Transportation Analysis

Mangum Street
DRI# 1493
City of Atlanta, Georgia

Prepared for:
Markham Street Partners

August 2007
019646000

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

This report presents the analysis of the anticipated traffic impacts associated with the proposed Mangum Street development, an approximate 2.35-acre mixed-use development located at 60 Mangum Street in the City of Atlanta, Georgia. The site is bounded by Mitchell Street to the north, Chapel Street to the south, Mangum Street to the west, and Centennial Olympic Park Drive to the east. This report is being prepared as part of a submittal requesting rezoning from MRC-2C to MRC-3. Because the project will contain over 400,000 square feet of mixed-use floor area, the proposed development is considered a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review. This document is being submitted under non-expedited review.

The proposed development is expected to consist of approximately 225 high-rise condo dwelling units, 16 live/work units, 25,745 square feet of office space, and 11,012 square feet of retail space. The development is scheduled to be completed in one phase by the year 2009. The site is zoned MRC-2C is currently unoccupied.

The results of the detailed intersection analysis for the 2009 No-Build Conditions (includes 2% per year background traffic growth) and 2009 Build Conditions (including trips generated by the Mangum Street development in addition to No-Build volumes) identify that no offsite geometric improvements are necessary to maintain the Level of Service standard, as defined by GRTA, within the study network.

The 2009 Build Conditions site driveway recommendations are provided below.

2009 Build site driveway recommendations/configuration (includes the Mangum Street DRI project traffic):

Site Driveway #1 @ Centennial Olympic Park Drive (Right-in/Right-out)

- Provide one westbound ingress lane and one eastbound egress lane onto Centennial Olympic Park Drive, side-street stop-controlled.

Site Driveway #2 @ Mangum Street

- Provide one eastbound ingress lane and one westbound egress lane onto Mangum Street, side-street stop-controlled.

1.0 PROJECT DESCRIPTION

1.1 Introduction

This report presents the analysis of the anticipated traffic impacts associated with the proposed Mangum Street development, an approximate 2.35-acre mixed-use development located at 60 Mangum Street in the City of Atlanta, Georgia. The site is bounded by Mitchell Street to the north, Chapel Street to the south, Mangum Street to the west, and Centennial Olympic Park Drive to the east. This report is being prepared as part of a submittal requesting rezoning from MRC-2C to MRC-3. Because the project will contain over 400,000 square feet of mixed-use floor area, the proposed development is considered a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review. This document is being submitted under non-expedited review.

The proposed development is expected to consist of approximately 225 High-Rise Residential Condos, 16 live/work units, 25,745 square feet of office space, and 11,012 square feet of retail space. The development is scheduled to be completed in one phase by year 2009. The site is zoned MRC-2C and is currently unoccupied. The site is proposed to be rezoned to MRC-3.

A summary of the proposed land-uses and densities is provided below in **Table 1.**

Table 1
Mangum Street DRI
Proposed Land Uses

High-Rise Condo*	241 dwelling units
Office Space	25,745 square feet
Specialty Retail	11,012 square feet

*Includes Live/Work Units

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

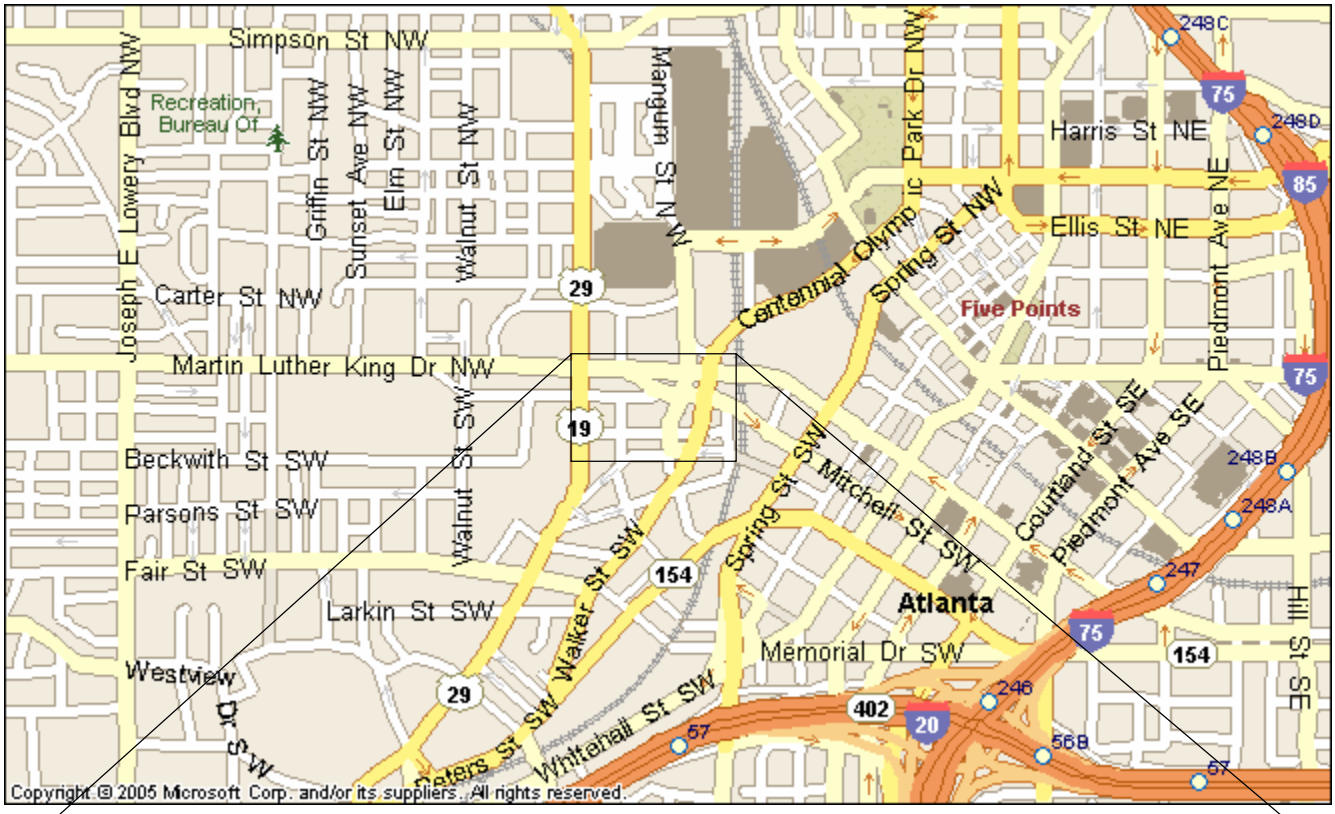
1.2 Site Plan Review

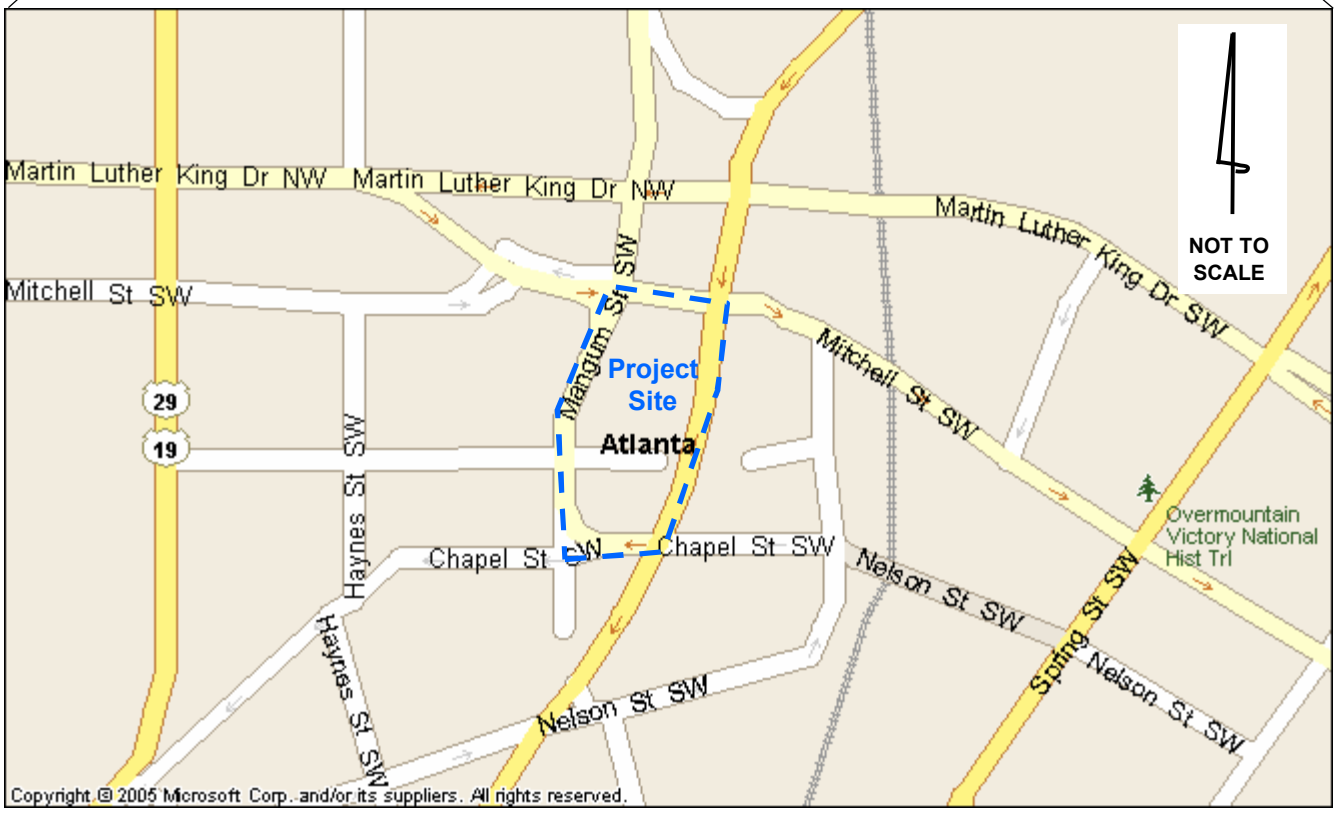
The development site plan consists of one high-rise building and parking deck that will be surrounded by retail and residential. The site is bounded by Mitchell Street to the north, Chapel Street to the south, Centennial Olympic Park Drive to the east, and Mangum Street to the west. Additionally, Markham Street terminates into the west side of the site. Entrances to the parking deck are proposed along both Mangum Street and Centennial Olympic Park Drive. One loading area is proposed to have access along Mitchell Street.

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

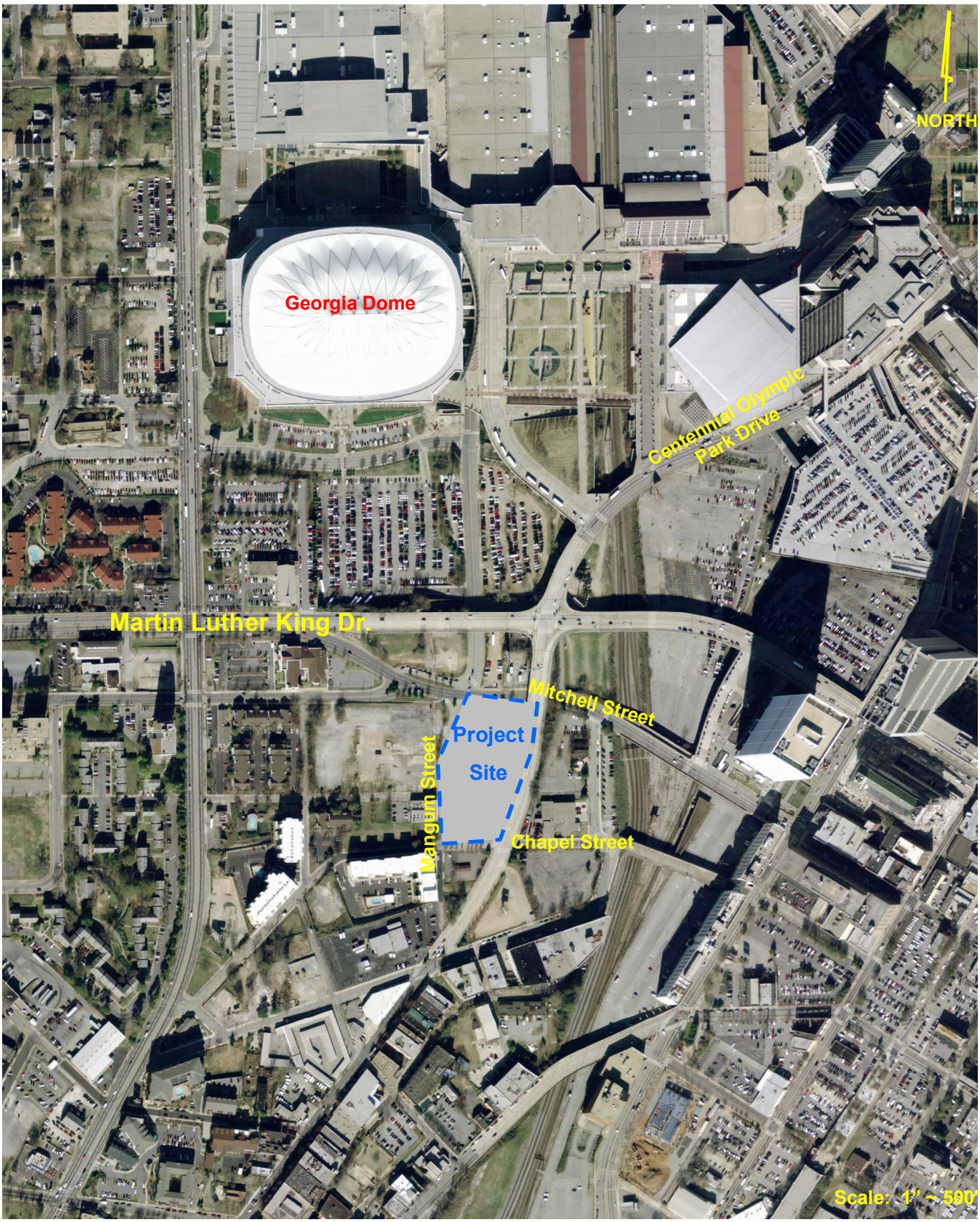
1.3 Site Access

Vehicular access to the development is proposed at two locations; one full-movement driveway along Mangum Street and one right-in/right-out driveway along Centennial Olympic Park Drive. Retail patrons may enter and exit via either access point, but will not be able to enter one driveway and exit the other. This is due to the design and construction of the deck and residential security gates, dictated by the different elevations of the two access points. Residents, however, will be able to enter and exit either driveway with interconnected access to both driveways.

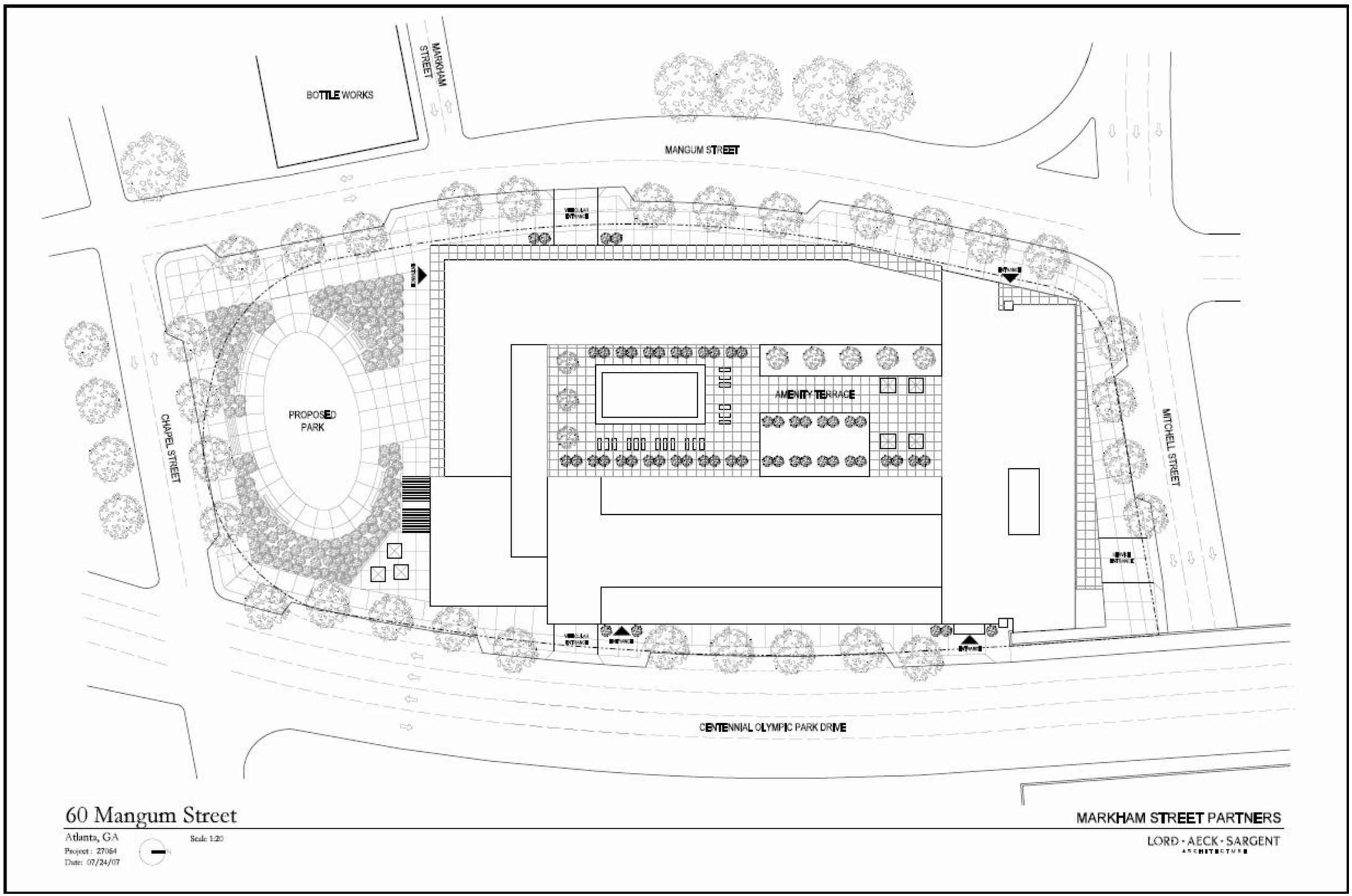




Kimley-Horn and Associates, Inc.	**Mangum Street DRI Transportation Analysis**	**Site Location Map**	**Figure 1**



Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	Aerial Photograph	Figure 2



N.T.S.

Figure 3

Site Plan

Mangum Street DRI
Traffic Impact Study

Kimley-Horn and Associates, Inc.

1.4 Bicycle and Pedestrian Facilities

Pedestrian facilities (sidewalks) currently exist along all roadway facilities adjacent to the site.

1.5 Transit Facilities

The proposed development is located approximately 1/3 mile southwest of the Dome/GWCC/Philips Arena/CNN Center MARTA station at Centennial Olympic Park Drive. This station lies on the East-West MARTA rail line (10-15 minute headways) which intersects the North-South rail line (to the south) at the Five Points Station. Two MARTA bus route operate from this station including the following: Route 3 – Auburn Ave./M. L. King Jr. Drive (20-35 minute headways) and Route 13 – Fair Street (20-30 minute headways). In addition, MARTA route 100, the Downtown Loop, runs in proximity to the site.

In addition to the MARTA bus lines, there are a few GRTA Xpress bus routes that operate close to the site. The closest stop is between Forsyth Street and Broad Street along Martin Luther King Junior Drive.

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 a growth rate of 2% per year for two years along all adjacent roadways was agreed upon during the Pre-Application Meeting with GRTA and City of Atlanta staff.

2.2 Traffic Data Collection

Year 2007 weekday peak hour turning movement counts were conducted on Thursday, August 2, 2007 at three unsignalized intersections and one signalized intersection during the AM and PM peak periods.

The morning and afternoon peak hours varied between the four (4) intersections and are listed below:

- Mangum Street @ Mitchell Street (Unsignalized) (AM Peak 8:00-9:00, PM Peak 4:45-5:45)
- Mangum Street @ Markham Street (Unsignalized) (AM Peak 7:30-8:30, PM Peak 5:00-6:00)
- Mangum Street @ Chapel Street (Unsignalized) (AM Peak 7:00-8:00, PM Peak 5:00-6:00)
- Centennial Olympic Park Dr. @ Chapel St. (Signalized)(AM Peak 7:00-8:00, PM Peak 5:00-6:00)

NOTE: At the time the traffic counts were performed, the two easternmost lanes of Centennial Olympic Park Drive were closed for southbound traffic. These lanes were barricaded to allow for northbound travel for traffic exiting the fire station from Chapel Street.

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

All raw count data is included in the Appendix.

2.3 Detailed Intersection Analysis

Level of Service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. 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 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 225 High-Rise Residential Condos, 16 live/work units, 25,745 square feet of office space, and 11,012 square feet of retail space.

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

Table 2
Mangum Street DRI
Gross Trip Generation

Land Use	ITE Code	Daily Traffic		AM Peak Hour		PM Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2009)							
241* High-Rise Residential Condominium/ Townhouse	*232*	566	566	19	80	60	37
11,012 Square Feet Specialty Retail	*814*	255	254	82	88	21	27
25,745 Square Feet Office Building	*710*	234	235	55	8	18	90
Total		**1,055**	**1,055**	**156**	**176**	**99**	**154**

*Includes 16 Live/Work Units

3.2 Trip Distribution

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

3.3 Level of Service Standards

For the purposes of this traffic analysis, a LOS standard of D was assumed for all intersections and segments within the study network. If, however, an intersection or segment currently operates at LOS E or LOS F 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 GRTA's 7% rule. This rule recommends that all intersections and segments be analyzed which are impacted to the extent that the traffic from the proposed site is 7% or more of the service volume of the facility (at a previously established LOS standard, typically LOS D) be considered for analysis. The study area was agreed upon during methodology discussions with GRTA, ARC, GDOT, and City of Atlanta staff, and includes the following intersections:

- Mangum Street @ Mitchell Street (Unsignalized)
- Mangum Street @ Markham Street (Unsignalized)
- Mangum Street @ Chapel Street (Unsignalized)
- Centennial Olympic Park Drive @ Chapel Street (Signalized)

Each of the above listed intersections was analyzed for the Existing 2007 Conditions, the 2009 No-Build Conditions, and the 2009 Build Conditions. The 2009 No-Build Conditions represents the existing traffic volumes grown at 2% per year for two years. The 2009 Build Conditions adds the projected trips associated with the Mangum Street development to the 2009 No-Build Conditions.

The additional proposed site access points listed below were only analyzed for the 2009 Build Conditions:

- Proposed Site Driveway #1 @ Centennial Olympic Park Drive
- Proposed Site Driveway #2 @ Mangum Street

3.5 Existing Facilities

Mangum Street

- Mangum Street is a north-south oriented two-lane roadway in the vicinity of the proposed development that extends from south of Chapel to Victoria Street (to the north). Mangum Street is classified as an Urban Collector Street. There is no posted speed limit along Mangum Street in the vicinity of the proposed development; therefore, a speed limit of 35 MPH was used in the capacity analysis.

Mitchell Street

- Mitchell Street is an east-west oriented roadway which extends from Martin Luther King Boulevard to Capitol Avenue near the Connector. The facility is one-way three-lane roadway classified as an Urban Minor Arterial. There is no posted speed limit along Mitchell Street in the vicinity of the proposed development; therefore, a speed limit of 35 MPH was used in the capacity analysis.

Markham Street

- Markham Street is an east-west oriented roadway which extends from Northside Drive to Mangum Street. The facility is an undivided two-lane roadway classified as an Urban Local Street. There is no posted

speed limit along Markham Street in the vicinity of the proposed development; therefore, a speed limit of 35 MPH was used in the capacity analysis.

Chapel Street

- Chapel Street is an east-west oriented roadway which extends from Northside Drive to Forsyth Street. The facility is one-way two-lane roadway classified as an Urban Local Street. There is no posted speed limit along Markham Street in the vicinity of the proposed development; therefore, a speed limit of 35 MPH was used in the capacity analysis.

Centennial Olympic Park Drive

- Centennial Olympic Park Drive is a north-south oriented roadway that extends from West Peachtree Street to Peter Street. Centennial Olympic Park Drive is one-way four-lane roadway classified as an Urban Minor Arterial. There is no posted speed limit along Centennial Olympic Park Drive; therefore, a speed limit of 35 MPH was used in the capacity analysis. As previously noted, at the time the traffic counts were performed, the two easternmost lanes of Centennial Olympic Park Drive were closed for southbound traffic. These lanes were barricaded to allow for northbound travel for traffic exiting the fire station from Chapel Street.

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

Table 3
Mangum Street DRI
Roadway Classification

Roadway	Road Type	Number of Lanes	Posted Speed Limit (MPH)	GDOT Functional Classification
Mangum Street	Two-Way	2	Not Posted	Urban Collector Street
Mitchell Street	One-Way	3	Not Posted	Urban Minor Arterial
Markham Street	Two-Way	2	Not Posted	Urban Local Street
Chapel Street	One-Way	2	Not Posted	Urban Local Street
Centennial Olympic Park Drive	One-Way	4	Not Posted	Urban Minor Arterial

4.0 TRIP GENERATION

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

Mixed-use vehicle trip reductions were taken according to the *ITE Trip Generation Handbook, June 2004*. Total daily internal capture and vehicle trip reduction between the condominium, office, and retail land uses is expected to be 7.01%, whereas total PM peak hour internal capture is expected to be 5.53%.

Alternative transportation mode (walking, bicycle, and transit) reductions were applied at 10% for the residential and non-residential portion of the proposed development, as agreed upon during methodology discussions with GRTA, ARC, GDOT, and City of Atlanta staff.

Pass-by vehicle trip reductions were taken for the proposed retail uses at 34% daily and 34% PM peak hour rates following the internal capture and alternative mode reductions. These values are consistent with those recommended in the *ITE Trip Generation Handbook, 2004*.

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

Table 4
Mangum Street DRI
Net Trip Generation

	Daily Traffic		AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2009)						
Gross Project Trips	**1,055**	**1,055**	**156**	**176**	**99**	**154**
Mixed-Use Reduction	*-74*	*-74*	*-0*	*-0*	*-7*	*-8*
Alternative Mode Reduction	*-99*	*-98*	*-16*	*-18*	*-10*	*-15*
Pass-By Reduction	*-77*	*-78*	*-0*	*-0*	*-7*	*-7*
Net New Trips	**805**	**805**	**158**	**199**	**76**	**124**

5.0 TRIP DISTRIBUTION AND ASSIGNMENT (ONE-WAY)

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

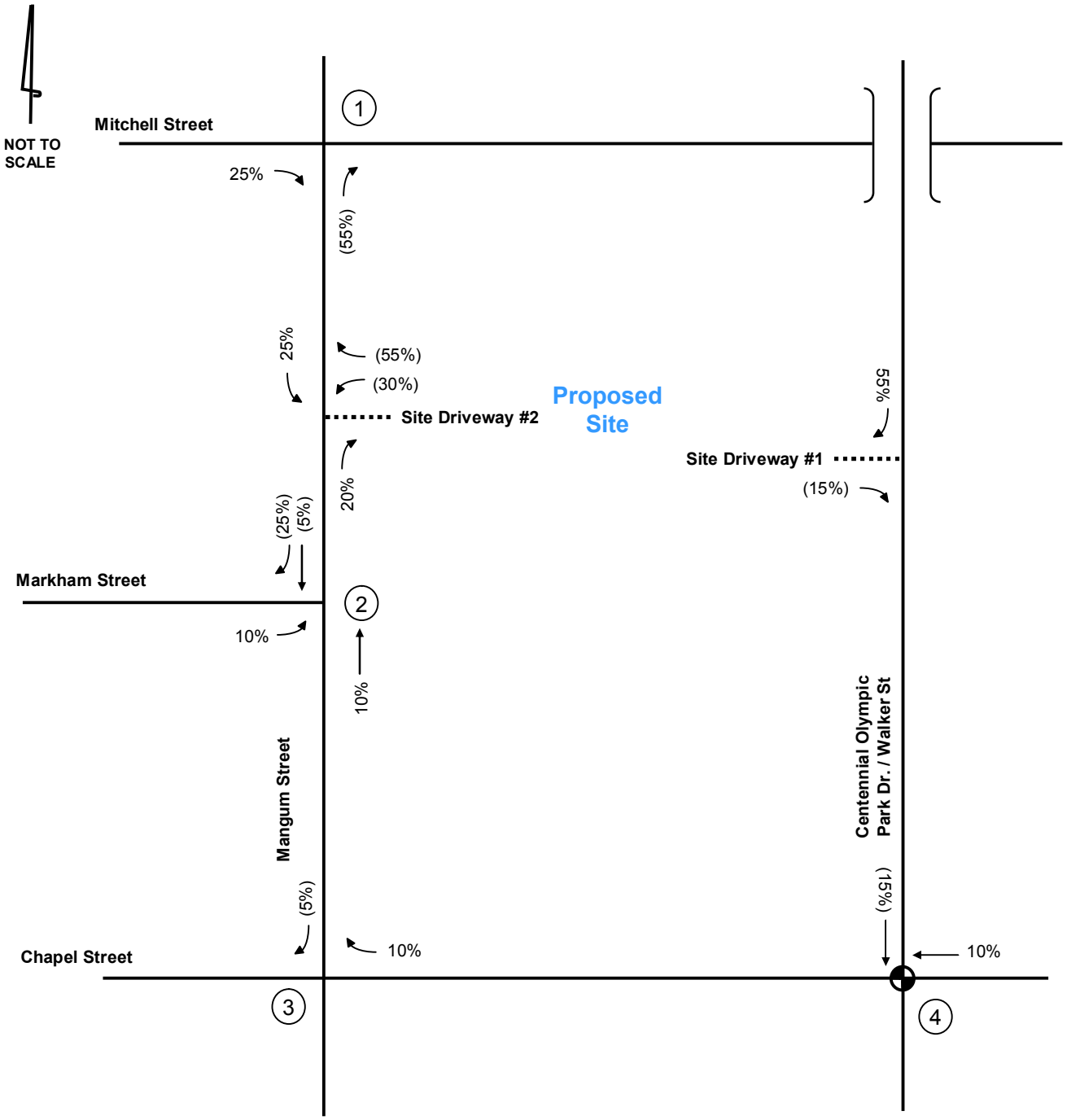
6.0 TRAFFIC ANALYSIS (ONE-WAY)

An existing conditions (One-way) analysis is included in the following section. The one way analysis maintains all one-way streets as they exist today.

6.1 Existing Traffic for One-way Analysis

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

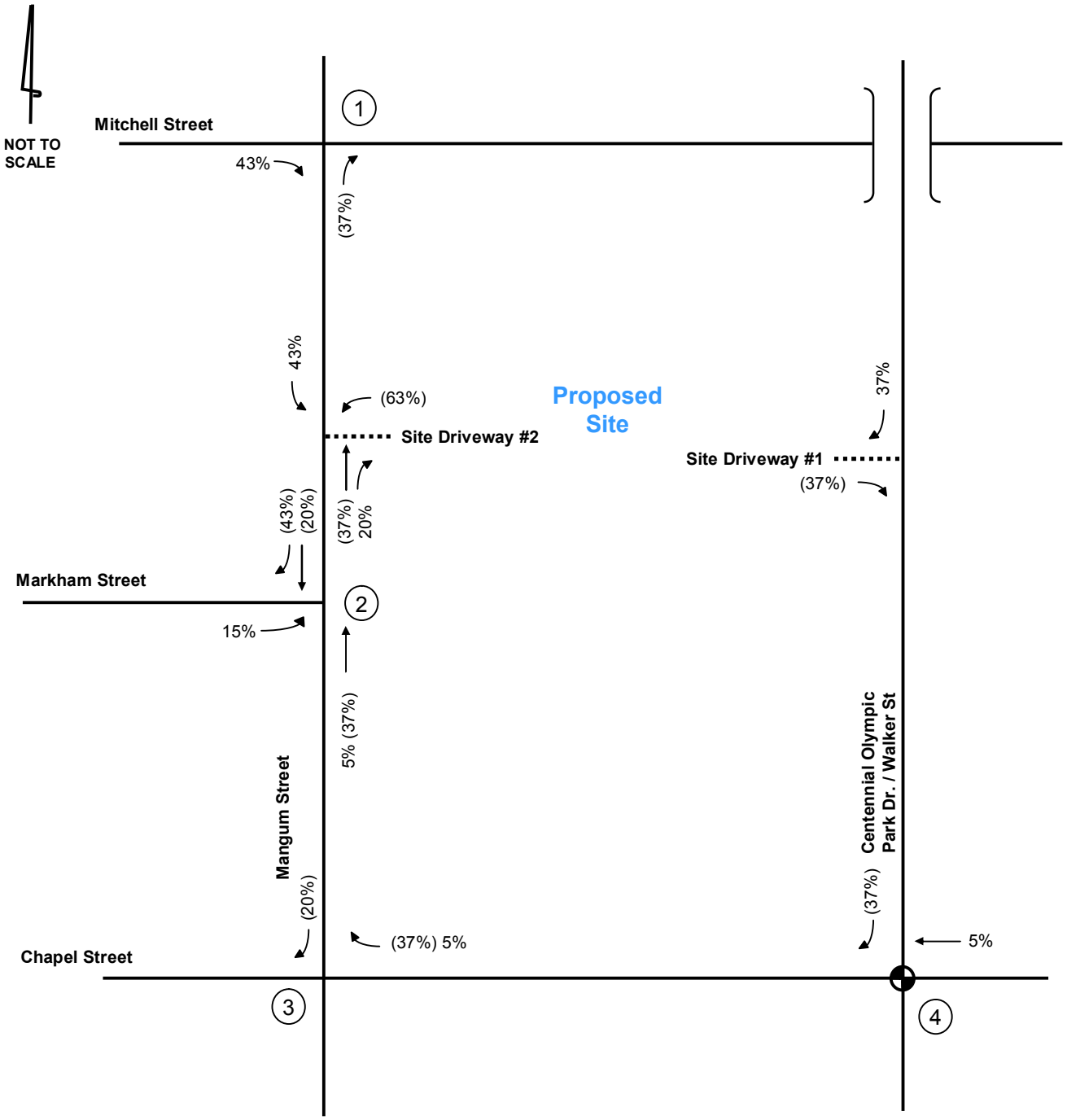
The existing peak hour traffic volumes are shown in **Figure 7**.



LEGEND

- Turning Movement
- Proposed Site Driveway
- Existing Traffic Signal
- xx% Percent Trips In
- (xx%) Percent Trips Out

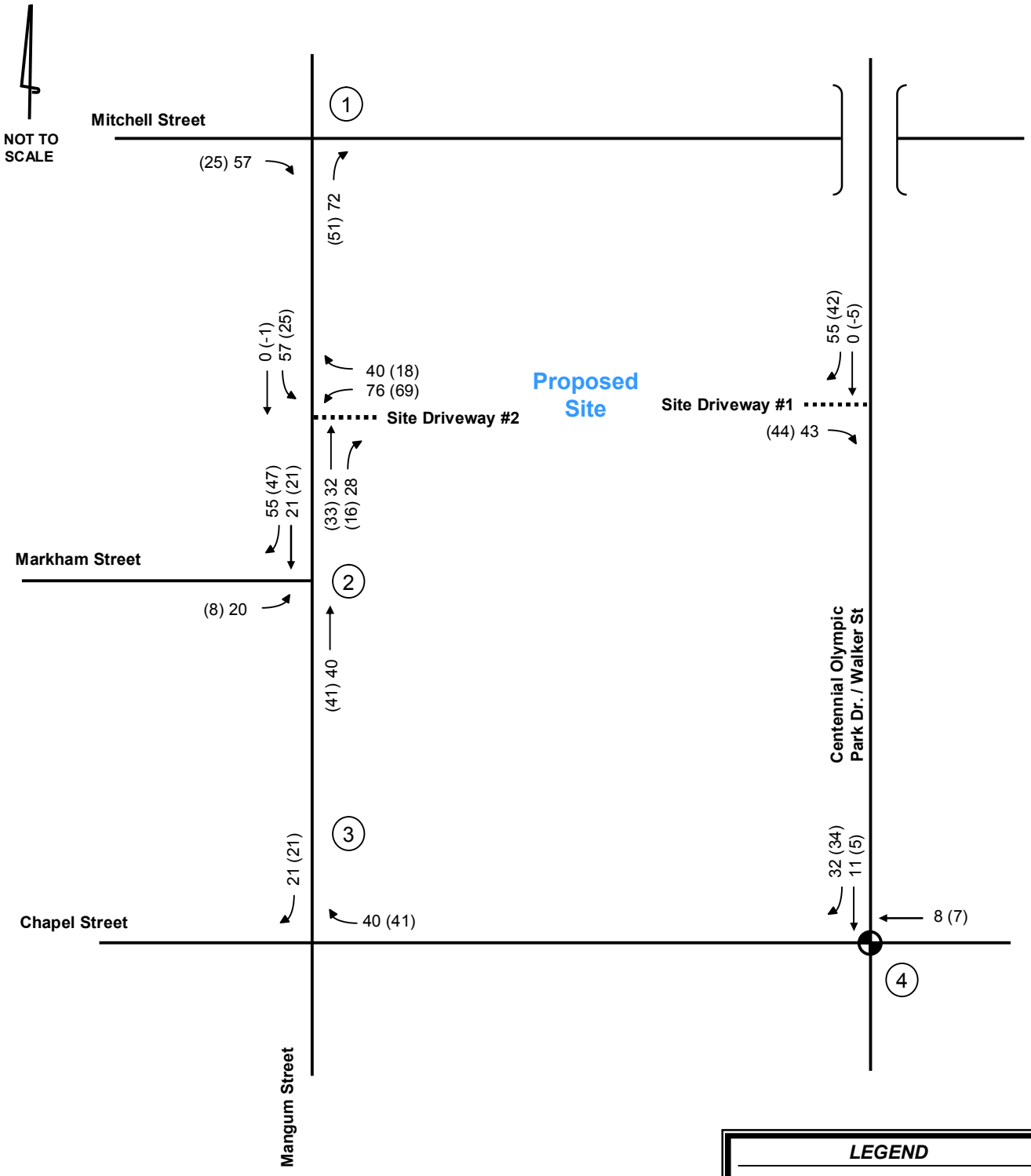
Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	One-Way Residential Trip Distribution	Figure 4



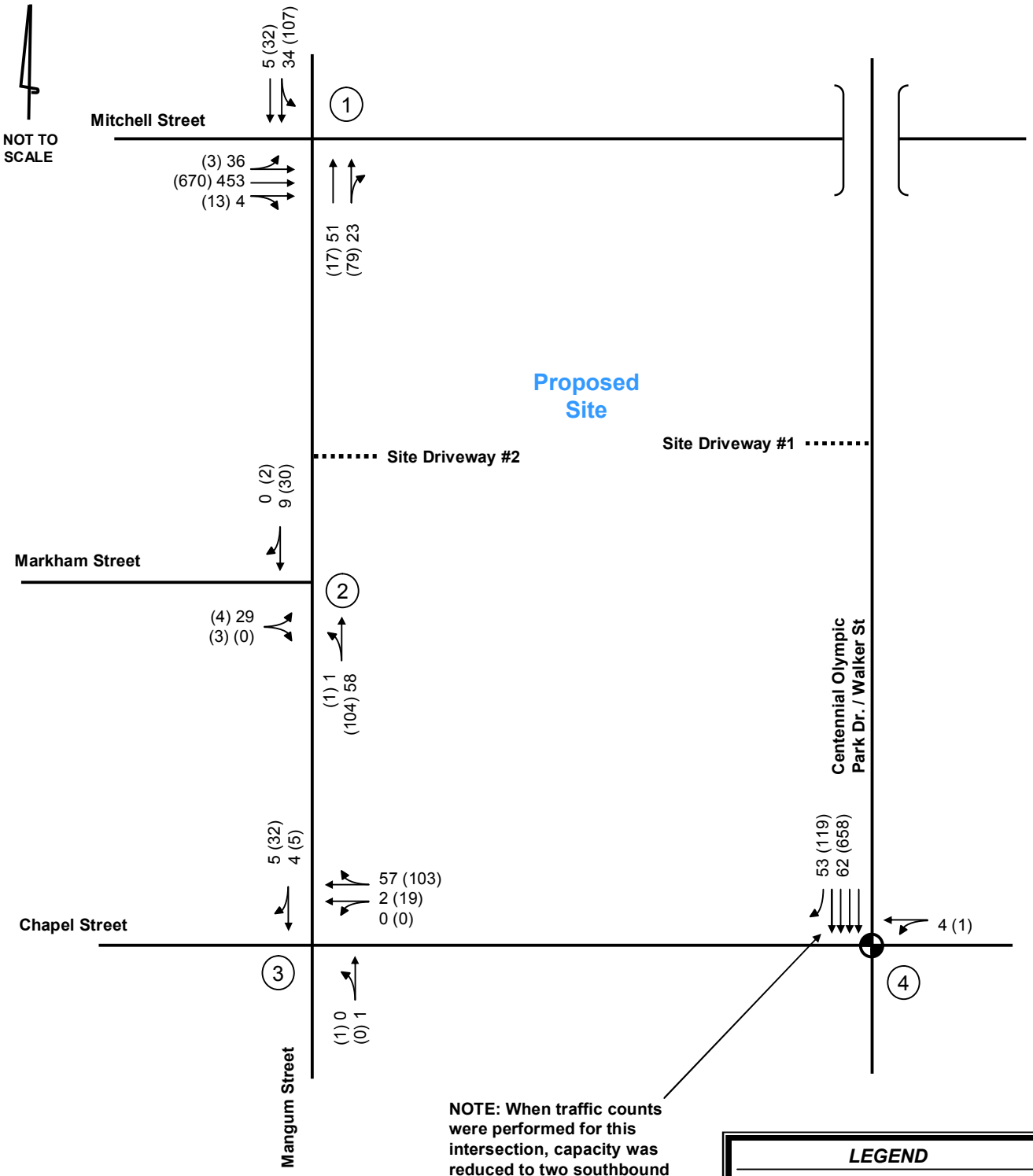
LEGEND

- Turning Movement
- Proposed Site Driveway
- Existing Traffic Signal
- xx% Percent Trips In
- (xx%) Percent Trips Out

Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	One-Way Retail Trip Distribution	Figure 5



Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	One-Way Project Trips	Figure 6



Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	One-Way Existing 2007 Conditions	Figure 7

Table 5 Mangum Street DRI Existing 2007 Intersection Levels of Service (One-Way) (delay in seconds)					
Intersection		**Control**	**LOS Standard**	**AM Peak Hour**	**PM Peak Hour**
1	Mangum Street @ Mitchell Street	Side-Street Stop Control	D	NB – B (13.4) SB – B (13.1)	NB – B (11.8) SB – C (16.4)
2	Mangum Street @ Markham Street	Side-Street Stop Control	D	EB - A (9.2)	EB – A (9.1)
3	Mangum Street @ Chapel Street	Side-Street Stop Control	D	SB – A (9.1)	SB – A (9.4)
4	Centennial Olympic Park @ Chapel Street	Signalized	D	A (4.3)*	A (0.7)*

*With only 2 southbound lanes open, corresponding AM & PM LOS is A (4.3) / A (0.8)

6.2 2009 No-Build Traffic for One-way Analysis

To account for growth in the vicinity of the proposed development, the existing traffic volumes were grown at 2.0% per year, for two years, along all roadway links within the study network.

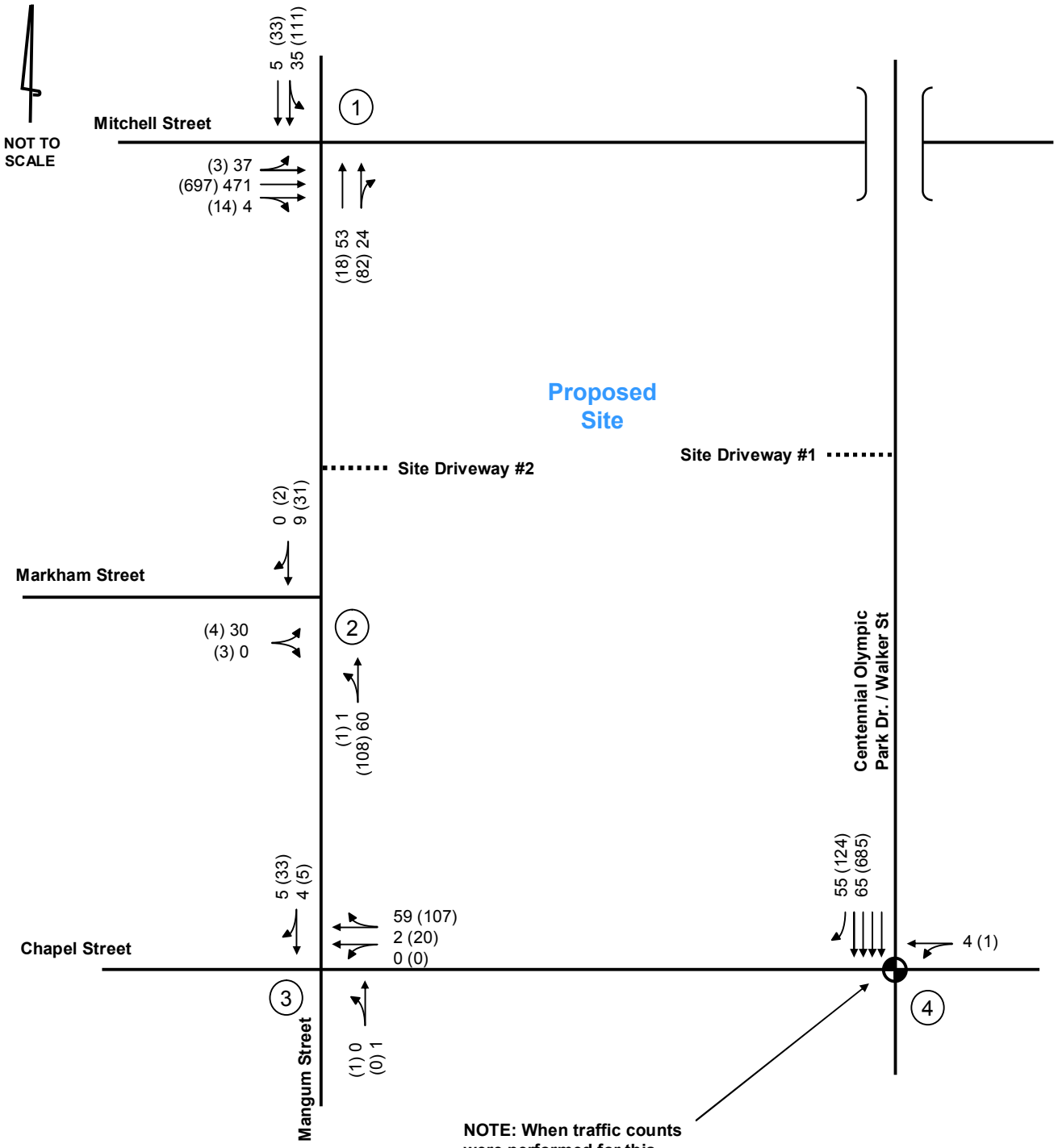
These volumes and the existing signal cycle lengths, splits, and offsets were input into *Synchro 6.0* and an analysis of the projected No-Build Conditions was performed. The results are displayed below in **Table 6**.

Table 6 Mangum Street DRI 2009 No-Build Intersection Levels of Service (One-Way) (delay in seconds)					
Intersection		**Control**	**LOS Standard**	**AM Peak Hour**	**PM Peak Hour**
1	Mangum Street @ Mitchell Street	Side-Street Stop Control	D	NB – B (13.7) SB – B (13.4)	NB – B (12.0) SB – C (17.2)
2	Mangum Street @ Markham Street	Side-Street Stop Control	D	EB - A (9.2)	EB – A (9.1)
3	Mangum Street @ Chapel Street	Side-Street Stop Control	D	SB – A (9.1)	SB – A (9.4)
4	Centennial Olympic Park @ Chapel Street	Signalized	D	A (4.3)*	A (0.7)*

*With only 2 southbound lanes open, corresponding AM & PM LOS is A (4.3) / A (0.8)

All study intersections and driveways operate at or above the acceptable Level of Service standard (LOS D) during both the AM and PM Peak Hours.

The projected intersection laneage and traffic volumes for the year 2009 No-Build Conditions are shown in **Figure 8**.



Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	One-Way Projected 2009 No-Build Conditions	Figure 8

6.3 2008 Build Traffic for One-Way Analysis

The traffic associated with the proposed development was added to the 2009 No-Build volumes. Existing signal timings and roadway geometry were maintained and these volumes were then input into *Synchro 6.0*. The results of the analysis are displayed in **Table 7**. An analysis of the proposed site driveways along Mangum Street and Centennial Olympic Park Drive was also performed and results are provided in Table 7.

Table 7
Mangum Street DRI
2009 Build Intersection Levels of Service
(One-Way) (delay in seconds)

Intersection		Control	LOS Standard	AM Peak Hour	PM Peak Hour
1	Mangum Street @ Mitchell Street	Side-Street Stop Control	D	NB – B (12.9) SB – C (16.1)	NB – B (12.3) SB – C (20.2)
2	Mangum Street @ Markham Street	Side-Street Stop Control	D	EB - B (10.2)	EB – B (10.1)
3	Mangum Street @ Chapel Street	Side-Street Stop Control	D	SB – A (9.2)	SB – B (9.7)
4	Centennial Olympic Park @ Chapel Street	Signalized	D	A (6.9)*	A (1.4)*
5	Site Driveway #1 @ Centennial Olympic Park Drive	Side-Street Stop Control	D	EB – A (8.8)**	EB – B (10.1)**
6	Site Driveway #2 @ Mangum Street	Side-Street Stop Control	D	WB – B (10.7)	WB – B (10.4)

* With only 2 southbound lanes open, corresponding AM & PM LOS is A (6.9) / A (1.7)

** With only 2 southbound lanes open, corresponding AM & PM LOS is A (9.0) / A (12.2)

All study intersections and driveways operate at or above the acceptable Level of Service standard (LOS D) during both the AM and PM Peak Hours.

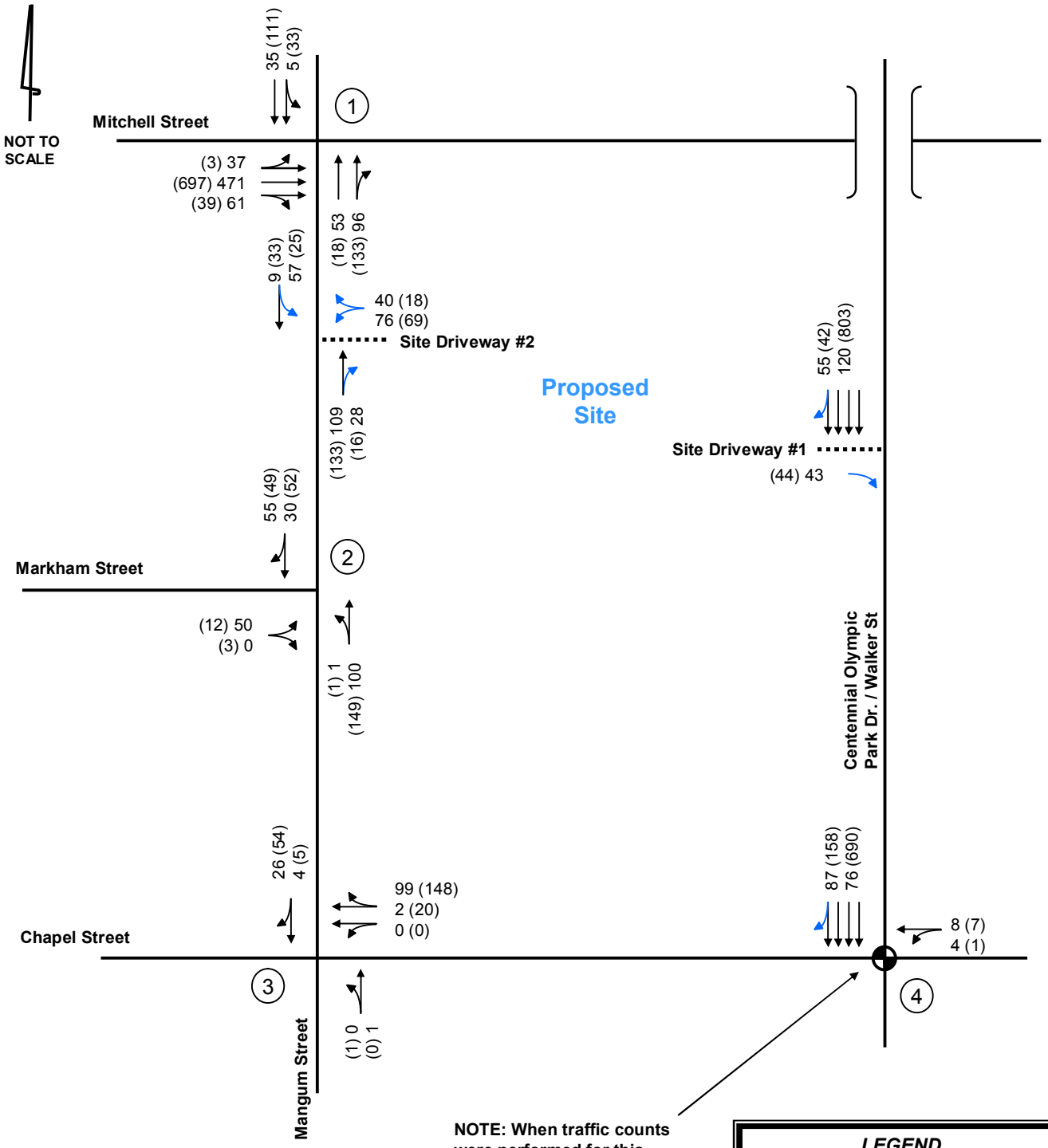
The projected 2009 Build traffic volumes and recommended driveway configurations are shown in **Figure 9**, and are listed below.

Site Driveway #1 @ Centennial Olympic Park Drive (Right-in/Right-out)

- Provide one westbound ingress lane and one eastbound egress lane onto Centennial Olympic Park Drive, side-street stop-controlled.

Site Driveway #2 @ Mangum Street

- Provide one eastbound ingress lane and one westbound egress lane onto Mangum Street, side-street stop-controlled.



Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	One-Way Projected 2009 Build Conditions	Figure 9

7.0 TRIP DISTRIBUTION AND ASSIGNMENT (TWO-WAY)

As part of the build-out of the development, Chapel Street is proposed to be converted from one-way, westbound travel to two-way travel – with the exception of the section between Centennial Olympic Park Drive and Elliot Street. Currently, many vehicles (2 AM peak hour and 21 PM peak hour) make an illegal southbound left-turn from Mangum Street onto Chapel Street into on-coming traffic. Conversations with area neighborhood representatives and the City of Atlanta indicate support the conversion from one-way to two-way travel.

New trips were distributed onto the roadway network using the percentages agreed to during methodology discussions with GRTA, ARC, GDOT, and City of Atlanta staff. **Figure 10** and **Figure 11** display the expected residential and non-residential trip percentages for the development throughout the roadway network for the two-way conversion analysis. 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 **Figure 12** for the two-way analysis.

8.0 TRAFFIC ANALYSIS (TWO-WAY)

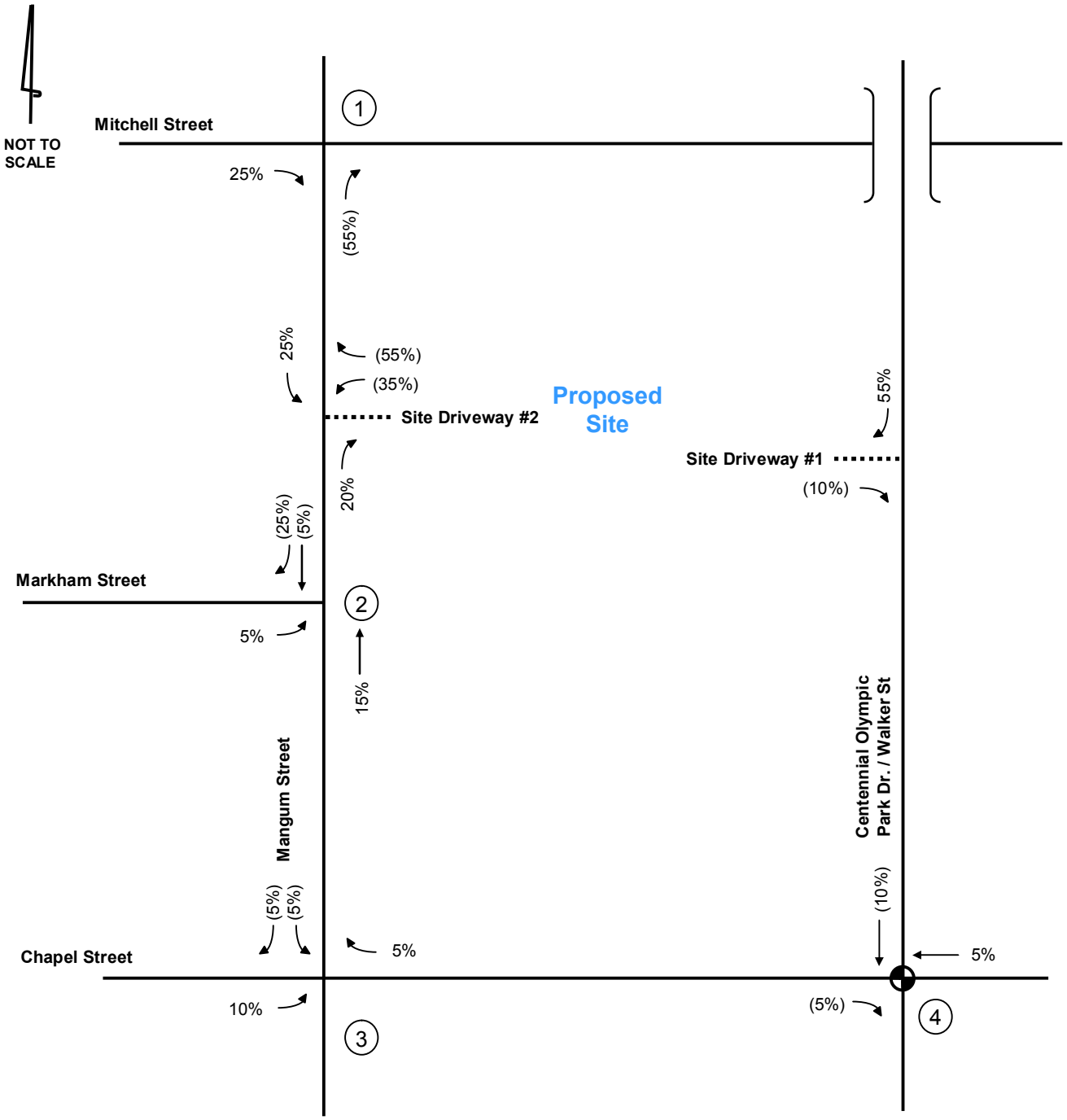
The two-way analysis includes the conversion of Chapel Street to two-way with the exception of the block between Centennial Olympic Park Drive and Elliot Street/Nelson Street which will remain one-way westbound.

8.1 2009 Build Traffic for Two-Way Analysis

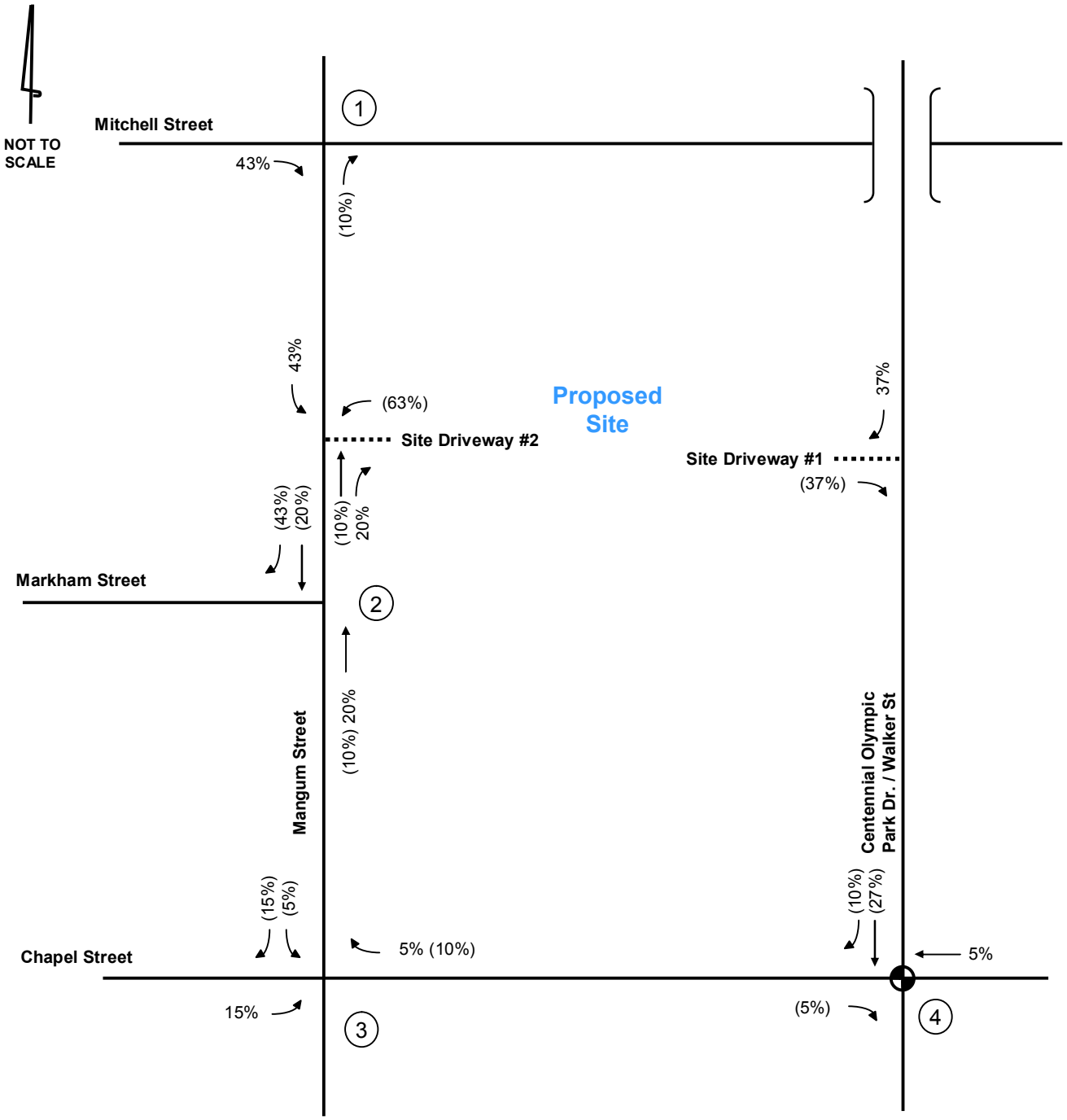
The traffic associated with the proposed development was added to the 2009 No-Build volumes. Existing signal timings and roadway geometry were maintained and these volumes were then input into *Synchro 6.0*. The results of the analysis are displayed in **Table 8**. An analysis of the proposed site driveways along Mangum Street and Centennial Olympic Park Drive was also performed and results are provided in Table 10.

Table 8
Mangum Street DRI
2009 Build Intersection Levels of Service
(Two-Way) (delay in seconds)

Intersection		Control	LOS Standard	AM Peak Hour	PM Peak Hour
1	Mangum Street @ Mitchell Street	Side-Street Stop Control	D	NB – B (12.9) SB – C (15.0)	NB – B (12.2) SB – C (18.6)
2	Mangum Street @ Markham Street	Side-Street Stop Control	D	EB - A (10.0)	EB – A (9.7)
3	Mangum Street @ Chapel Street	Side-Street Stop Control	D	SB – A (9.6)	SB – B (10.1)
4	Centennial Olympic Park @ Chapel Street	Signalized	D	A (8.9)	A (3.4)
5	Site Driveway #1 @ Centennial Olympic Park Drive	Side-Street Stop Control	D	EB – A (8.8)	EB – B (10.0)
6	Site Driveway #2 @ Mangum Street	Side-Street Stop Control	D	WB – B (10.5)	WB – B (10.2)



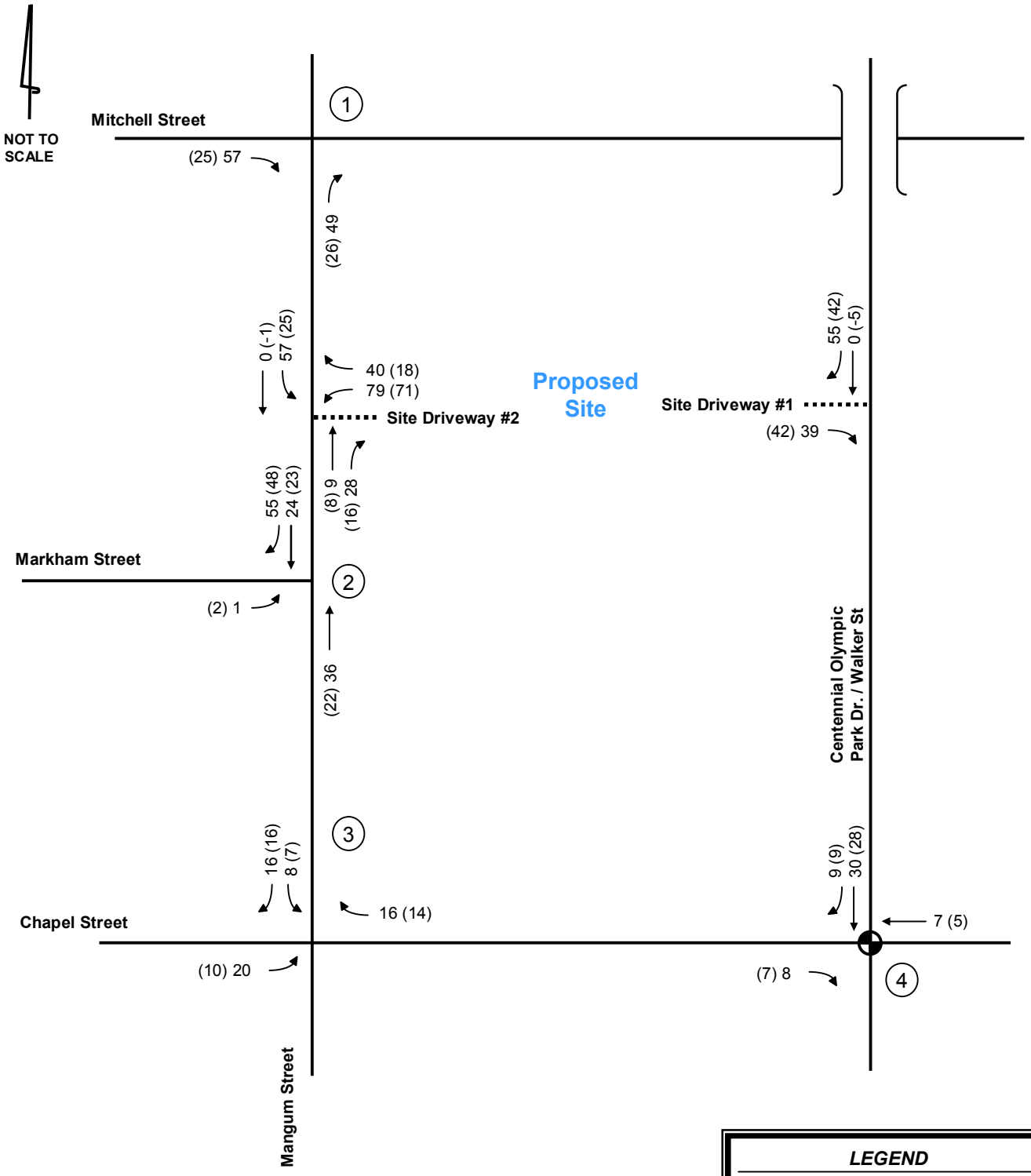
Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	Two-Way Residential Trip Distribution	Figure 10



LEGEND

- Turning Movement
- Proposed Site Driveway
- Existing Traffic Signal
- xx% Percent Trips In
- (xx%) Percent Trips Out

Kimley-Horn and Associates, Inc.	**Mangum Street DRI Transportation Analysis**	**Two-Way Retail Trip Distribution**	**Figure 11**



LEGEND

- Turning Movement
- Proposed Site Driveway
- Existing Traffic Signal
- xx AM Peak Hour Trips
- (xx) PM Peak Hour Trips

Kimley-Horn and Associates, Inc.	**Mangum Street DRI Transportation Analysis**	**Two-Way Project Trips**	**Figure 12**

All study intersections and driveways operate at or above the acceptable Level of Service standard (LOS D) during both the AM and PM Peak Hours.

The projected 2009 Build traffic volumes and recommended driveway configurations are shown in **Figure 13**, and are listed below.

Site Driveway #1 @ Centennial Olympic Park Drive (Right-in/Right-out)

- Provide one westbound ingress lane and one eastbound egress lane onto Centennial Olympic Park Drive, side-street stop-controlled.

Site Driveway #2 @ Mangum Street

- Provide one eastbound ingress lane and one westbound egress lane onto Mangum Street, side-street stop-controlled.

9.0 IDENTIFICATION OF PROGRAMMED PROJECTS

The *TIP, STIP, RTP, and GDOT's Construction Work Program* were searched for currently programmed transportation projects within the vicinity of the proposed development. Research concluded that there are currently four programmed projects located in the immediate vicinity of the proposed development. The Project Fact Sheets are included in the Appendix. **Figure 14** shows the locations of the programmed transportation projects.

2008:	AT-206	Downtown Atlanta pedestrian corridor improvements on Auburn Avenue, Luckie Street, Marietta Street, Jackson Street, Peachtree Street, Piedmont Avenue, and Baker Street
2010:	AT-097	Mitchell Street over Norfolk Southern Rail Line from Elliot Street to Spring Street
2013:	AT-086A	Spring Street over CSX rail line and MARTA west line from Alabama Street to Marietta Street
	AT-086B	Spring Street over southern rail line and MARTA west line from Alabama Street to Marietta Street

10.0 INGRESS/EGRESS ANALYSIS

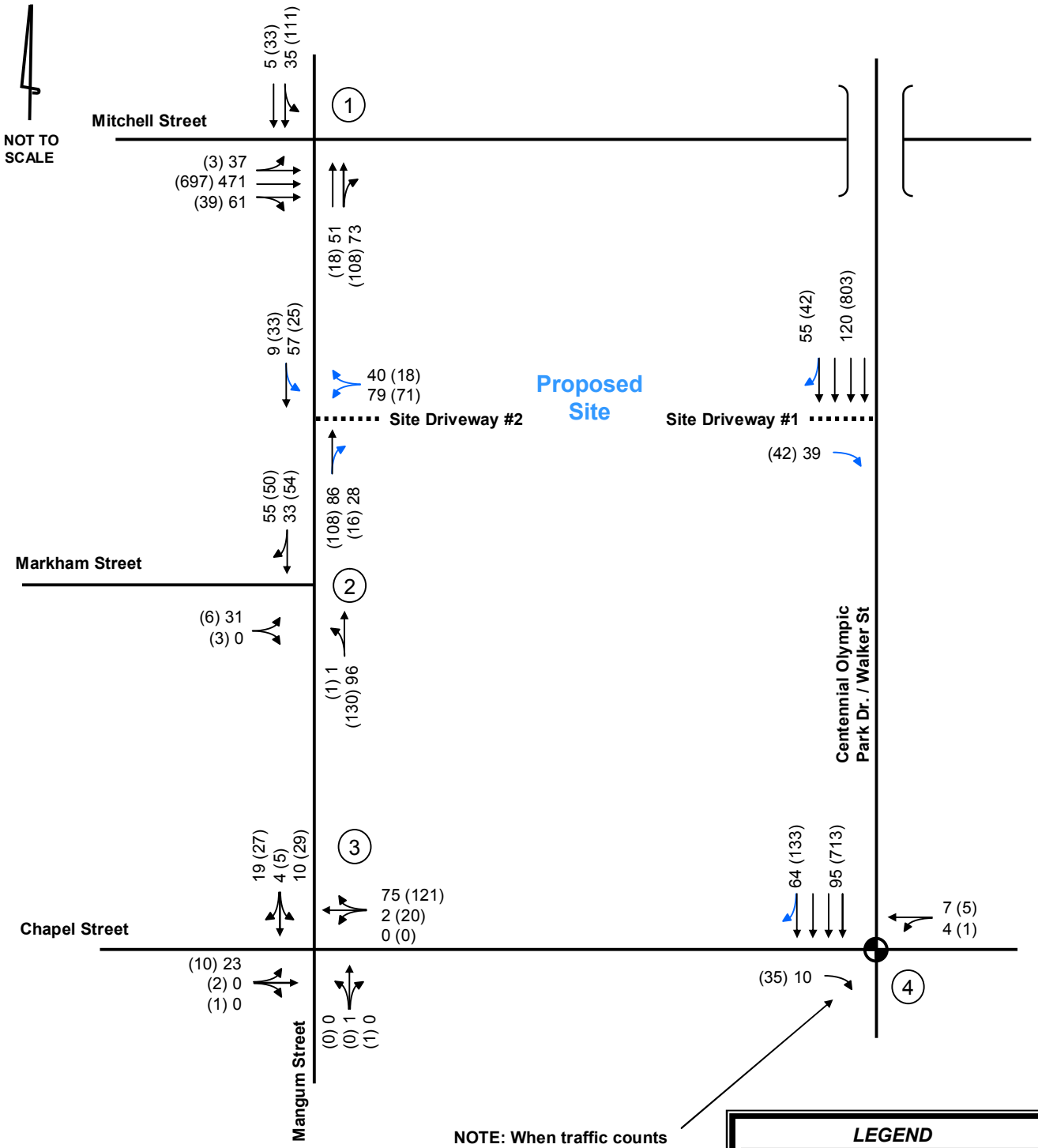
Access is proposed at two driveways; one full-movement driveway along Mangum Street (Site Driveway # 2) and one right-in/right-out driveway along Centennial Olympic Park Drive (Site Driveway #1). It is proposed that residents will have access to both driveways to enter and exit. Retail patrons will be able to enter either driveway but must exit the same driveway in which they entered. Below is a description of recommended driveway geometries.

Site Driveway # 1 – Centennial Olympic Park Drive

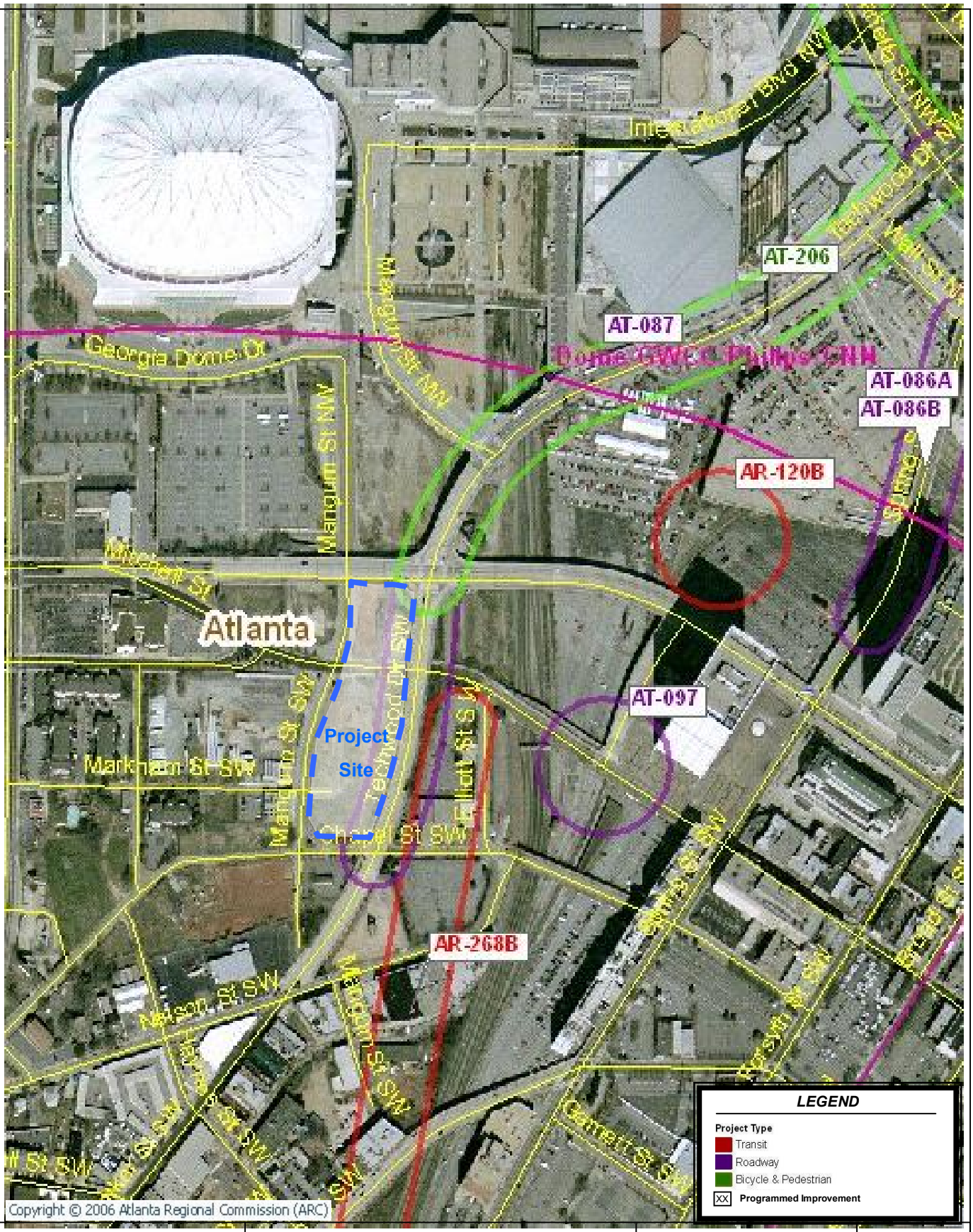
- The proposed right-in/right-out driveway should consist of one westbound ingress lane and one eastbound exclusive right-turn egress lane. The driveway should consist of a striped island and operate under side-street stop-control conditions.

Site Driveway # 2 – Mangum Street

- The proposed full-movement driveway should consist of one eastbound ingress lane and one westbound egress lane; a combined left-turn/right-turn lane. The driveway should operate under side-street stop-control conditions, with Mangum Street maintaining free-flow operation.



Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	Two-Way Projected 2009 Build Conditions	Figure 13



Kimley-Horn and Associates, Inc.	**Mangum Street DRI Transportation Analysis**	**Programmed Improvements**	**Figure 14**

11.0 INTERNAL CIRCULATION ANALYSIS

The proposed site plan consists of two vehicular driveways and one service driveway. Consistent with previous approved DRIs in the area, activities associated with the service driveway was not included in the traffic analysis. Site Driveway #1 is located along Centennial Olympic Park Drive and will be a right-in/right-out driveway. Driveway #1 is anticipated to provide residential and retail access to the development. This driveway will access 38 retail parking spaces. Site Driveway #2 is located along Mangum Street and is anticipated to serve as access for both residential and retail patrons of the development. This driveway will access 64 retail spaces. In order to provide secured access for the residential portion of the development, it is anticipated that the middle of the parking structure will be gated. This will allow retail patrons to enter and exit either Driveway #1 or enter and exit Driveway #2, but not to enter one driveway and exit the other. Residential traffic will be allowed to enter and exit either driveway.

12.0 COMPLIANCE WITH COMPREHENSIVE PLAN ANALYSIS

The City of Atlanta NPU-M 2004-2019 Future Land Use Plan identifies the project site as High Density Commercial.

13.0 NON-EXPEDITED CRITERIA

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

The proposed development is located approximately 1/3 mile southwest of the Dome/GWCC/Philips Arena/CNN Center MARTA station at Centennial Olympic Park Drive. This station lies on the East-West MARTA rail line (10 – 15 minute headways) which intersects the North-South rail line (to the south) at the Five Points station. Two MARTA bus routes operate from this station including the following: Route 3 – Auburn Ave. M.L. King Jr. Drive (20-35 minute headways) and Route 13 – Fair Street (20-30 minute headways). In addition, MARTA route 100, the Downtown Loop, runs in proximity to the site.

In addition to the MARTA bus lines, there are a few GRTA Xpress bus routes that operate close to the site. The closest stop is between Forsyth Street and Broad Street along Martin Luther King Junior Drive.

Route	Name	Headways
400	Cumming / North Springs	*varies*
420	West Conyers to Downtown	15-30 minutes
430	McDonough to Downtown and Midtown	15-30 minutes
440	Tara Boulevard to Atlanta	*varies*
450	Newnan Crossing to Downtown	30 minutes headways
460	Douglasville to Atlanta	*varies*
470	Hiram/Powder Springs to Downtown	30 minutes headways

Pedestrian facilities are currently in place along all adjacent roadways. The proximity to surrounding residential developments, a MARTA rail station, MARTA bus routes, and distance to downtown Atlanta will make alternative modes a viable option for residents, workers, and other patrons of the new development. Based on the options listed above, a 10% alternative mode reduction was agreed to by GRTA during the methodology meeting.

13.2 Vehicle Miles Traveled

The following table displays the reduction in traffic generation due to alternative mode reductions.

	Build-out Total
Daily Gross Trip Generation:	2,110
(-)Mixed-use reductions (internal capture)	-148
(-)Alternative modes	-198
(-)Pass-by trips	-154
Net Trips:	1,610

13.3 Relationship Between Location of Proposed DRI and Regional Mobility

The proposed development is located along the west side of Downtown Atlanta. Patrons and residents of the development have access to MARTA rail station and are provided with an existing pedestrian network. The site is located along Centennial Olympic Park Drive, which provides convenient access to many of Atlanta's major arterials and highways in a mater of a few minutes. Many of the residents of this development will likely work in town, so vehicular commuting trips have the potential to be short.

13.4 Relationship Between Proposed DRI and Existing or Planned Transit Facilities

The proposed development is within walking distance to the Dome/GWCC/Philips Arena/CNN Center MARTA station at Centennial Olympic Park Drive. There are no additional planned transit facilities in the area at this time.

13.5 Transportation Management Area Designation

The proposed development is located within the Downtown Transportation Management Association jurisdiction. MTS is an affiliate of the Atlanta Downtown Improvement District (ADID) and focuses on providing employers with ideas and solutions to ease congestion, reduce pollution and improve the commute experience.

13.6 Offsite Trip Reduction and Trip Reduction Techniques

Mixed-use and pass-by trip reductions were taken according to the *ITE Trip Generation Handbook, 2003*. Approximately 7.01% of the gross daily trips will be internal and approximately 5.53% of the gross PM peak hour trips will be internal. A 10% alternative mode reduction (those using transportation modes such as walking, bicycling, transit, etc.) was taken for all uses. Additionally, for the projected new daily and PM peak hour trips, a 34% daily and PM peak pass-by reduction was used for the proposed retail portion of the development.

13.7 Balance of Land Uses – Jobs/Housing Balance

Please refer to the Area of Influence Analysis, located in *Section 14.0* of this report.

13.8 Relationship Between Proposed DRI and Existing Development and Infrastructure

The development is located in an area where the existing infrastructure is adequate to serve the needs of the development upon build-out (2009).

14.0 AREA OF INFLUENCE

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

14.1 Criteria

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

This section is included to satisfy the following GRTA Non-expedited review criteria:

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

14.2 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 (Magnum Street at Markham Street). 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 DeKalb Counties) can be seen in **Figure 15**. Information obtained from the census tracts can be seen in **Table 9**.

Table 9
Census Tract Information

Total Households	132,704
Population in Households	305,586
Average household size	2.30
Total Workers	141,570
Workers per Household	1.07
Owner Occupied	41.48%
Rental Occupied	58.52%

As can be seen from the table above, the total population within the Area of Influence is 305,586, residing within 132,704 households (an average of 2.30 people per household). The AOI area totals 53,217 acres.

Using the above calculated average of 2.30 persons per household, it can be anticipated that the proposed DRI will house approximately 554 people (241 proposed dwelling units multiplied by 2.30). Based on information obtained from the Census Tracts, it is estimated that approximately 257 of these expected 554 residents would be workers. The remainder of this section will demonstrate the availability of jobs for these expected workers within the development at or above the necessary income level to afford housing within the DRI.

Kimley-Horn and Associates, Inc.	Mangum Street DRI Transportation Analysis	Area of Influence	Figure 15

The Atlanta Journal-Constitution website was researched to find current listings of houses for sale in the vicinity of the proposed development (30313 Zip Code). At the time of this report, about 55 homes were listed for sale in the area, ranging in price from $159,900 to $899,900.

14.3 Development Housing Analysis

The development plan provides for houses for sale in four price ranges within the proposed development. **Table 10**, below, displays the number of units for sale, the average sale price for those units, and the number of workers expected to reside in the homes.

Table 10
Estimated Workers per Household

Tier	Description	Number of Units	Average Price	Number of Workers
1	One-Bedroom Condominium	64	$202,650	68
2	Two-Bedroom Condominium	123	$292,800	132
3	Three-Bedroom Condominium	3	$414,650	3
4	Live/Work Unit	16	$209,500	17

In order to determine the number of jobs available within the AOI that would provide adequate income, information about the types of jobs within the AOI and the average salaries for these positions was collected first. Information about the types of jobs available within the AOI was obtained from Claritas, a data solutions company. A map with the boundary of the AOI was sent to Claritas, and a report containing the types of employment opportunities and number of each type of job was compiled. The Claritas report is included in the Appendix of this report. Next, the Georgia Department of Labor website was researched to obtain average salary information for the positions available within the AOI. Average salary information for jobs in Fulton and DeKalb counties was matched to the jobs existing within the AOI. This information (also available in the Appendix), along with the information provided by Claritas, is included in the **Table 11**, on the following page.

Table 11
AOI Jobs and Average Salaries

Industry / Business Type	# Businesses	# Employees	Average Salary
Retail Trade	3,661	43,270	$28,493
Building Materials and Garden Supply	119	3,163	-
General Merchandise Stores	68	1,079	-
Food Stores	357	4,673	-
Auto Dealers and Gas Stations	244	1,592	-
Apparel and Accessory Stores	382	1,969	-
Home Furniture, Furnishings, and Equipment	400	3,116	-
Eating and Drinking Places	1,167	19,901	-
Miscellaneous Retail Stores	924	7,777	-
Finance	1,677	20,406	$60,808
Banks, Savings and Lending Institutions	362	6,568	-
Securities and Commodity Brokers	143	2,522	-
Insurance Carriers and Agencies	170	2,259	-
Real Estate Trusts, Holdings, and Other Investments	1,001	9,057	-
Services	8,838	140,632	-
Hotels and Other Lodging	92	7,544	$18,624
Personal Services	1,707	7,854	-
Business Services	2,406	35,031	$71,382
Motion Picture and Amusement	451	6,907	$44,603
Health Services	1,019	28,461	$44,151
Legal Services	1,107	11,997	$71,382
Education Services	310	22,114	$37,775
Social Services	510	7,827	$44,151
Miscellaneous, Membership Organizations and Nonclassified	1,233	12,897	-
Agriculture	253	1,894	$2,441
Mining	8	72	$9,259
Construction	1037	9,124	$48,883
Manufacturing	722	20,999	$58,568
Transportation, Communication/Public Utilities	620	26,952	$91,523
Wholesale Trade	798	17,606	$63,133
Public Administration	1,125	59,029	$44,723
Total	18,739	339,984	-

14.4 Affordable Housing Analysis

Various mortgage calculators are available online to aid in determining affordable housing based on given incomes and income ranges. These calculators were used to determine the minimum income necessary to afford housing within the proposed Magnum Street development. It was assumed that no more than one third of an individual's income would be used for mortgage costs (principal + interest), that a 6.13% interest rate on a 30-year conventional loan could be obtained, and that a 10% down payment would be made. The income required to purchase a home at the approximate price range was calculated and is displayed in **Table 12**. Because there is an average of 1.07 workers expected per household, the required income was divided by 1.07 to determine the average salary each worker within the development would be expected to earn in order to provide their "fair share" of the housing costs. This methodology assumes an equal burden on all workers within the development, and is considered to be a conservative approach since it eliminates the lower paying positions within the AOI from consideration in the analysis. Table 14 also displays the number of workers expected in each price range, as well as the number of jobs available at the necessary average income level to afford housing within that price range. As can be seen in the table, there are more than enough positions available within the AOI for expected workers within the proposed development to find employment at the required income level for the four levels of pricing within the development, thus satisfying the GRTA requirement of 25%.

Table 12
Expected Workers

	Average Sale Price	Necessary Income per Expected Worker	Expected Worker per Price Range	Jobs at or above Necessary Income
1	$202,650	$37,300	68	266,453
2	$292,800	$53,900	132	132,991
3	$414,650	$76,331	3	26,952
4	$209,500	$38,566	17	244,339
Percent of expected workers likely to find necessary employment within the AOI				**100%**

15.0 ARC'S AIR QUALITY BENCHMARK

The proposed development is expected to consist of approximately 225 High-Rise Residential Condos, 16 live/work units, 25,745 square feet of office space, and 11,012 square feet of retail space on approximate 2.35-acres. Because residential is the dominant use and there are greater than 15 dwelling units (condominiums/live/work units) per acre (102 dwelling units/acre), the development meets the ARC criteria for a 6% reduction.

The proposed development is located approximately 1/3 mile southwest of the Dome/GWCC/Philips Arena/CNN Center MARTA station at Centennial Olympic Park Drive. This station lies on the East-West MARTA rail line (10-15 minute headways) which intersects the North-South rail line (to the south) at the Five Points Station. Two MARTA bus route operate from this station including the following: Route 3 – Auburn Ave./M. L. King Jr. Drive (20-35 minute headways) and Route 13 – Fair Street (20-30 minute headways). In addition, MARTA route 100, the Downtown Loop, runs in proximity to the site. The proposed development's proximity to transit (within 1/2 mile of a rail station) allows for a 5% reduction.

The proposed development is located within the Downtown Transportation Management Association jurisdiction. The Central Atlanta Progress/Atlanta Downtown Improvement District TMA focuses on promoting a balanced

transportation system to improve mobility and is charged with changing commuter habits and providing transportation options that are convenient, safe and cost-effective. This allows for a 3% reduction.

Additionally, the proposed development will connect with the existing sidewalks. Pedestrians will also be able to access other uses within the proposed development. This pedestrian network meets the ARC criteria for a 5% reduction.

The proposed development meets the ARC criteria for a total 19% VMT reduction. These reductions are displayed below in **Table 13**.

Table 13
ARC VMT Reductions

Mixed-Use Projects where Residential is the dominant use	
Greater than 15 dwelling units/acre	-6%
Project is located within 1/2 mile of a MARTA Station	-5%
Located within a Transportation Management Association	-3%
Bike/Ped network that meets density 'target' and connects to adjacent uses	-5%
Total Reductions	**19%**