for the 2015 No-Build (excluding the Windward Mill development) and 2015 Build conditions (including the Windward Mill development) identified improvements that will be necessary in order to maintain the Level of Service standard (LOS D or E) within the study network. Pre GRTA's Letter of Understanding guidelines, improvements were made to the intersections until the Level of Service was elevated to an appropriate range. These improvements are listed below:

2015 No-Build recommended improvements (includes background growth but does not include the Windward Mill DRI project traffic):

Windward Parkway @ North Point Parkway (Intersection #3)

- Install an eastbound right-turn lane along Windward Parkway with a right-turn overlap phase (green arrow).
- Install an additional eastbound through lane and westbound through lane along Windward Parkway (three through lanes eastbound and westbound).

Webb Bridge Road @ North Point Parkway (Intersection #9)

- Install an additional eastbound left-turn lane along Webb Bridge Road to create triple left-turn lanes. Construct a third northbound receiving lane and taper to the existing two northbound through lanes. (Note: The opening of the Morris Road Extension to the north of Webb Bridge Road may alleviate the need for triple left turn-lanes at this intersection.)

Webb Bridge Road @ Morris Road (Intersection #10)

- Install an eastbound through lane along Webb Bridge Road.
- Convert the westbound right turn-lane along Webb Bridge Road to a shared through/right-turn lane.

Old Milton Parkway @ Morris Road (Intersection #11)

- Install an additional eastbound left-turn lane (creating dual left-turn lanes) along Old Milton Parkway and provide a protected-only left-turn signal phase (green arrow). Construct a second northbound receiving lane and taper to the existing single northbound through lane.
- Install an additional westbound through lane along Old Milton Parkway.
- Install an additional southbound right-turn lane (creating dual right-turn lanes) with a right-turn overlap phase (green arrow).

2015 Build recommended improvements (includes the Windward Mill DRI project traffic):
Note: These improvements are in addition to the no-build improvements listed on the previous page.

SR 400 SB Ramps at Windward Parkway (Intersection #1)

- Install an additional westbound through lane along Windward Parkway.
- (Note: Deerfield Place DRI #1470 recommended an improvement at the intersection).

Windward Parkway at North Point Parkway (Intersection #3)

- Restripe the northbound through lane to a shared northbound left-turn / through lane along North Point Parkway.
- Lengthen northbound left-turn lane storage by reconstructing median (300 foot minimum storage).

North Point Parkway at Dryden Road (Intersection #4)

- Install a traffic signal, when warranted. Provide split-phase traffic signal operation for the side-street approaches (eastbound and westbound).
- Install an additional eastbound left-turn lane along Dryden Road when a traffic signal is installed.
- Provide a protected-permitted (green arrow) signal phase for the northbound left-turn movement.

The following intersection geometry and improvements are recommended at the proposed site driveways:

Windward Parkway at Proposed RIRO Driveway #1 (Intersection #15)

- Install an eastbound right-turn lane along Windward Parkway.
- Install a northbound right-turn only egress lane along the proposed driveway #1.

North Point Parkway at Existing Driveway B / Driveway #2 (Intersection #5)

- Install a northbound left-turn lane along North Point Parkway.
- Install a southbound right-turn lane along North Point Parkway.
- Install an eastbound shared left-turn / through lane and a separate right-turn lane along the proposed driveway #2.

North Point Parkway at Existing Driveway C / Driveway #3 (Intersection #6)

- Install a northbound left-turn lane along North Point Parkway.
- Install a southbound right-turn lane along North Point Parkway.
- Install an eastbound shared left-turn / through lane and a separate right-turn lane along the proposed driveway #3.
- Install a traffic signal, when warranted.
- Provide a protected-permitted (green arrow) signal phase for the northbound left-turn movement.

North Point Parkway at Existing Driveway D / Driveway #4 (Intersection #7)

- Install a northbound left-turn lane along North Point Parkway.
- Install a southbound right-turn lane along North Point Parkway.
- Install an eastbound shared left-turn / through lane and a separate right-turn lane along the proposed driveway #4.

Dryden Road at Proposed RIRO Driveway #5 (Intersection #16)

- Install a westbound right-turn lane along Dryden Road.

Dryden Road at Proposed Driveway #8 (Intersection #18)

- Install a separate left-turn lane and right-turn lane southbound along driveway.

1.0 PROJECT DESCRIPTION

1.1 Introduction

This report presents the analysis of the anticipated traffic impacts of a proposed 47.65-acre mixed-use development (Windward Mill) located in City of Alpharetta, Georgia. This report is being prepared as part of a submittal requesting a Master Plan Amendment. Because the project will exceed 400,000 square feet, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review.

The subject property is currently approved for 1,045,000 square feet of office uses and a 150 room hotel.

The proposed development is expected to consist of approximately 500 condominium dwelling units, 225 hotel rooms, 850,000 SF of office, and 85,000 SF of retail space. The development is scheduled to be completed over an eight-year period, with full build-out of the development by the year 2015. For the purposes of the traffic analysis, one build-out phase will be analyzed for the year 2015.

A summary of the proposed land-uses and densities can be found below in **Table 1.**

Table 1
Proposed Land Uses

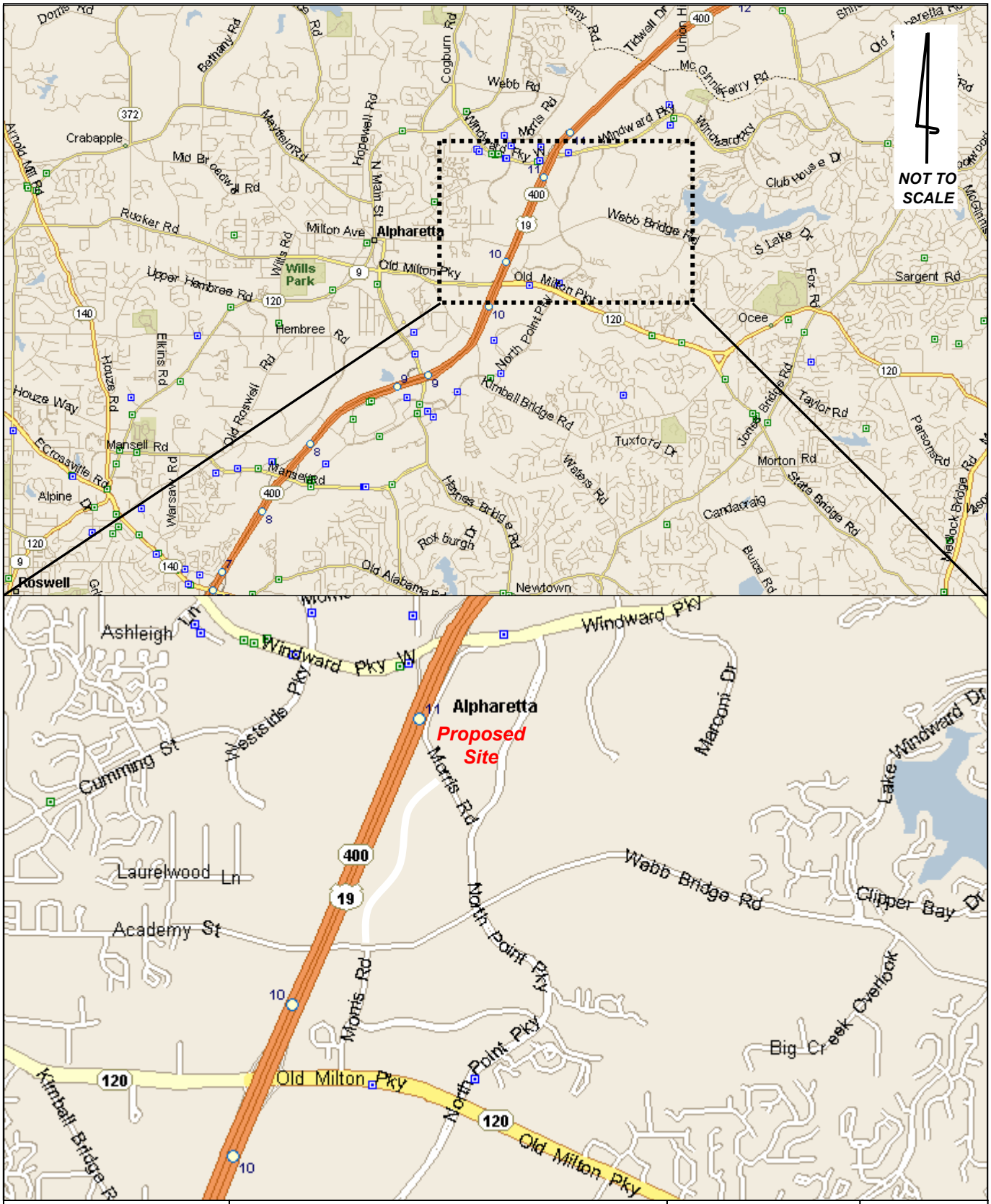
High-Rise Residential Condominiums	500 dwelling units
Hotel	225 rooms
General Office Building	850,000 square feet
Retail (Shopping Center)	85,000 square feet

The proposed is development is located in the City of Alpharetta, along the south side of Windward Parkway and west side of North Point Parkway. SR 400 and the MARTA Windward Parkway Park and Ride Lot are located to the west of the site. The land uses surrounding the site are primarily offices. The Marriott hotel and retail shops are located to the north of Windward Parkway. A Lifetime Fitness Center is located to the south of Morris Road. Dryden Road bisects a portion of the site and then travels along the west side of the site. **Figure 1** and **Figure 2** provide a location map and an aerial photograph of the site.

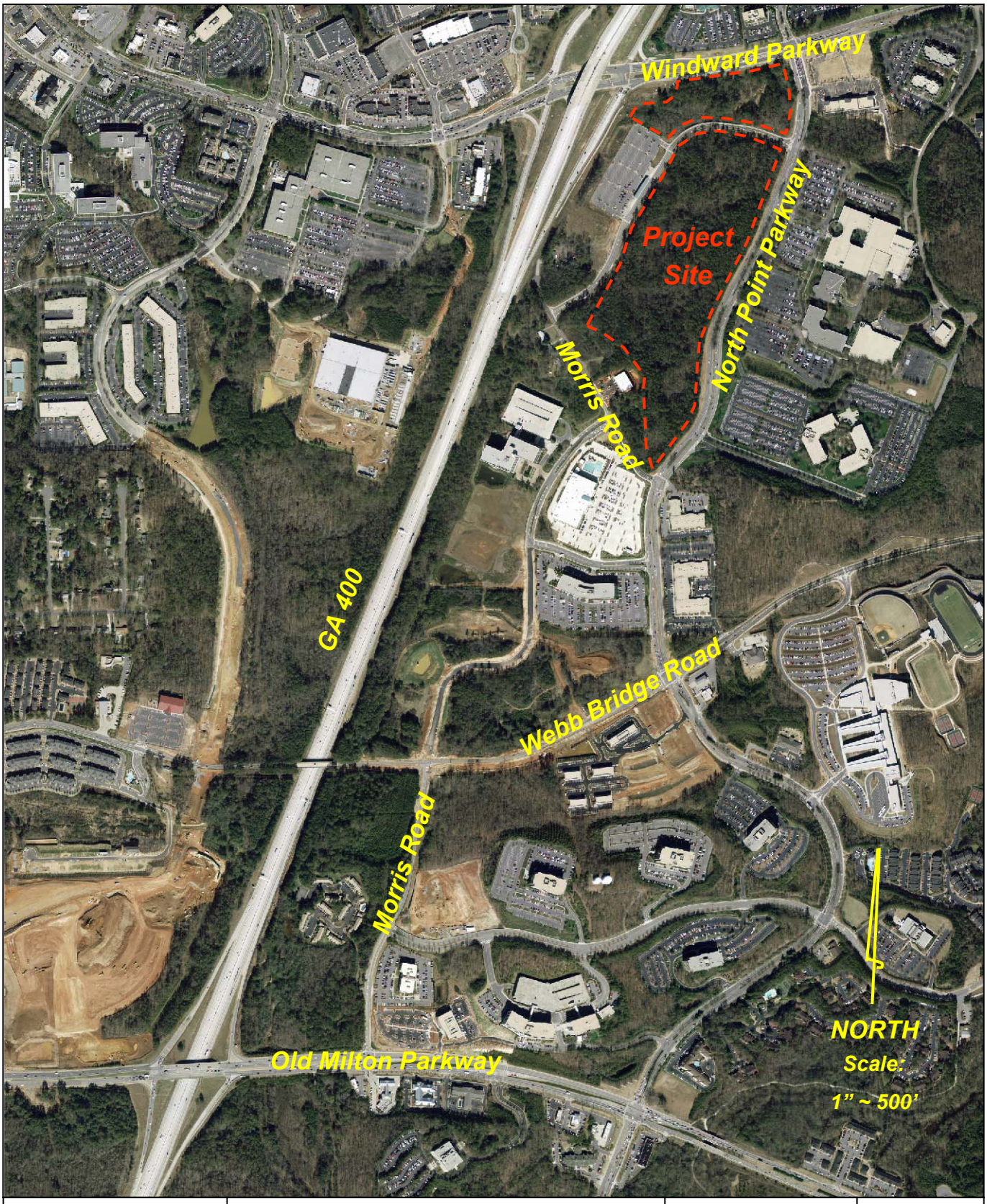
1.2 Site Plan Review

The site is currently undeveloped. Dryden Road is an existing three-lane street (one through lane in each directions with a center two-way left-turn lane) along the entire length of the street. The development proposes a hotel and office building in the property along Windward Parkway, north of Dryden Road. Three proposed office buildings are located along the proposed internal private street between Dryden Road and the south end of the property. Three parking decks are proposed along Dryden Road to serve the office buildings. Retail buildings are proposed along the internal private street and North Point Parkway. Seven residential buildings are proposed in the southwest portion of the site.

There are thirteen proposed driveways along three different public streets. In addition to vehicular access, walking paths are proposed internal to the site and are proposed to connect to existing sidewalks along the property frontage. Sidewalks will be constructed along the property frontage along Dryden Road and North Point Parkway where sidewalks currently do not exist. Approximately 6.64 acres (14%) of open space are proposed within the site.



Kimley-Horn and Associates, Inc.	***Windward Mill DRI Transportation Analysis***	***Site Location***	***Figure 1***



Kimley-Horn and Associates, Inc.	Windward Mill DRI Transportation Analysis	Aerial	Figure 2

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

1.3 Site Access

Access to the development is proposed at thirteen locations via thirteen driveways. Nine driveways are proposed along Dryden Road, three along North Point Parkway, and one along Windward Parkway.

- Site Driveway # 1, located along Windward Parkway, is approximately 600 feet west of the intersection of Windward Parkway and North Point Parkway. The site access is proposed to a right-in / right-out driveway.
- Site Driveway # 2, located along North Point Parkway, is proposed at an existing driveway to the office park east of the North Point Parkway. The access is located approximately 500 feet south of Dryden Road, and is proposed to be a full-movement unsignalized driveway.
- Site Driveway # 3, located along North Point Parkway, is proposed at an existing driveway to the office park east of the North Point Parkway. The access is located approximately 740 feet south of the Site Driveway # 2, and is proposed to be a full-movement signalized driveway.
- Site Driveway # 4, located along North Point Parkway, is proposed to be a full-movement unsignalized driveway located approximately 975 feet south of the Site Driveway # 3
- Site Driveway # 5, located along Dryden Road, is approximately 165 feet west of the intersection of North Point Parkway and Dryden Road. The site access is proposed to a right-in / right-out access point.
- Site Driveway # 6, located along Dryden Road, is approximately 150 feet west of the proposed Site Driveway # 5. This driveway provides access to the property east of Dryden Road and is proposed to be a full-movement unsignalized driveway.
- Site Driveway # 7, located along Dryden Road, is approximately 150 feet west of the proposed Site Driveway # 5. This driveway provides access to the property west of Dryden Road and is proposed to be a full-movement unsignalized driveway.
- Site Driveway # 8, located along Dryden Road, is proposed to be a full-movement unsignalized driveway located approximately 180 feet west of the Site Driveway # 6 / Site Driveway # 7.
- Site Driveway # 9, located along Dryden road, is proposed to be a full-movement unsignalized driveway located approximately 250 feet north of the existing MARTA North Driveway.
- Site Driveway # 10, located along Dryden road, is proposed to be a full-movement unsignalized driveway at the existing MARTA North Driveway, serving as an access to the proposed development east of Dryden Road.
- Site Driveway # 11, located along Dryden Road, is proposed to be a full-movement unsignalized driveway located approximately 300 feet south of the existing MARTA North Driveway / Site Driveway # 10.
- Site Driveway # 12, located along Dryden road, is proposed to be a full-movement unsignalized driveway at the existing MARTA South Driveway, serving as an access to the proposed development east of Dryden Road.
- Site Driveway # 13, located along Dryden Road, is proposed to be a full-movement unsignalized driveway located approximately 425 feet south of the existing MARTA South Driveway / Site driveway # 12.

1.4 Bicycle and Pedestrian Facilities

Sidewalks currently exist along both sides of Windward Parkway and North Point Parkway between Windward Parkway and Dryden Road. The sidewalk network is continued along the north and west side of Dryden Road. Additionally, sidewalks exist on the east side of North Point Parkway from Morris Road north to an existing driveway. The proposed project is positioned to close that gap in the pedestrian network that exists along North Point Parkway between Dryden Road and Morris Road. There are no bicycle facilities, however, in proximity of the project site.

1.5 Transit Facilities

The MARTA Windward Parkway Park and Ride Lot is adjacent to the development and is served by Routes 140, 143, and 185. Routes 140 and 185 operate two buses per hour during the peak periods and Route 143 operates at a 20 minute headway during the peak period. Route 140 begins at the North Springs MARTA Station and continues north along SR 400 to the Mansell Park and Ride. It then continues to the Windward Parkway Park and Ride located adjacent to the project site. Route 143 begins at the North Springs MARTA Station and travels north along SR 400 to Deerfield Parkway, where it continues to the Windward Parkway Park and Ride. Route 185 also serves the North Springs MARTA Station and travels north along SR 400 to Holcomb Bridge Road, and then continues north along SR 9 to the Windward Parkway Park and Ride.

2.0 TRAFFIC ANALYSES METHODOLOGY AND ASSUMPTIONS

2.1 Growth Rate

Background traffic is defined as expected traffic on the roadway network in future year(s) absent the construction and opening of the proposed project. Historical traffic count data from the Georgia DOT was reviewed for the area surrounding the proposed development, and growth rates of 2.0% per year along all roadways were agreed upon during the methodology meeting with GRTA staff. In addition to the background growth rate, project traffic from three DRIs and a proposed development along Morris Road Extension in the vicinity of the project was included in the 2015 No-Build volumes. The three DRIs and the proposed development are:

- DRI #1470 Deerfield Place
- DRI #1052 Prospect Park
- DRI #698 The Forum
- Preston Ridge (Pod G) proposed development: 42.4-acres at 20,000 SF of office/ac resulted in 848,000 SF of office space

2.2 Traffic Data Collection

2007 peak hour turning movement counts were conducted at seven signalized intersection and six unsignalized intersections between 6:45-8:45 AM and 4:15-6:15 PM. The morning and afternoon peak hours varied between the eleven intersections:

1. SR 400 SB Ramps at Windward Parkway (AM Peak 7:45-8:45, PM Peak 5:00-6:00)
2. SR 400 NB Ramps at Windward Parkway (AM Peak 7:30-8:30, PM Peak 5:00-6:00)
3. Windward Parkway at North Point Parkway (AM Peak 7:15-8:15, PM Peak 5:00-6:00)
4. North Point Parkway at Dryden Road (AM Peak 7:45-8:45, PM Peak 5:00-6:00)
5. North Point Parkway at Existing Driveway (AM Peak 7:45-8:45, PM Peak 4:45-5:45)
6. North Point Parkway at Existing Driveway (AM Peak 7:45-8:45, PM Peak 4:45-5:45)

7. North Point Parkway at Existing Driveway (AM Peak 7:45-8:45, PM Peak 4:45-5:45)
8. North Point Parkway at Morris Road (AM Peak 7:45-8:45, PM Peak 4:45-5:45)
9. North Point Parkway at Webb Bridge Road (AM Peak 7:45-8:45, PM Peak 5:00-6:00)
10. Webb Bridge Road at Morris Road Extension (AM Peak 7:30-8:30, PM Peak 5:00-6:00)
11. Old Milton Parkway at Morris Road Extension (AM Peak 7:45-8:45, PM Peak 5:00-6:00)
12. Dryden Road and MARTA North Driveway (AM Peak 7:00-8:00, PM Peak 5:15-6:15)
13. Dryden Road and MARTA South Driveway (AM Peak 6:45-7:45, PM Peak 5:15-6:15)

All raw count data is available upon request.

2.3 Detailed Intersection Analysis

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

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

3.0 STUDY NETWORK

3.1 Gross Trip Generation

As stated earlier, the proposed development is expected to consist of approximately 500 condominiums, 225 hotel rooms, 850,000 SF of office, and 85,000 SF of retail space. The development is scheduled to be completed over an eight-year period, with full build-out of the development by the year 2015. For the purposes of the traffic analysis, one build-out phase will be analyzed for the year 2015.

Traffic for these land uses was calculated using equations contained in the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Seventh Edition, 2003*. Gross trips generated are displayed below in **Table 2**.

Table 2
Windward Mill DRI
Gross Trip Generation

Land Use	ITE Code	Daily Traffic	AM Peak Hour		PM Peak Hour	
		Enter	Enter	Exit	Enter	Exit
Build-Out (Year 2015)						
500 High-Rise Residential Condominiums	*232*	2,109	33	141	115	70
225 Room Hotel	*310*	1,641	68	44	70	63
850,000 SF Office Space	*710*	6,932	914	125	175	856
85,000 SF Retail Space	*820*	6,110	87	55	270	292
Total		**16,792**	**1,102**	**365**	**630**	**1,281**

3.2 Trip Distribution

The directional distribution and assignment of new project trips was based on the project land uses, a review of land use densities in the area, combined with engineering judgment and discussions with GRTA staff at the Pre-Application meeting.

3.3 Level of Service Standards

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

3.4 Study Network Determination

A general study area was determined using the 7% rule. This rule recommends that all intersections and segments be analyzed which are impacted to the extent that the traffic from the proposed site is 7% or more of the Service Volume of the facility (at a previously established LOS standard) be considered for analysis. This general study area was refined during the methodology meeting, and includes the following intersections:

- SR 400 SB Ramps at Windward Parkway
- SR 400 NB Ramps at Windward Parkway
- Windward Parkway at North Point Parkway
- North Point Parkway at Existing Office Driveway A / Dryden Road
- North Point Parkway at Existing Office Driveway B / Proposed Driveway #2
- North Point Parkway at Existing Office Driveway C / Proposed Driveway #3
- North Point Parkway at Existing Office Driveway D / Proposed Driveway #4

- North Point Parkway at Morris Road
- North Point Parkway at Webb Bridge Road
- Webb Bridge Road at Morris Road Extension
- Old Milton Parkway at Morris Road Extension
- Dryden Road at MARTA Park and Ride North Driveway / Proposed Driveway #10
- Dryden Road at MARTA Park and Ride North Driveway / Proposed Driveway #12

Each of the above listed intersections was analyzed for the Existing 2007 Condition, the 2015 No-Build Condition, and the 2015 Build Condition. The 2015 No-Build Condition represents the existing traffic volumes grown at 2.0% per year for eight (8) years plus project traffic from three DRI developments and a proposed development along the Morris Road Extension. The 2015 Build Condition adds the project trips associated with the Windward Mill development to the 2015 No-Build Condition. (NOTE: The additional proposed site access points listed below were only analyzed for the 2015 Build Condition):

- Windward Parkway at Proposed Driveway #1 (Right-in/right-out)
- Dryden Road at Proposed Driveway #5 (Right-in/right-out)
- Dryden Road at Proposed Driveway #6 (Full-movement)
- Dryden Road at Proposed Driveway #7 (Full-movement)
- Dryden Road at Proposed Driveway #8 (Full-movement)
- Dryden Road at Proposed Driveway #9 (Full-movement)
- Dryden Road at Proposed Driveway #11 (Full-movement)
- Dryden Road at Proposed Driveway #13 (Full-movement)

3.5 Existing Facilities

Roads in the study network were inventoried to obtain geometric characteristics, posted speed limits, and the GDOT Functional Classifications.

Roadway	Number of Lanes	Posted Speed Limit (MPH)	GDOT Functional Classification
SR 400	6	55	Urban Freeway and Expressway
Windward Parkway (west of SR 400)	4	45	Urban Collector Street
Windward Parkway (east of SR 400)	4	45	Urban Local Street
North Point Parkway	4	40	Urban Local Street
Morris Road	2	35	Urban Local Street
Morris Road Extension	2	35	Urban Local Street
Dryden Road	2 with center TWLTL*	30	Urban Local Street
Webb Bridge Road	2/4	40	Urban Collector Street
Old Milton Parkway	6	45	Urban Principal Arterial

*TWLTL = Two-way left-turn lane

For the purposes of this traffic study, the following roads were considered to have a north-south orientation: SR 400, North Point Parkway, and Morris Road Extension. Windward Parkway, Morris Road, Dryden Road, Webb Bridge Road, and Old Milton Parkway were considered to have an east-west orientation.

4.0 TRIP GENERATION

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

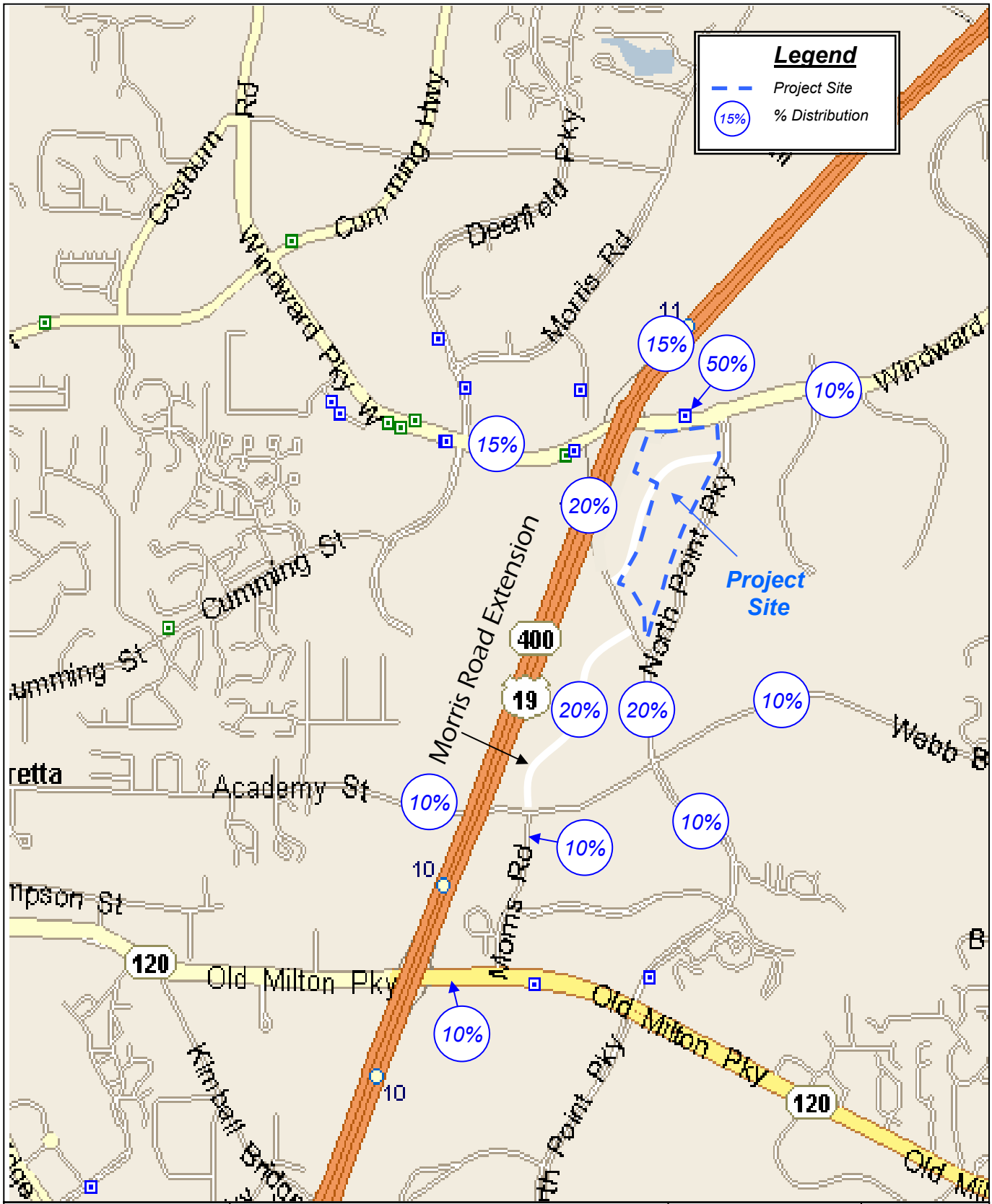
Mixed-use and pass-by reductions were taken according to the *ITE Trip Generation Handbook, 2004* and GRTA guidelines. An alternate mode transportation reduction of 4.0% was applied given the proximity of the MARTA park and ride lot as well as the opportunity to carpool to and from the office portion of the development. The total trips generated and analyzed in the report are listed below in **Table 3**.

Table 3
Windward Mill DRI
Net Trip Generation

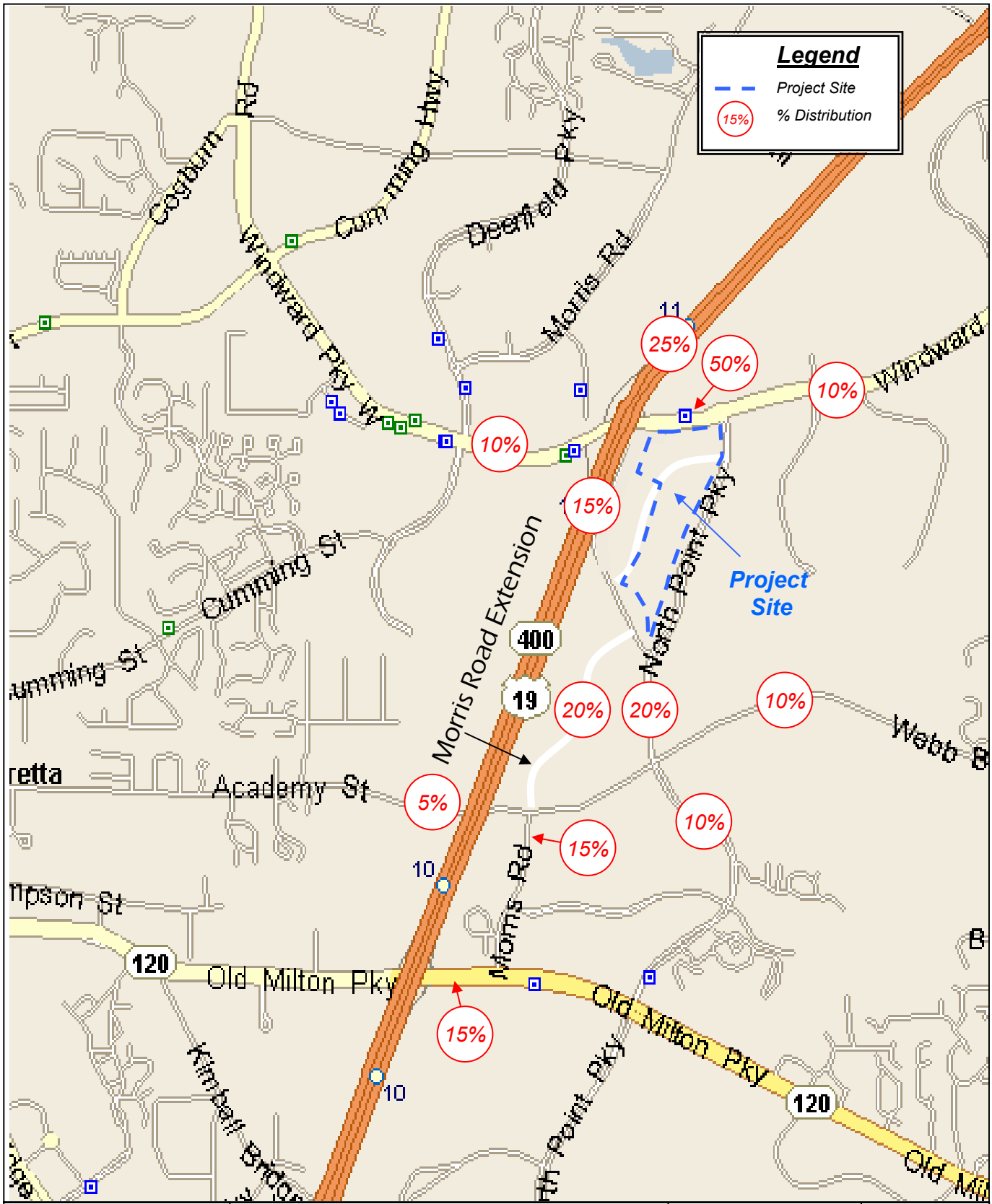
Land Use	Daily Traffic		AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2015)						
Gross Trips	**8,396**	**8,396**	**1,102**	**365**	**630**	**1,281**
Internal Capture Reductions	*- 881*	*- 881*	*-*	*-*	*- 77*	*- 77*
Alternative Mode Reductions	*- 300*	*- 300*	*- 44*	*- 15*	*- 23*	*- 48*
Pass-By Reductions	*- 1,040*	*- 1,040*	*-*	*-*	*- 96*	*- 96*
New Trips	**6,175**	**6,175**	**1,058**	**350**	**434**	**1,060**

5.0 TRIP DISTRIBUTION AND ASSIGNMENT

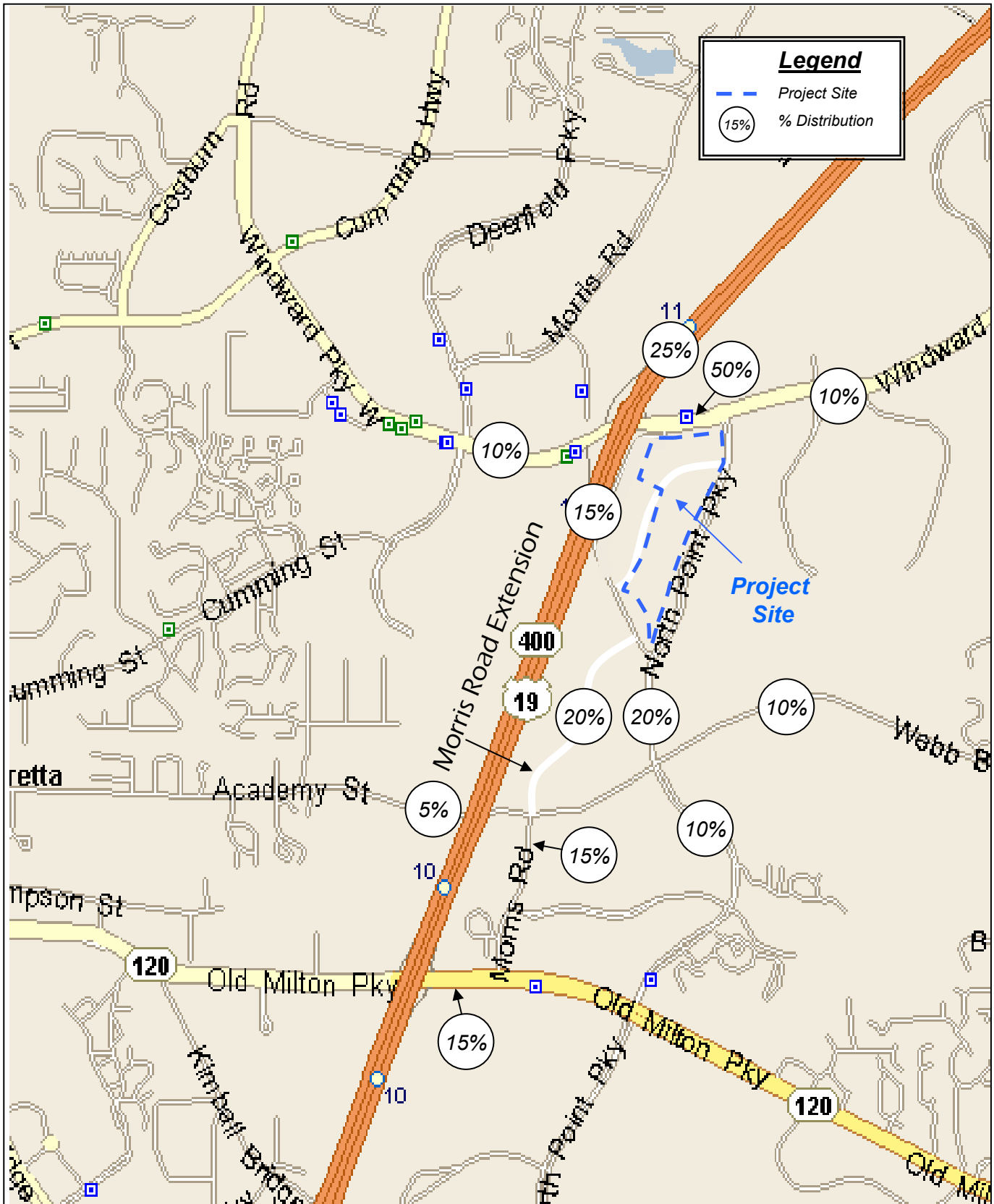
New trips were distributed onto the roadway network using the percentages agreed to during the methodology meeting. **Figures 4 A, B, C and D** display the expected trip distributions for the development throughout the roadway network. These percentages were applied to the new trips generated by the development (see Table 3, above), and the volumes were assigned to the roadway network. The expected peak hour turning movements generated by the proposed development are shown in **Figures 5 A, B, C**.



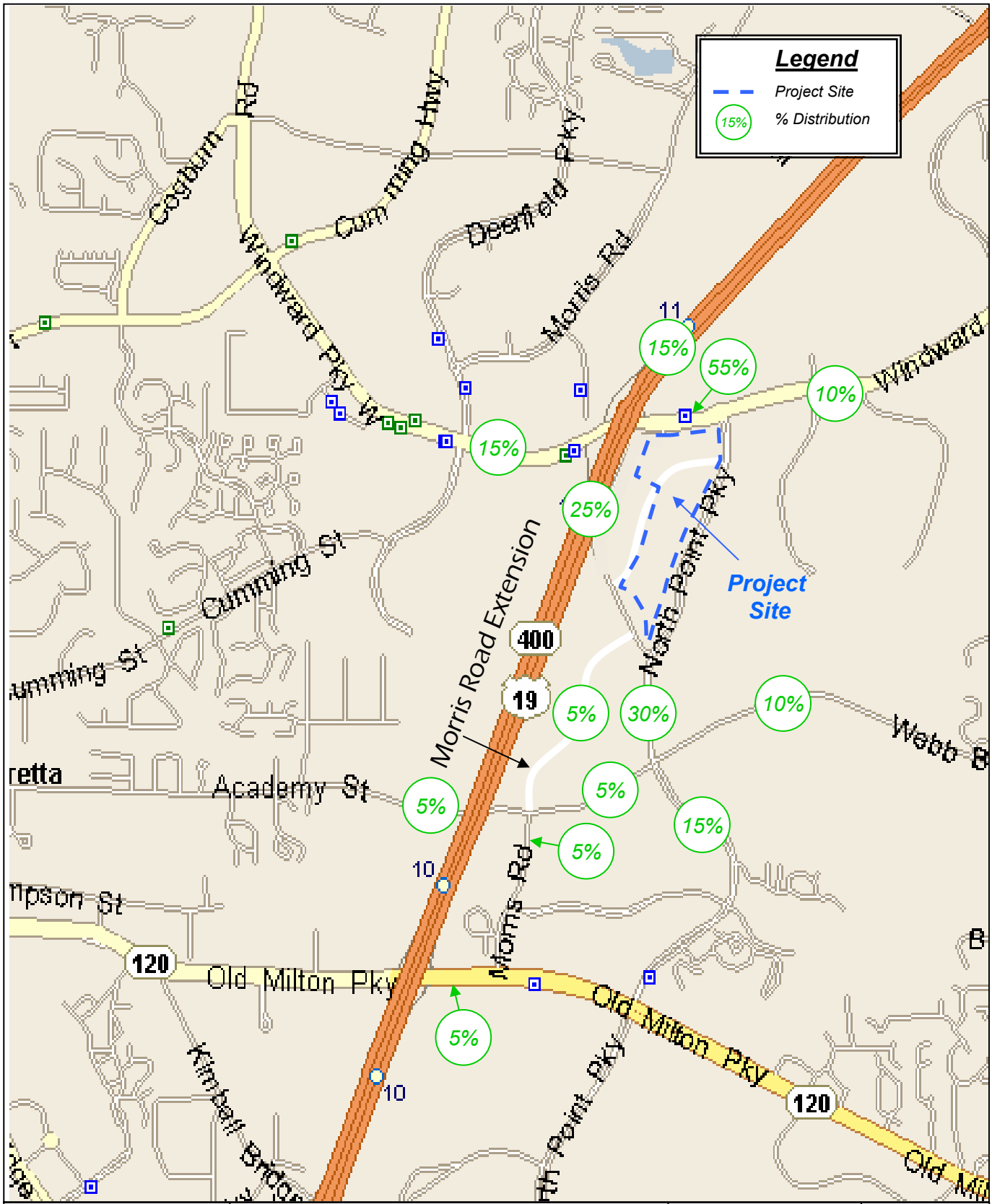
Kimley-Horn and Associates, Inc.	**Windward Mill DRI** **Transportation Analysis**	**Residential Distribution**	**Figure 4A**



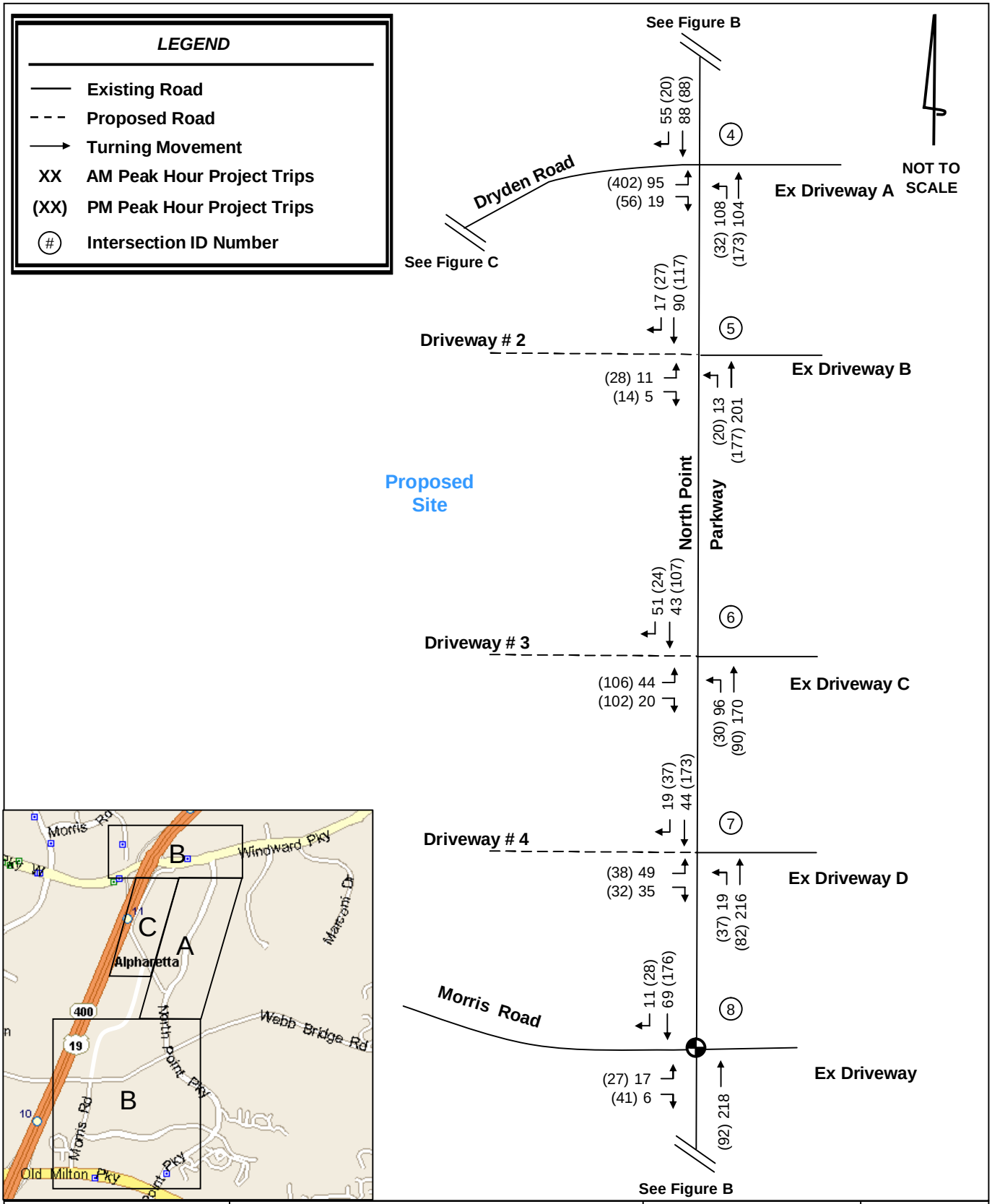
Kimley-Horn and Associates, Inc.	**Windward Mill DRI Transportation Analysis**	**Office Distribution**	**Figure 4B**



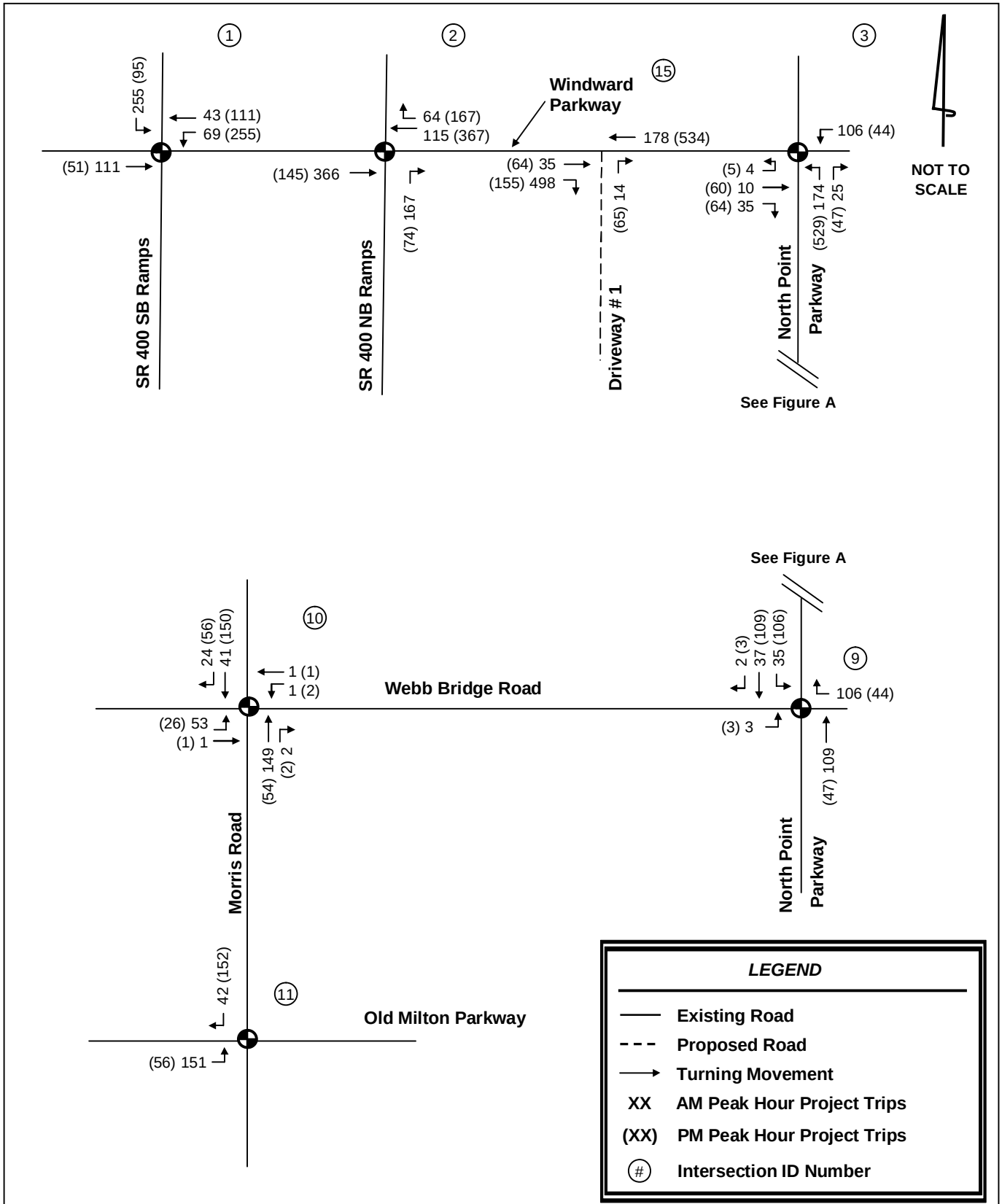
Kimley-Horn and Associates, Inc.	**Windward Mill DRI Transportation Analysis**	**Retail Distribution**	**Figure 4C**



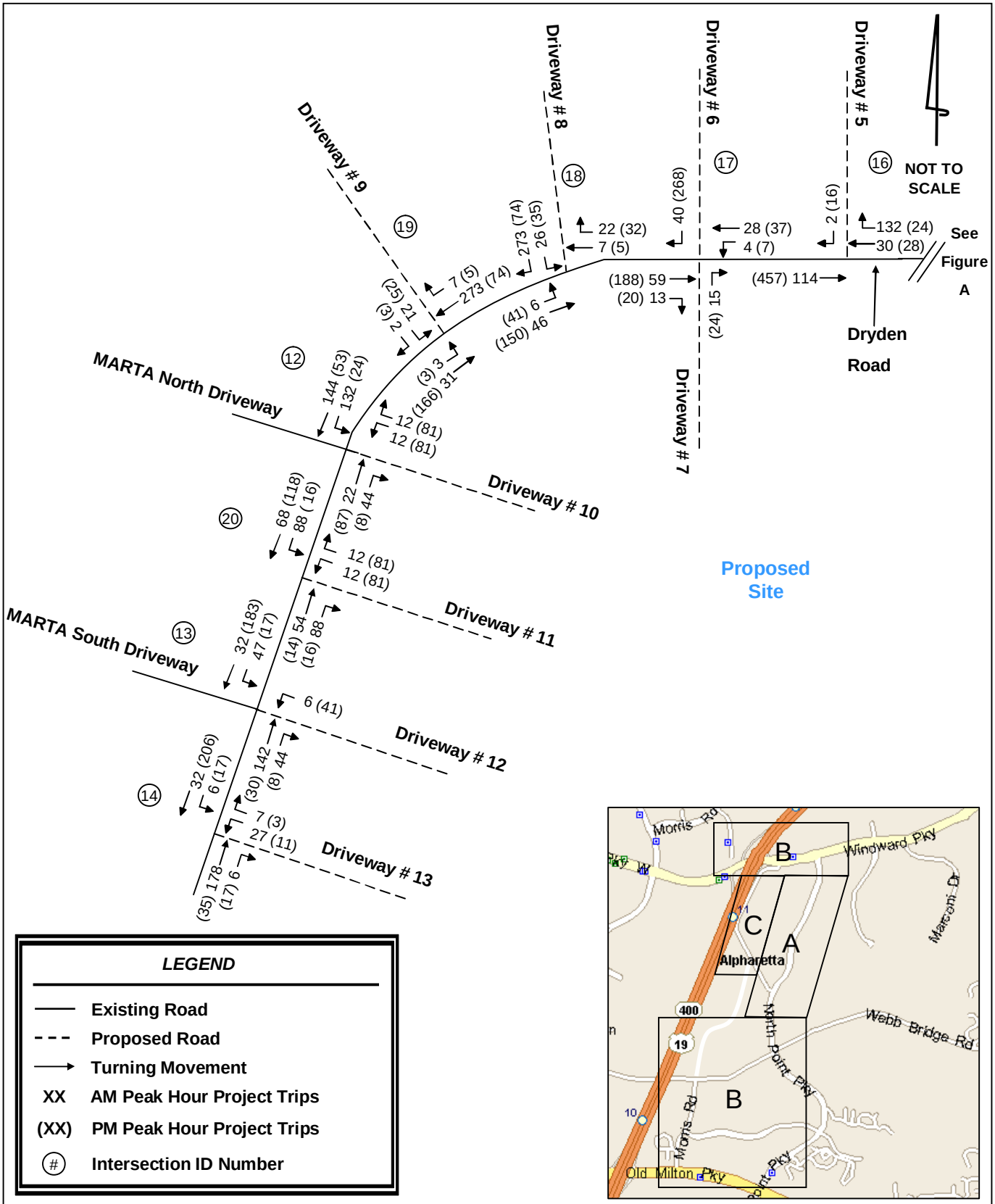
Kimley-Horn and Associates, Inc.	**Windward Mill DRI Transportation Analysis**	**Hotel Distribution**	**Figure 4D**



Kimley-Horn and Associates, Inc.	**Windward Mill DRI Transportation Analysis**	**Project Trips**	**Figure 5A**



Kimley-Horn and Associates, Inc.	Windward Mill DRI Transportation Analysis	Project Trips	Figure 5B



Kimley-Horn and Associates, Inc.	Windward Mill DRI Transportation Analysis	Project Trips	Figure 5C

6.0 TRAFFIC ANALYSIS

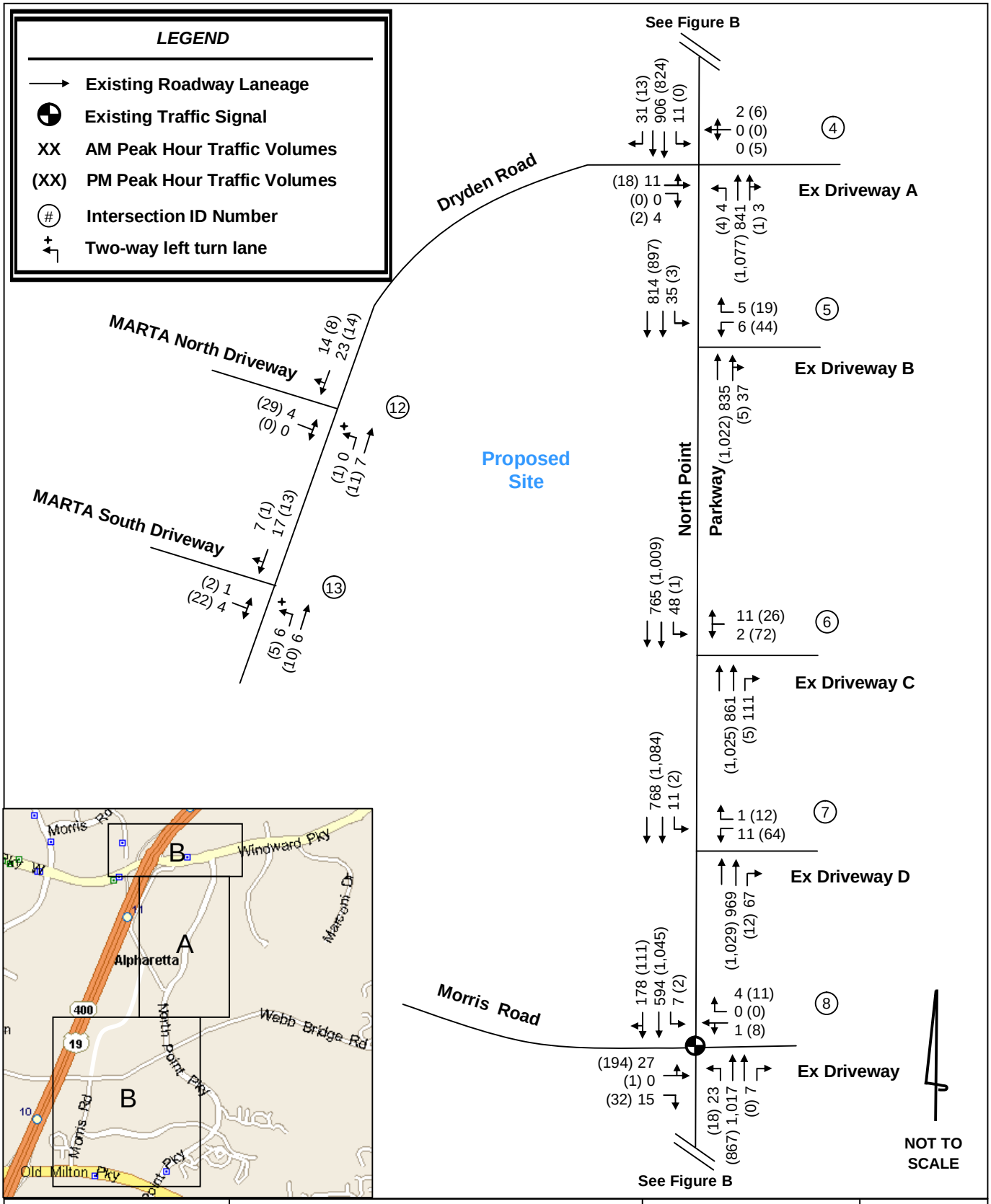
6.1 Existing Traffic

The existing traffic volumes are shown in **Figures 6A and 6B**. These volumes were input in Synchro 6.0 and an Existing Conditions analysis was performed. The results are displayed below in **Table 4**.

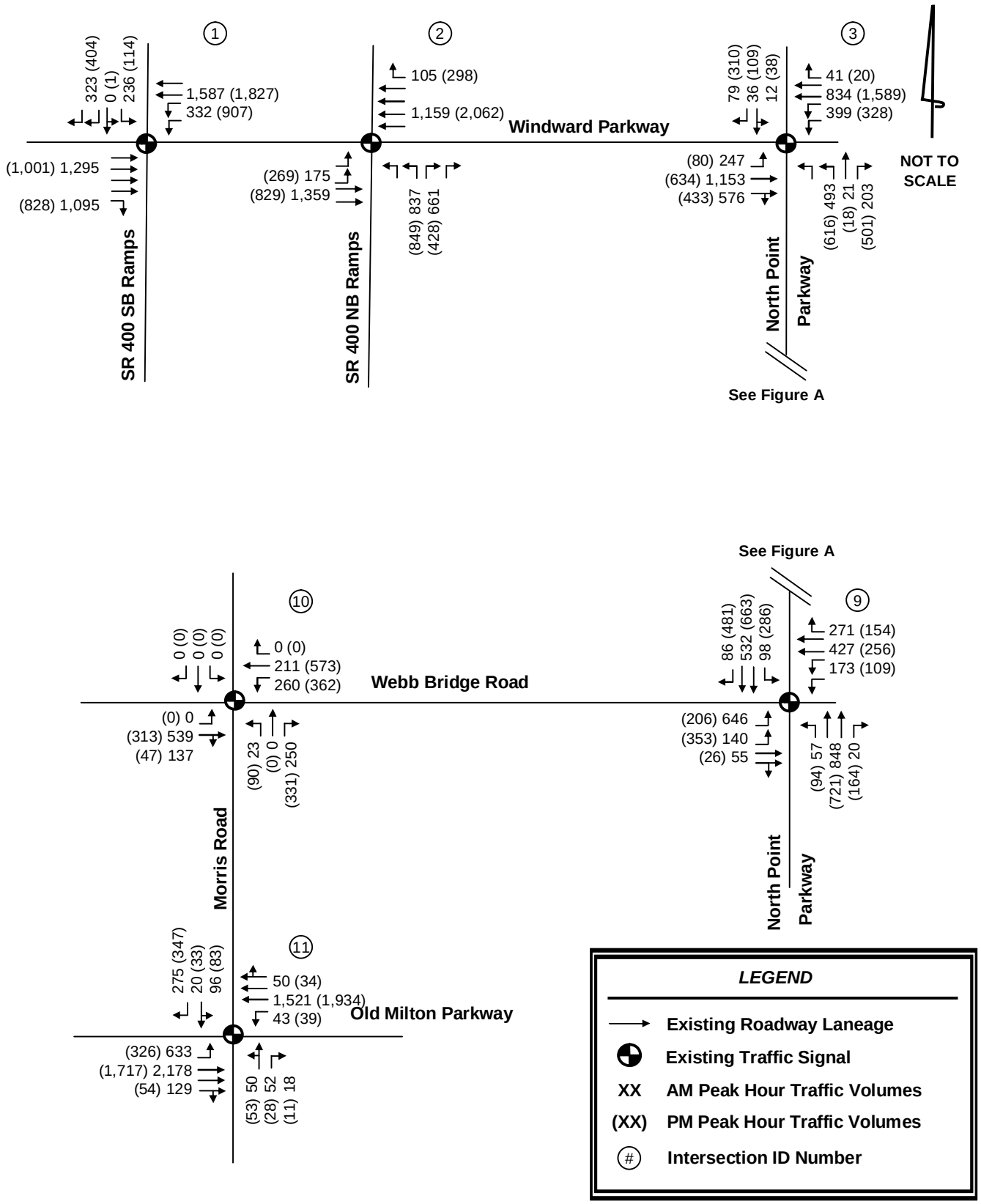
Table 4
Windward Mill DRI
Existing 2007 Intersection Levels of Service
Level of Service (delay in seconds)

	Intersection	***Control***	***AM Peak Hour***	***PM Peak Hour***
1	SR 400 SB Ramps at Windward Parkway	Signal	C (24.1)	D (38.1)
2	SR 400 NB Ramps at Windward Parkway	Signal	C (31.0)	D (38.1)
3	Windward Parkway at North Point Parkway	Signal	F (80.0)	E (56.5)
4	North Point Parkway at Dryden Road/Existing Driveway A	EB STOP WB STOP	C (24.6) B (11.8)	D (25.5) C (20.0)
5	North Point Parkway at Existing Driveway B	WB STOP	C (16.9)	D (26.4)
6	North Point Parkway at Existing Driveway C	WB STOP	B (13.3)	E (35.7)
7	North Point Parkway at Existing Driveway D	WB STOP	C (21.3)	D (34.6)
8	North Point Parkway at Morris Road	Signal	A (5.1)	B (16.7)
9	North Point Parkway at Webb Bridge Road	Signal	D (36.6)	C (25.0)
10	Webb Bridge Road at Morris Road Extension	Signal	C (28.6)	B (15.1)
11	Old Milton Parkway at Morris Road Extension	Signal	C (34.4)	C (25.6)
12	Dryden Road at MARTA North Driveway	EB STOP	A (8.9)	A (8.9)
13	Dryden Road at MARTA South Driveway	EB STOP	A (8.5)	A (8.5)

As you can see in the table, two of the intersections currently operate below the acceptable Level of Service standard (LOS D) during at least one of the peak hours. The LOS standard will become LOS E for the intersections of Windward Parkway at North Point Parkway (#3) and North Point Parkway at Dryden Road / Existing Driveway A (#6).



Kimley-Horn and Associates, Inc.	Windward Mill DRI Transportation Analysis	Existing 2007 Conditions	Figure 6A



Kimley-Horn and Associates, Inc.	Windward Mill DRI Transportation Analysis	Existing 2007 Conditions	Figure 6B

6.2 2015 No-Build Traffic

The existing traffic volumes were grown at 2.0% per year along all roadway links within the study network. In addition to the background growth rate, project traffic from three DRIs and a proposed development along Morris Road Extension in the vicinity of the project was included in the 2015 No-Build volumes. These volumes were input in Synchro 6.0 and analyses of the projected No-Build conditions were performed. The results are displayed below in **Table 5.** The projected volumes for the year 2015 No-Build conditions are shown in **Figures 7A and 7B.**

Table 5
Windward Mill DRI
No-Build 2015 Intersection Levels of Service
Level of Service (delay in seconds)

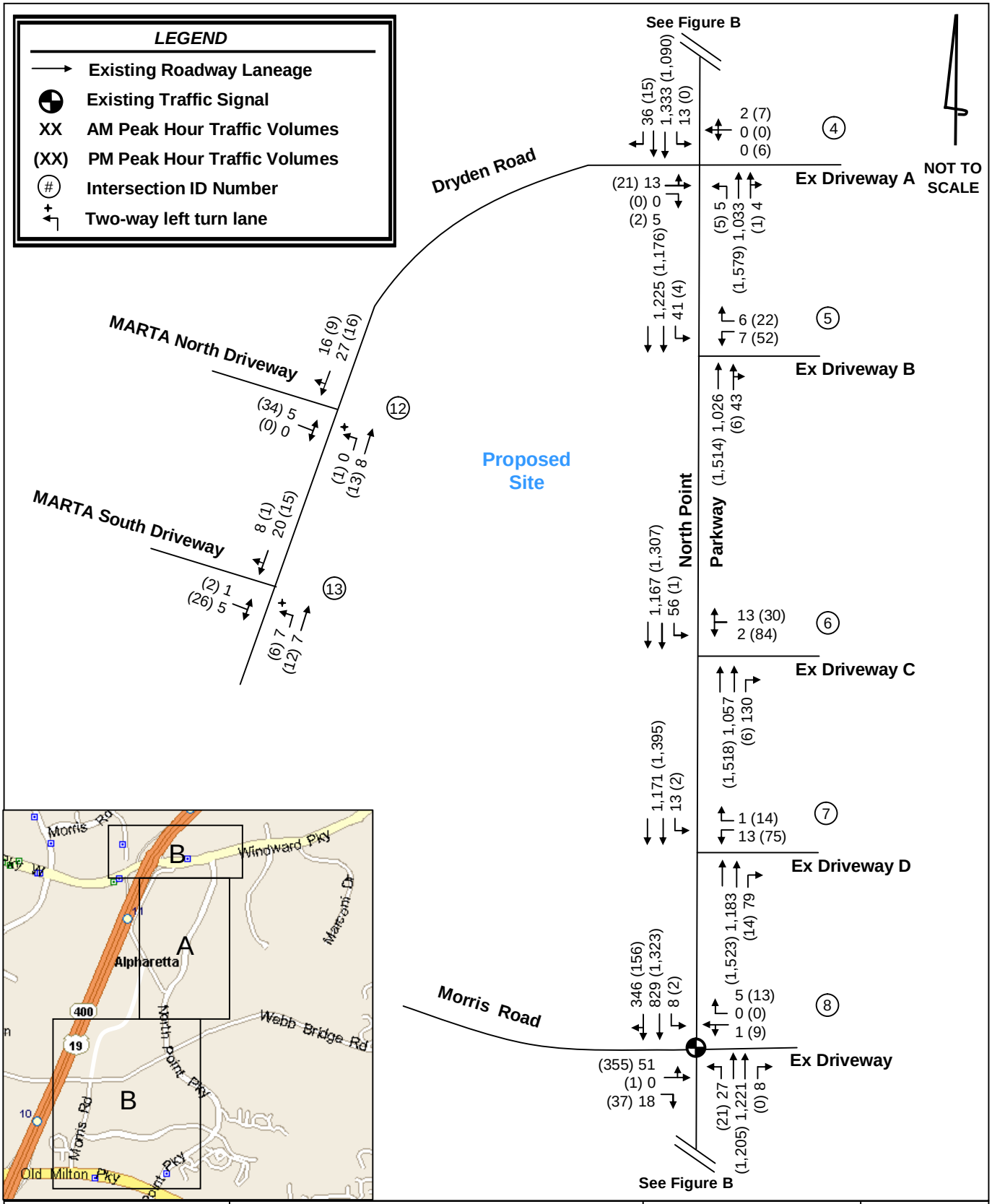
	Intersection	Control	AM Peak Hour	PM Peak Hour
1	SR 400 SB Ramps at Windward Parkway	Signal	C (26.9)	D (49.4)
2	SR 400 NB Ramps at Windward Parkway	Signal	D (36.2)	D (47.7)
3	Windward Parkway at North Point Parkway	Signal	F *	F *
4	North Point Parkway at	EB STOP	E (49.8)	E (44.6)
	Dryden Road/Existing Driveway A	WB STOP	B (13.0)	E (36.1)
5	North Point Parkway at Existing Driveway B	WB STOP	C (21.7)	F (78.2)
6	North Point Parkway at Existing Driveway C	WB STOP	C (15.2)	F *
7	North Point Parkway at Existing Driveway D	WB STOP	D (29.8)	F *
8	North Point Parkway at Morris Road	Signal	A (7.2)	C (34.7)
9	North Point Parkway at Webb Bridge Road	Signal	E (57.4)	D (38.8)
10	Webb Bridge Road at Morris Road Extension	Signal	E (77.2)	D (45.8)
11	Old Milton Parkway at Morris Road Extension	Signal	F *	F *
12	Dryden Road at MARTA North Driveway	EB STOP	A (8.9)	A (9.0)
13	Dryden Road at MARTA South Driveway	EB STOP	A (8.6)	A (8.6)

Note: LOS Standard at Intersection #3 and #6 is LOS E.

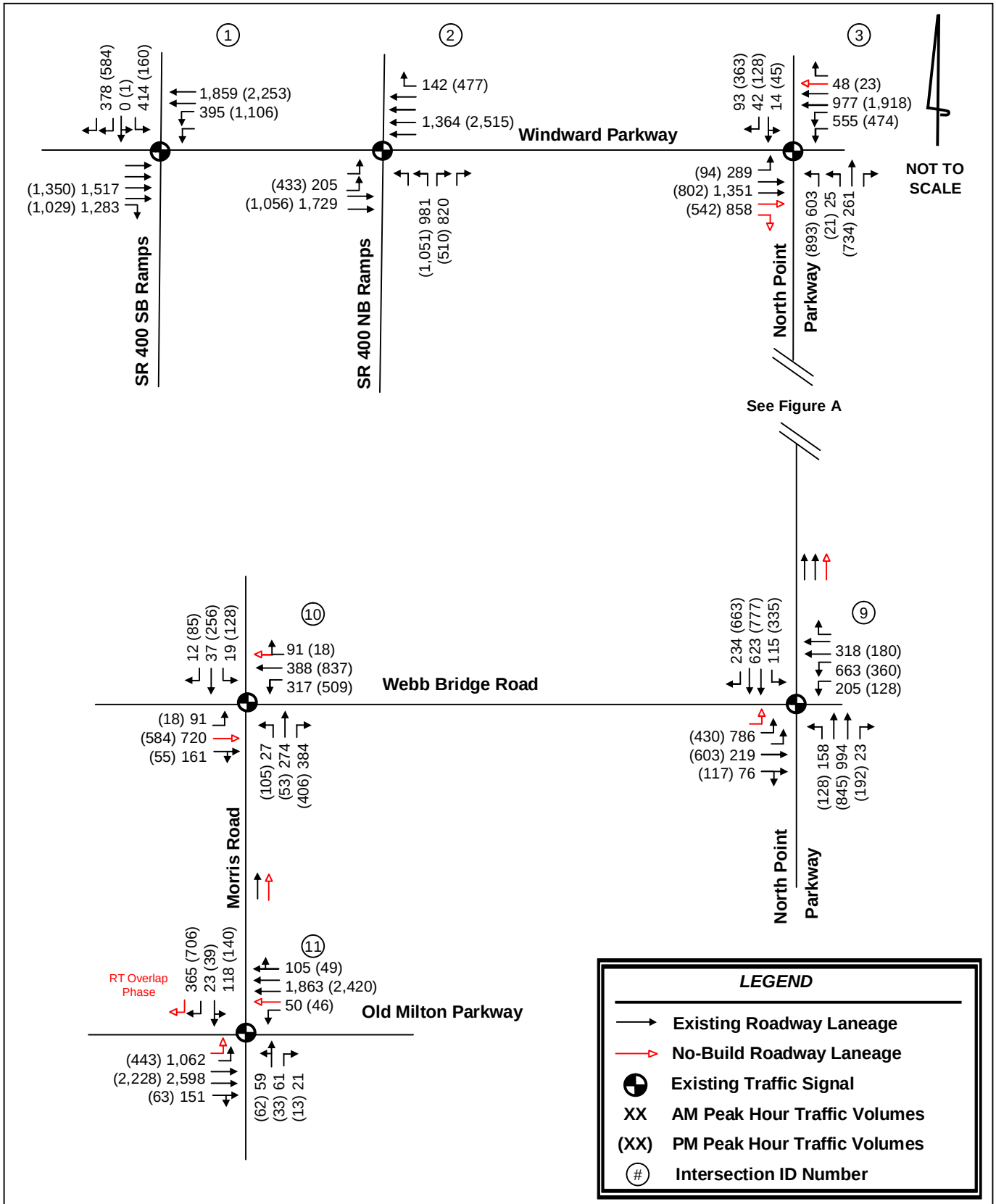
Note: * Long delays expected for side-street traffic.

Eight of the thirteen intersections failed to meet acceptable Level of Service standards for the year 2015 No-Build condition. At unsignalized intersections, it is not uncommon for side-street traffic to experience delays at an intersection with a major street. Per GRTA's Letter of Understanding, improvements were recommended at four intersections until the Level of Service was elevated to the GRTA standard. The 2015 No-Build with Improvement intersection Level of Service are displayed below in **Table 6**.

No improvements were recommended at the four existing office driveways (Intersections #4, #5, #6, and #7) along North Point Parkway as it is not uncommon for unsignalized side-street traffic to experience delays during the peak hours. Additionally, the side-street traffic is not expected to meet peak hour traffic signal warrants.



Kimley-Horn and Associates, Inc.	Windward Mill DRI Transportation Analysis	2015 No-Build Conditions	Figure 7A



Kimley-Horn and Associates, Inc.	Windward Mill DRI Transportation Analysis	2015 No-Build Conditions	Figure 7B

Table 6 Windward Mill DRI No-Build 2015 Intersection Levels of Service IMPROVED Level of Service (delay in seconds)				
Intersection		**Control**	**AM Peak Hour**	**PM Peak Hour**
3	Windward Parkway at North Point Parkway	Signal	E (58.2)	E (77.0)
9	Webb Bridge Road at North Point Parkway	Signal	D (48.1)	D (37.2)
10	Webb Bridge Road at Morris Road Extension	Signal	C (30.2)	C (27.9)
11	Old Milton Parkway at Morris Road Extension	Signal	D (43.2)	C (32.7)

Note: LOS Standard at Intersection #3 is LOS E.

The 2015 No-Build improvements made to the intersections are shown in Figures 7A and 7B, and are listed below by intersection:

Windward Parkway @ North Point Parkway (Intersection #3)

- Install an eastbound right-turn lane along Windward Parkway with a right-turn overlap phase (green arrow).
- Install an additional eastbound through lane and westbound through lane along Windward Parkway (three through lanes eastbound and westbound).

Webb Bridge Road @ North Point Parkway (Intersection #9)

- Install an additional eastbound left-turn lane along Webb Bridge Road to create triple left-turn lanes. Construct a third northbound receiving lane and taper to the existing two northbound through lanes. (Note: The opening of the Morris Road Extension to the north of Webb Bridge Road may alleviate the need for triple left turn-lanes at this intersection.)

Webb Bridge Road @ Morris Road (Intersection #10)

- Install an eastbound through lane along Webb Bridge Road.
- Convert the westbound right turn-lane along Webb Bridge Road to a shared through/right-turn lane.

Old Milton Parkway @ Morris Road (Intersection #11)

- Install an additional eastbound left-turn lane (creating dual left-turn lanes) along Old Milton Parkway and provide a protected-only left-turn signal phase (green arrow). Construct a second northbound receiving lane and taper to the existing single northbound through lane.
- Install an additional westbound through lane along Old Milton Parkway.
- Install an additional southbound right-turn lane (creating dual right-turn lanes) with a right-turn overlap phase (green arrow).

6.3 2015 Build Traffic

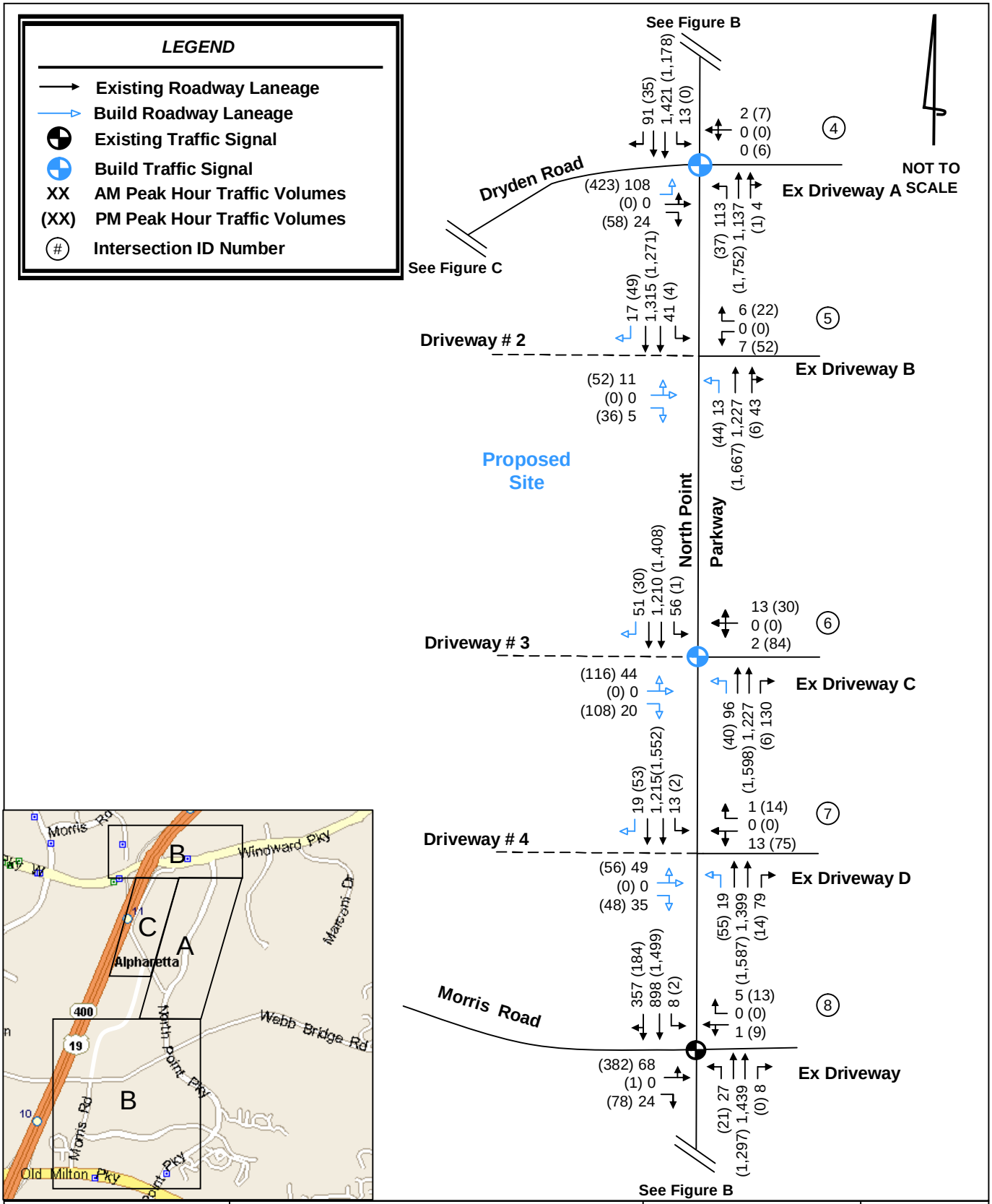
The traffic associated with the proposed development (Windward Mill) was added to the 2015 No-Build volumes. These volumes were then input into Synchro 6.0 with the recommended No-Build geometry improvements from the previous section. The results of the analyses are displayed in **Table 7**. The projected volumes, laneage, and recommended intersection control for the year 2015 Build condition are illustrated in **Figures 8A, B, and C.**

Table 7
Windward Mill DRI
Build 2015 Intersection Levels of Service
Level of Service (delay in seconds)

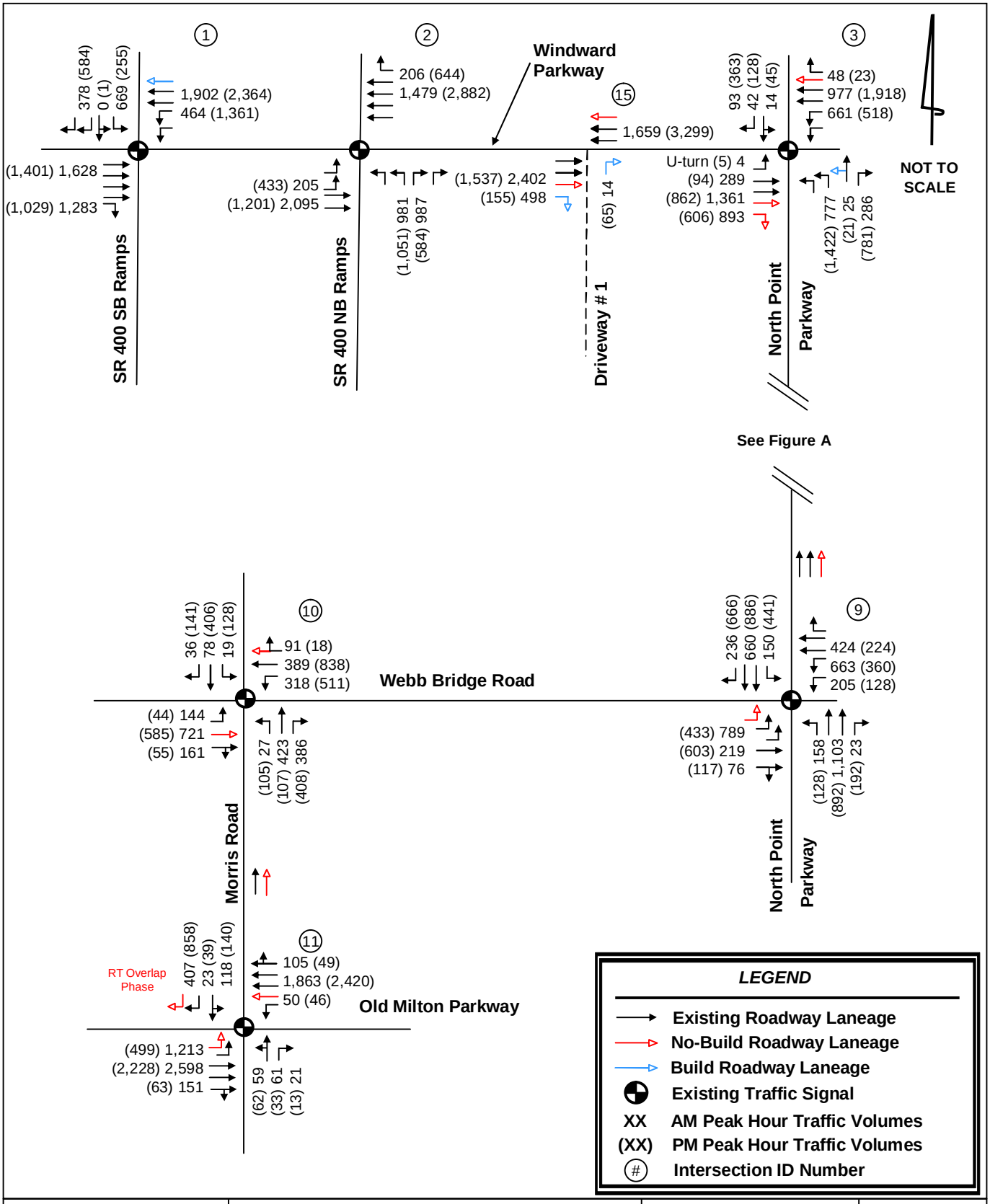
	Intersection	Control	AM Peak Hour	PM Peak Hour
1	SR 400 SB Ramps at Windward Parkway	Signal	C (31.2)	E (57.8)
2	SR 400 NB Ramps at Windward Parkway	Signal	D (48.8)	D (47.9)
3	Windward Parkway at North Point Parkway	Signal	F (97.0)	F
4	North Point Parkway at Dryden Road/Existing Driveway A	EB STOP WB STOP	F B (13.8)	F F (54.8)
5	North Point Parkway at Existing Driveway B/Driveway #2	EB STOP WB STOP	F (53.9) D (33.5)	F (94.5) F
6	North Point Parkway at Existing Driveway C/Driveway #3	EB STOP WB STOP	F C (22.6)	F F
7	North Point Parkway at Existing Driveway D/Driveway #4	EB STOP WB STOP	F (63.8) F (62.6)	F F
8	North Point Parkway at Morris Road	Signal	A (8.4)	D (47.1)
9	North Point Parkway at Webb Bridge Road	Signal	D (53.7)	D (47.1)
10	Webb Bridge Road at Morris Road Extension	Signal	D (36.9)	C (34.8)
11	Old Milton Parkway at Morris Road Extension	Signal	D (51.0)	C (33.4)
12	Dryden Road at MARTA North Driveway/Driveway #10	EB STOP WB STOP	C (21.4) C (15.5)	B (13.2) B (11.5)
13	Dryden Road at MARTA South Driveway/Driveway #12	EB STOP WB STOP	A (9.5) B (14.0)	A (9.8) B (12.5)

Note: LOS Standard at Intersection #3 and #6 is LOS E.

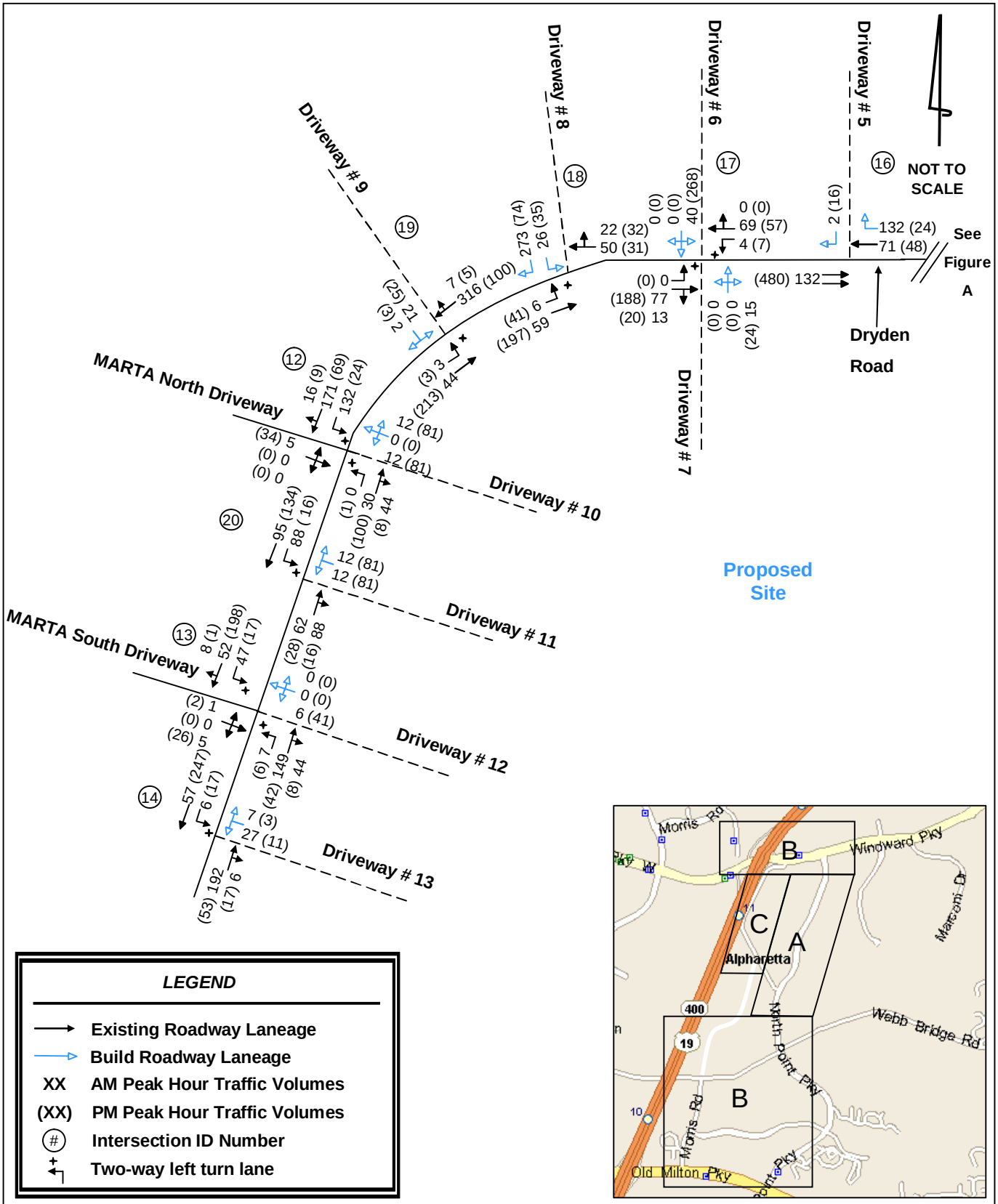
As shown in Table 7, six of the thirteen intersections failed to meet the acceptable Level of Service standard for the year 2015 Build conditions. As mentioned previously, it is not uncommon for side-street traffic to experience delays at an unsignalized intersection with a major street. Per GRTA's Letter of Understanding guidelines, improvements were made to four intersections until the Level of Service was elevated to the GRTA standard. The 2015 Build with Improvements intersection analysis Level of Service are displayed below in **Table 8.**



Kimley-Horn and Associates, Inc.	**Windward Mill DRI Transportation Analysis**	**2015 Build Conditions**	**Figure 8A**



Kimley-Horn and Associates, Inc.	**Windward Mill DRI Transportation Analysis**	**2015 Build Conditions**	**Figure 8B**



Kimley-Horn and Associates, Inc.	Windward Mill DRI Transportation Analysis	2015 Build Conditions	Figure 8C

No improvements were recommended at two driveways (Intersections #5 and #7) along North Point Parkway as it is not uncommon for unsignalized side-street traffic to experience delays during the peak hours. The side-street traffic is not expected to meet peak hour traffic signal warrants and traffic signals were recommended at adjacent site driveways.

Table 8
Windward Mill DRI
Build 2015 Intersection Levels of Service IMPROVED
Level of Service (delay in seconds)

	Intersection	Control	AM Peak Hour	PM Peak Hour
1	SR 400 SB Ramps at Windward Parkway	Signal	C (28.7)	C (35.4)
3	Windward Parkway at North Point Parkway	Signal	E (61.8)	E (77.0)
4	North Point Parkway at Dryden Road/Existing Driveway A	Signal	B (15.6)	C (29.2)
6	North Point Parkway at Existing Driveway C/Driveway 3	Signal	A (5.3)	B (14.5)

Note: LOS Standard at Intersection #3 is LOS E.

The 2015 Build improvements made to the intersection are shown in Figures 8A, B, and C, and are listed below by intersection:

(Note: These improvements are in addition to the 2015 No-Build improvements)

SR 400 SB Ramps at Windward Parkway (Intersection #1)

- Install an additional westbound through lane along Windward Parkway.
- (Note: Deerfield Place DRI #1470 recommended an improvement at the intersection).

Windward Parkway at North Point Parkway (Intersection #3)

- Restripe the northbound through lane to a shared northbound left-turn / through lane along North Point Parkway.
- Lengthen northbound left-turn lane storage by reconstructing median (300 foot minimum storage).

North Point Parkway at Dryden Road (Intersection #4)

- Install a traffic signal, when warranted. Provide split-phase traffic signal operation for the side-street approaches (eastbound and westbound).
- Install an additional eastbound left-turn lane along Dryden Road when a traffic signal is installed.
- Provide a protected-permitted (green arrow) signal phase for the northbound left-turn movement.

The proposed site driveways were analyzed for the 2015 Build conditions. **Table 9** reports the Level of Service analysis results for the proposed site driveways. The 2015 Build intersection volumes, laneage, and recommended intersection control is illustrated in **Figures 8A, B, and C**.

Table 9 Windward Mill DRI Build 2015 Intersection Levels of Service – New Driveway Locations Level of Service (delay in seconds)				
	Intersection	**Control**	**AM Peak Hour**	**PM Peak Hour**
14	Dryden Road at Driveway #13	WB STOP	B (10.2)	B (10.5)
15	Windward Parkway at Driveway #1	NB STOP	C (17.9)	B (11.1)
16	Dryden Road at Driveway #5	SB STOP	A (8.7)	A (8.6)
17	Dryden Road at Driveway #6 / Driveway #7	NB STOP SB STOP	A (8.8) A (10.0)	A (9.5) C (15.7)
18	Dryden Road at Driveway #8	SB STOP	A (10.0)	A (9.6)
19	Dryden Road at Driveway #9	EB STOP	B (11.2)	B (10.6)
20	Dryden Road at Driveway #11	WB STOP	B (10.3)	B (10.1)

The following intersection geometry and improvements are recommended at the proposed site driveways:

Windward Parkway at Proposed RIRO Driveway #1 (Intersection #15)

- Install an eastbound right-turn lane along Windward Parkway.
- Install a northbound right-turn only egress lane along the proposed driveway #1.

North Point Parkway at Existing Driveway B / Driveway #2 (Intersection #5)

- Install a northbound left-turn lane along North Point Parkway.
- Install a southbound right-turn lane along North Point Parkway.
- Install an eastbound shared left-turn / through lane and a separate right-turn lane along the proposed driveway #2.

North Point Parkway at Existing Driveway C / Driveway #3 (Intersection #6)

- Install a northbound left-turn lane along North Point Parkway.
- Install a southbound right-turn lane along North Point Parkway.
- Install an eastbound shared left-turn / through lane and a separate right-turn lane along the proposed driveway #3.
- Install a traffic signal, when warranted.
- Provide a protected-permitted (green arrow) signal phase for the northbound left-turn movement.

North Point Parkway at Existing Driveway D / Driveway #4 (Intersection #7)

- Install a northbound left-turn lane along North Point Parkway.
- Install a southbound right-turn lane along North Point Parkway.
- Install an eastbound shared left-turn / through lane and a separate right-turn lane along the proposed driveway #4.

Dryden Road at Proposed RIRO Driveway #5 (Intersection #16)

- Install a westbound right-turn lane along Dryden Road.

Dryden Road at Proposed Driveway #8 (Intersection #18)

- Install a separate left-turn lane and right-turn lane southbound along driveway.

6.4 Alternative Scenario

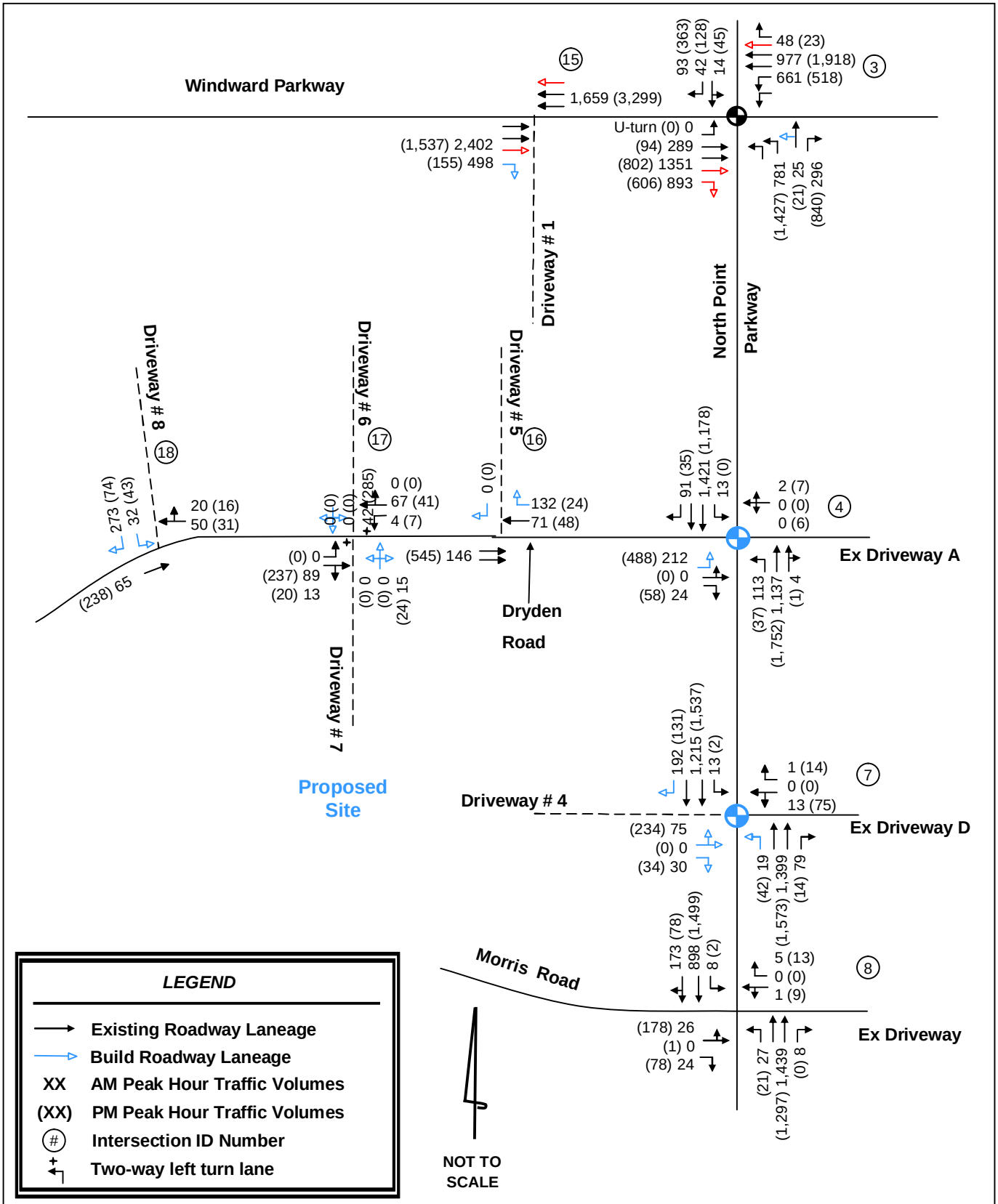
Two additional roadway configurations were requested to be analyzed per GRTA's Letter of Understanding. Both alternative roadway configurations were included in one alternative analysis. One aspect of the alternative included changing Driveway #1 (Intersection #15) from a right-in/right-out driveway to right-in only driveway. Project trips were redistributed which affected four intersection analyses (Intersection #3, 4, 17, and 18).

The other aspect of the alternative included extending the Morris Road Extension north to connect with an internal site road and the proposed Driveway #4. The scenario also included removing the existing traffic signal at North Point Parkway at Morris Road (Intersection #8) and installing a traffic signal at North Point Parkway at Driveway #4 / Existing Driveway D (Intersection #7). Background traffic volumes were redistributed based on the Morris Road Extension. Half of the eastbound left-turns and southbound right-turns at Intersection #8 were relocated from Morris Road to Intersection #7. The results of the analysis are shown in **Table 10**. (Note: Table 10 includes all earlier roadway improvements from the 2015 Build conditions.) The alternate scenario intersection volumes, laneage, and recommended intersection control is illustrated in **Figure 9**.

Table 10
Windward Mill DRI
Build 2015 Intersection Levels of Service IMPROVED
ALTERNATIVE SCENARIO
Level of Service (delay in seconds)

	Intersection	***Control***	***AM Peak Hour***	***PM Peak Hour***
3	Windward Parkway at North Point Parkway	Signal	E (60.7)	E (77.7)
4	North Point Parkway at Dryden Road/Existing Driveway A	Signal	B (17.5)	C (33.1)
7	North Point Parkway at Existing Driveway D/Driveway #4	Signal	A (4.4)	B (15.0)
8	North Point Parkway at Morris Road	EB STOP WB STOP	E (40.6) C (21.1)	F E (39.8)
17	Dryden Road at Driveway #6 / Driveway #7	NB STOP SB STOP	A (8.9) B (10.1)	A (9.8) C (17.8)
18	Dryden Road at Driveway #8	SB STOP	B (10.0)	A (9.5)

Changing the Driveway #1 from a right-in/right-out driveway to right-in only driveway affects the level of service at intersections of Windward Parkway at North Point Parkway (#3) and North Point Parkway at Dryden Road (#4). Installing a right-only exit at the Driveway #1 location will provide an additional exit for vehicles traveling east along Windward Parkway. Without this exit location, all project vehicles traveling west or east along



Kimley-Horn and Associates, Inc.	**Windward Mill DRI Transportation Analysis**	**Alternate Scenario**	**Figure 9**

Windward Parkway will be forced to travel through the intersection of North Point Parkway at Dryden Road/Existing Driveway A (#4). Providing a right-only exit at Driveway #1 is recommended.

Extending the Morris Road Extension north to connect with an internal site road and relocating the traffic signal to the proposed Driveway #4 intersection is not proposed as part of the Windward Mill DRI because the developer does not control the property. This alternative may result in a poor level of service for the intersection of North Point Parkway at Morris Road (#8) when it is changed from a signalized to unsignalized intersection.

7.0 IDENTIFICATION OF PROGRAMMED PROJECTS

The *Mobility 2030 RTP*, *TIP, STIP, GDOT's Construction Work Program (CWP)* were researched for currently programmed transportation projects within the vicinity of the proposed development. Three transportation projects are programmed for the area surrounding the study network. Information on the projects is included in the Appendix. **Figure 10** shows an aerial representation of the improvements.

1. GDOT # 0006819 (RTP, STIP, CWP)	North Point Parkway traffic signal interconnections from Mansell Road to Windward Parkway. [Page 1,4,6 in appendix] Expected Completion Date: 2010
2. GDOT # 0006818 (RTP, STIP, CWP)	Windward Parkway traffic signal interconnections from SR 9 (Alpharetta Road) to McGinnis Ferry Road. [Page 2,4,7 in appendix] Expected Completion Date: 2010
3. GDOT # 0001757 (RTP)	Addition of HOV lanes along Georgia 400 (I-285 to Mc Farland Road). [Page 3,5 in appendix] Expected Completion Date: 2015

8.0 INGRESS/EGRESS ANALYSIS

Access to the development is proposed at thirteen locations via thirteen proposed driveways. Nine driveways are proposed along Dryden Road, three along North Point Parkway, and one along Windward Parkway. Eleven of the driveways are proposed to be full-movement driveways, and two are proposed to be right-in/right-out driveways. The number of project driveways was reduced from the site plan presented at the Pre-Application to provide greater driveway spacing along the existing public streets. The proposed driveway locations provide access to different land uses within the site and to the internal network of streets within the site.

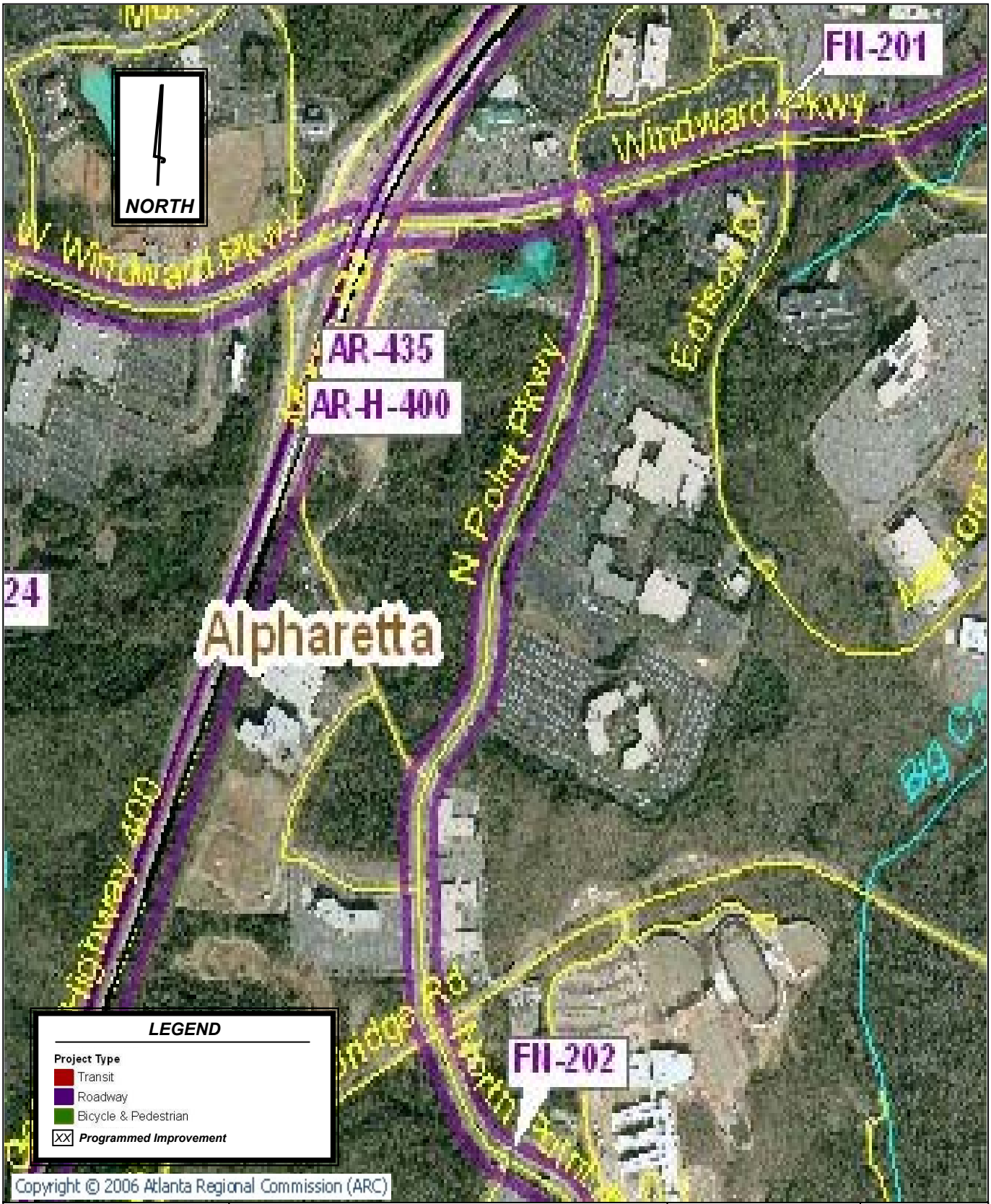
Walking paths are proposed internal to the site and are proposed to connect to existing sidewalks along the property frontage. Sidewalks will be constructed along the property frontage along Dryden Road and the west side of North Point Parkway where sidewalks currently do not exist.

9.0 INTERNAL CIRCULATION ANALYSIS

The proposed development will generate trips between the residential, hotel, office, and retail land uses. Using the *ITE Trip Generation Handbook, 2004* as a reference, approximately 10.49% of the gross daily trips will be internal and approximately 8.06% of the gross PM peak hour trips will be internal.

10.0 COMPLIANCE WITH COMPREHENSIVE PLAN ANALYSIS

The Future Land Use Plan for the City of Alpharetta designates this area as Office Center. The site is currently approved for 1,045,000 square feet of office uses and a 150-room hotel.



Kimley-Horn and Associates, Inc.	***Windward Mill DRI Transportation Analysis***	***Programmed Improvements***	***Figure 10***

11.0 NON-EXPEDITED CRITERIA

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

Vehicular access to the development is provided by multiple roadways. The proposed development is located along a major limited-access facility, SR 400, at the Windward Parkway interchange. In addition to vehicular access, sidewalks currently exist along many of the roadways in the vicinity of the project. There are no bicycle facilities in close proximity to the project site.

The development is within walking distance of the MARTA Windward Parkway Park and Ride Lot, which provides for carpooling and MARTA bus service. MARTA bus service connects to the North Springs MARTA transit station, were passengers can access the MARTA rail line.

11.2 Vehicle Miles Traveled

The following table displays the reduction in traffic generation due to internal capture, alternative modes, and pass-by trips.

	Build-out Total
Daily Gross Trip Generation:	16,792
(-)Mixed-use reductions (internal capture)	-1,762
(-)Pass-by trips	-2,080
(-)Alternative modes	-600
Net Trips:	12,350

11.3 Relationship Between Location of Proposed DRI and Regional Mobility

The proposed development is located along a major limited-access facility, SR 400, at the Windward Parkway interchange. The development is within walking distance of the MARTA Windward Parkway Park and Ride Lot, which provides for carpooling and MARTA bus service. MARTA bus service connects to the North Springs MARTA transit station, were passengers can access the MARTA rail line.

11.4 Relationship Between Proposed DRI and Existing or Planned Transit Facilities

The development is within walking distance of the MARTA Windward Parkway Park and Ride Lot, which provides for carpooling and MARTA bus service. MARTA bus service connects to the North Springs MARTA transit station, were passengers can access the MARTA rail line

11.5 Transportation Management Area Designation

The proposed development is not located within an established TMA.

11.6 Offsite Trip Reduction and Trip Reduction Techniques

Mixed-use and pass-by trip reductions were taken according to the *ITE Trip Generation Handbook, 2004*. Approximately 10.49% % of the gross daily trips will be internal and approximately 8.06% % of the gross PM peak hour trips will be internal.

Pass-by reductions were taken according to the *ITE Trip Generation Handbook, 2004* and GRTA guidelines for the retail portion of the site.

An alternate transportation mode reduction of 4.0% was applied given the proximity of the MARTA park and ride lot as well as the opportunity to carpool to and from the office portion of the development.

11.7 Balance of Land Uses – Jobs/Housing Balance

Please refer to the Area of Influence Analysis, located in Section 12.0 of the report.

11.8 Relationship Between Proposed DRI and Existing Development and Infrastructure

The development is located in an area where the existing infrastructure is expected to be adequate to serve the needs of the development upon build-out (2015).

12.0 AREA OF INFLUENCE

The proposed development, Windward Mill, is expected to consist of 500 condominium dwelling units, 850,000 SF of office space, a 225-room hotel, and 85,000 SF of retail space. Due to the nature of the development, it is classified as "predominantly employment" for the purposes of this AOI. The following section will describe the Area of Influence demographics, DRI average wage levels, expected AOI housing costs, and the opportunity for workers who are employed in the DRI to find housing within the AOI.

12.1 Criteria

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

> The proposed DRI:
>
> > (b) Is located in an Area of Influence where the proposed DRI is reasonably anticipated to contribute to the balancing of land uses within the Area of Influence such that twenty-five percent (25%) of the persons that are reasonably anticipated to be employed in the proposed DRI have the opportunity to live within the Area of Influence;

12.2 Study Area Determination and Characteristics

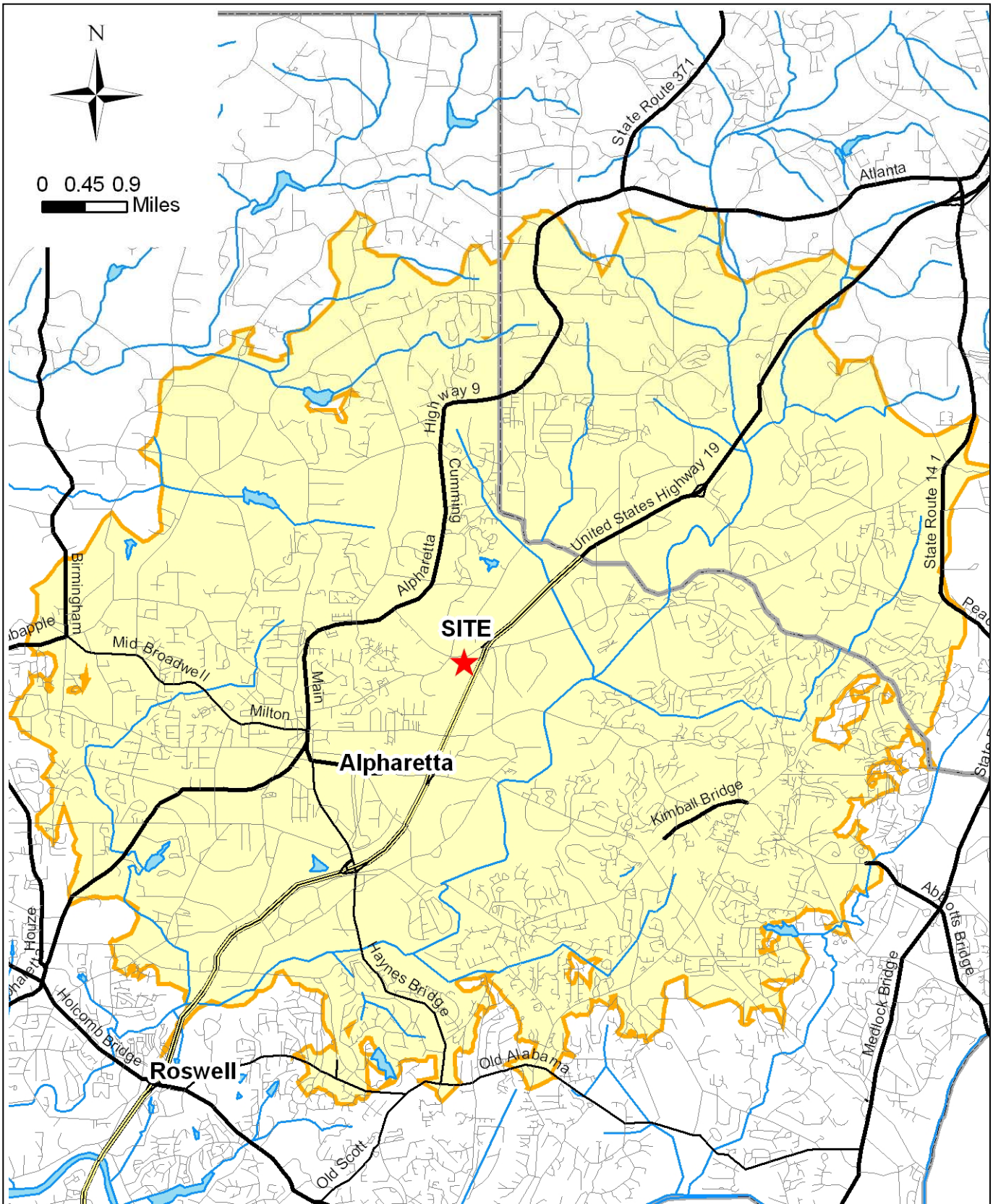
The Area of Influence is comprised of the area within six road-miles of the proposed development. To determine the AOI, *TransCAD* was used to measure six road miles from the nearest intersection to the project (Windward Parkway at North Point Parkway). The population and housing statistics for the AOI were determined by taking the area outlined in *TransCAD*, creating a boundary in GIS format, and overlaying the boundary with a GIS layer containing census tract information. The Area of Influence (located within Fulton and Forsyth counties) can be seen in **Figure 11**.

The total population within the Area of Influence is 85,513, residing within 31,661 households (an average of 2.69 people per household). There are approximately 49,470 workers in the AOI for an average of 1.44 workers per household. The AOI area over the two counties totals 42,800 acres.

12.3 DRI Employment and Salary Figures

The DRI is expected to employ approximately 3,206 workers in the following land uses: General Office, Hotel, and Retail. The numbers of workers for the office, hotel, and shopping center land uses are based on assumptions provided in the *Area of Influence (AOI) Guidebook for Non-Expedited Reviews, April 2003*. For the office land use, 1 employee per 300 SF yields 1,850 office employees. For the specialty retail land use, 1 employee per 560 SF results in 43 retail employees. Hotel land uses are expected to employ approximately 0.9 workers per hotel room.

For the office land use, employees are assumed to work in the following occupations: management, technical, office and administrative support, computers, and business and financial operations. The specialty retail land use



Kimley-Horn and Associates, Inc.	***Windward Mill DRI Transportation Analysis***	***Area of Influence***	***Figure 11***

includes retail managers and retail salespersons. For the hotel land use, it is assumed that employment will be comprised of the following occupations: lodging managers, bellhops, housekeepers, desk clerks, and food preparers and servers.

Using the departmental and occupational guidelines provided by the client, along with the U.S. Department of Labor's *May 2005 Metropolitan Area Occupational Employment and Wage Estimates Atlanta-Sandy Springs-Marietta, GA*, salaries were approximated for each occupation. The following occupational codes were used for the above jobs:

11-9081 Lodging Managers
35-0000 Food Preparation and Serving Related Occupations
37-2012 Maids and Housekeeping Cleaners
39-6011 Baggage Porters and Bellhops
11-0000 Management Occupations
13-0000 Business and Financial Operations Occupations
15-0000 Computer Occupations
17-0000 Technical Occupations
41-1011 Managers of Retail Sales
41-2031 Retail Salespersons
43-0000 Office and Administrative Support Occupations

Household salary was calculated based on the computed workers per household ratio of 1.44 multiplied by the salary in each bracket. It is assumed then that each household has 1.44 workers who contribute to the monthly household salary. The affordable housing payment is calculated as 30% of the monthly household salary, as based on GRTA's *Area of Influence (AOI) Guidebook for Non-Expedited Reviews*. **Table 11** displays the department positions, the numbers of employees in each occupation, the monthly employee and household salaries, and the respective affordable housing payments.

Table 11
Employment, Salary, and Affordable Housing Payment by Occupation

Land Use	*Occupation*	*Employees*	*Monthly Employee Salary*	*Monthly Household Salary*	*Affordable Housing Payment*
General Office	*Management Occupations*	*567*	*$7,690*	*$11,074*	*$3,322*
	Technical Occupations	*708*	*$5,020*	*$7,229*	*$2,169*
	Office and Administrative Support	*283*	*$2,541*	*$3,659*	*$1,098*
	Computer Occupations	*567*	*$5,501*	*$7,921*	*$2,376*
	Business and Financial Operations	*708*	*$5,049*	*$7,271*	*$2,181*
Hotel	*Lodging Managers*	*41*	*$5,446*	*$7,842*	*$2,353*
	Baggage Porters and Bellhops	*10*	*$1,539*	*$2,216*	*$665*
	Maids and Housekeeping Cleaners	*51*	*$1,419*	*$2,044*	*$613*
	Hotel, Motel, and Resort Desk Clerks	*51*	*$1,445*	*$2,081*	*$624*
	Maintenance and Repair, General	*10*	*$2,781*	*$4,004*	*$1,201*
	Food Preparation and Serving	*41*	*$1,403*	*$2,021*	*$606*
Specialty Retail	*Managers of Retail Sales*	*34*	*$2,937*	*$4,229*	*$1,269*
	Retail Salespersons	*136*	*$1,932*	*$2,782*	*$834*
	Total Employees	*3,206*	*-*	*-*	*-*

Given the above calculated salaries, each household is eligible for a specific housing tier within the Area of Influence. **Table 12** below displays the number of households that fall into each tier based on the household salary.

Table 12
Number of Households in the DRI by Range of Monthly Income

Range of Monthly Income for Housing	Number of Households
$499 or less	0
$500 to $599	0
$600 to $699	152
$700 to $799	0
$800 to $899	136
$900 to $999	0
$1,000 to $1,249	293
$1,250 to $1,499	34
$1,500 to $1,999	0
$2,000 or more	2,590
Total	3,206

12.4 AOI Occupied Housing Figures

An analysis of existing occupied housing was conducted based on 2000 Census data for owner- and renter-occupied housing. A GIS analysis identified approximately 50,000 owner-occupied units and 16,000 renter-occupied units in the AOI. **Table 13** below displays the housing units in comparable price tiers as are shown in Table 12. Owner-occupied housing includes housing with and without a mortgage. Renter-occupied housing includes all rental units with the exception of those with no cash rent.

Table 13
Selected Monthly Costs for All Occupied Housing Units in the AOI

Monthly Dollar Range	Owner-Occupied Housing Units in the AOI	Renter-Occupied Housing Units in the AOI	Total Occupied Housing Units in the AOI
$499 or less	0	1,019	1,019
$500 to $599	1,022	514	1,536
$600 to $699	1,092	1,968	3,060
$700 to $799	1,345	4,161	5,506
$800 to $899	1,520	3,641	5,161
$900 to $999	3,615	1,829	5,444
$1,000 to $1,249	6,240	1,462	7,702
$1,250 to $1,499	6,706	483	7,189
$1,500 to $1,999	11,485	411	11,896
$2,000 or more	16,747	277	17,024
Total	49,772	15,765	65,537

Using the households in the DRI per price tier information in Table 12 and the renter / owner distribution of occupied housing in the AOI in Table 13 on the previous page, a comparison was done to analyze the available housing by price range within the AOI against the number of households per price tier expected within the proposed DRI. This comparison is shown below in **Table 14**.

Table 14
Comparison of Workers' Monthly Household Incomes in the DRI and Monthly Costs of Housing Units in the AOI

Monthly Dollar Range	Total Occupied Housing Units in the AOI	Number of DRI Households with One or More Workers Working in the DRI	Difference in Number of Housing Units in AOI and Number of Households with Workers in DRI
$499 or less	1,019	0	1,019
$500 to $599	1,536	0	1,536
$600 to $699	3,060	152	2,908
$700 to $799	5,506	0	5,506
$800 to $899	5,161	136	5,025
$900 to $999	5,444	0	5,444
$1,000 to $1,249	7,702	293	7,409
$1,250 to $1,499	7,189	34	7,155
$1,500 to $1,999	11,896	0	11,896
$2,000 or more	17,024	2,590	14,434
Total	65,537	3,206	62,332

As can be seen from Table 14, adequate housing opportunities exist for all wage-earning levels in the DRI for both owner and renter properties. Additionally, because the salaries of the employees are concentrated at the upper limits of the price tiers, considerable extra housing is available in lower price tiers if a household desires to choose a more conservative price range. Given this information, over 25% of the employees of the DRI have an opportunity to reside within the Area of Influence.

13.0 ARC'S AIR QUALITY BENCHMARK

The development is a mixed-use development and consists of approximately 500 condominium dwelling units, 225 hotel rooms, 850,000 SF of office, 80,000 SF of retail, and 5,000 SF of bank. Based on the ARC-approved assumption that each residential unit is 1800SF, residential is the dominant use and the dwelling units per acre ratio is approximately 10.49. Based on this density, the development is projected to meet a density target for a 4% reduction.

The mixed-use proposed development contains more than 10% of floor area for office space. Thus, the proposed site may receive a 4% VMT reduction.

The proposed development will provide connections between the residential and non-residential uses within the site. Thus, the proposed site may receive a 4% VMT reduction.

The project is located within ¼ mile of a bus stop. Thus, the proposed site may receive a 3% VMT reduction.

The proposed development meets the ARC criteria for a total 11% VMT reduction. These reductions are displayed below in **Table 15**.

Table 15
ARC VMT Reductions

Mixed-Use Projects where Residential is the dominant use	
Between 10 and 15 units per acre (10.49)	-4%
Residential dominant use with more than 10% office floor area	-4%
Bike/ped networks in developments that meet one density 'target'	-4%
Located within ¼ mile of a bus stop	-3%
Total Reductions	**15%**